

# Model for “URu2Si2”

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## General Condition

- Basis type: jml
- SAMB selection:
  - Type: [Q, G]
  - Rank: [0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11]
  - Irrep.: [ $A_{1g}$ ,  $A_{2g}$ ,  $B_{1g}$ ,  $B_{2g}$ ,  $E_g$ ,  $A_{1u}$ ,  $A_{2u}$ ,  $B_{1u}$ ,  $B_{2u}$ ,  $E_u$ ]
  - Spin (s): [0, 1]
- Max. neighbor: 10
- Search cell range: (-2, 3), (-2, 3), (-2, 3)
- Toroidal priority: false

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## Group and Unit Cell

- Group: SG No. 139  $D_{4h}^{17}$   $I4/mmm$  [ tetragonal ]
- Associated point group: PG No. 139  $D_{4h}$   $4/mmm$  [ tetragonal ]
- Unit cell:
  - $a = 4.12600$ ,  $b = 4.12600$ ,  $c = 9.58000$ ,  $\alpha = 90.0$ ,  $\beta = 90.0$ ,  $\gamma = 90.0$
- Lattice vectors (conventional cell):
  - $\mathbf{a}_1 = [4.12600, 0.00000, 0.00000]$
  - $\mathbf{a}_2 = [0.00000, 4.12600, 0.00000]$
  - $\mathbf{a}_3 = [0.00000, 0.00000, 9.58000]$
- Plus sets:
  - $+ [0, 0, 0]$ ,  $+ [\frac{1}{2}, \frac{1}{2}, \frac{1}{2}]$

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## Symmetry Operation

Table 1: Symmetry operation

#	SO	#	SO	#	SO	#	SO	#	SO
1	$\{1 0\}$	2	$\{2_{001} 0\}$	3	$\{4_{001}^+ 0\}$	4	$\{4_{001}^- 0\}$	5	$\{2_{010} 0\}$
6	$\{2_{100} 0\}$	7	$\{2_{110} 0\}$	8	$\{2_{1-10} 0\}$	9	$\{-1 0\}$	10	$\{m_{001} 0\}$
11	$\{-4_{001}^+ 0\}$	12	$\{-4_{001}^- 0\}$	13	$\{m_{010} 0\}$	14	$\{m_{100} 0\}$	15	$\{m_{110} 0\}$
16	$\{m_{1-10} 0\}$								

## Harmonics

Table 2: Harmonics

#	symbol	irrep.	rank	X	multiplicity	component	symmetry
1	$\mathbb{Q}_0(A_{1g})$	$A_{1g}$	0	$Q, T$	-	-	1
2	$\mathbb{Q}_2(A_{1g})$	$A_{1g}$	2	$Q, T$	-	-	$-\frac{x^2}{2} - \frac{y^2}{2} + z^2$
3	$\mathbb{Q}_4(A_{1g}, 1)$	$A_{1g}$	4	$Q, T$	1	-	$\frac{\sqrt{21}(x^4 - 3x^2y^2 - 3x^2z^2 + y^4 - 3y^2z^2 + z^4)}{6}$
4	$\mathbb{Q}_4(A_{1g}, 2)$	$A_{1g}$	4	$Q, T$	2	-	$-\frac{\sqrt{15}(x^4 - 12x^2y^2 + 6x^2z^2 + y^4 + 6y^2z^2 - 2z^4)}{12}$
5	$\mathbb{G}_5(A_{1g})$	$A_{1g}$	5	$G, M$	-	-	$\frac{3\sqrt{35}xyz(x-y)(x+y)}{2}$
6	$\mathbb{Q}_6(A_{1g}, 1)$	$A_{1g}$	6	$Q, T$	1	-	$\frac{\sqrt{2}(2x^6 - 15x^4y^2 - 15x^4z^2 - 15x^2y^4 + 180x^2y^2z^2 - 15x^2z^4 + 2y^6 - 15y^4z^2 - 15y^2z^4 + 2z^6)}{8}$
7	$\mathbb{Q}_6(A_{1g}, 2)$	$A_{1g}$	6	$Q, T$	2	-	$-\frac{\sqrt{14}(x^6 - 15x^4z^2 + 15x^2z^4 + y^6 - 15y^4z^2 + 15y^2z^4 - 2z^6)}{8}$
8	$\mathbb{G}_7(A_{1g})$	$A_{1g}$	7	$G, M$	-	-	$-\frac{\sqrt{231}xyz(x-y)(x+y)(3x^2 + 3y^2 - 10z^2)}{4}$

*continued ...*

Table 2

#	symbol	irrep.	rank	X	multiplicity	component	symmetry
9	$\mathbb{G}_0(A_{1u})$	$A_{1u}$	0	$G, M$	-	-	1
10	$\mathbb{G}_2(A_{1u})$	$A_{1u}$	2	$G, M$	-	-	$-\frac{x^2}{2} - \frac{y^2}{2} + z^2$
11	$\mathbb{G}_4(A_{1u}, 1)$	$A_{1u}$	4	$G, M$	1	-	$\frac{\sqrt{21}(x^4 - 3x^2y^2 - 3x^2z^2 + y^4 - 3y^2z^2 + z^4)}{6}$
12	$\mathbb{G}_4(A_{1u}, 2)$	$A_{1u}$	4	$G, M$	2	-	$-\frac{\sqrt{15}(x^4 - 12x^2y^2 + 6x^2z^2 + y^4 + 6y^2z^2 - 2z^4)}{12}$
13	$\mathbb{Q}_5(A_{1u})$	$A_{1u}$	5	$Q, T$	-	-	$\frac{3\sqrt{35}xyz(x-y)(x+y)}{2}$
14	$\mathbb{G}_6(A_{1u}, 1)$	$A_{1u}$	6	$G, M$	1	-	$\frac{\sqrt{2}(2x^6 - 15x^4y^2 - 15x^4z^2 - 15x^2y^4 + 180x^2y^2z^2 - 15x^2z^4 + 2y^6 - 15y^4z^2 - 15y^2z^4 + 2z^6)}{8}$
15	$\mathbb{G}_6(A_{1u}, 2)$	$A_{1u}$	6	$G, M$	2	-	$-\frac{\sqrt{14}(x^6 - 15x^4z^2 + 15x^2z^4 + y^6 - 15y^4z^2 + 15y^2z^4 - 2z^6)}{8}$
16	$\mathbb{Q}_7(A_{1u})$	$A_{1u}$	7	$Q, T$	-	-	$-\frac{\sqrt{231}xyz(x-y)(x+y)(3x^2 + 3y^2 - 10z^2)}{4}$
17	$\mathbb{G}_8(A_{1u}, 1)$	$A_{1u}$	8	$G, M$	1	-	$\frac{\sqrt{33}(x^8 - 14x^6y^2 - 14x^6z^2 + 35x^4y^4 + 35x^4z^4 - 14x^2y^6 - 14x^2z^6 + y^8 - 14y^6z^2 + 35y^4z^4 - 14y^2z^6 + z^8)}{8}$
18	$\mathbb{G}_1(A_{2g})$	$A_{2g}$	1	$G, M$	-	-	$z$
19	$\mathbb{G}_3(A_{2g})$	$A_{2g}$	3	$G, M$	-	-	$-\frac{z(3x^2 + 3y^2 - 2z^2)}{2}$
20	$\mathbb{Q}_4(A_{2g})$	$A_{2g}$	4	$Q, T$	-	-	$\frac{\sqrt{35}xy(x-y)(x+y)}{2}$
21	$\mathbb{G}_5(A_{2g}, 1)$	$A_{2g}$	5	$G, M$	1	-	$\frac{z(15x^4 + 30x^2y^2 - 40x^2z^2 + 15y^4 - 40y^2z^2 + 8z^4)}{8}$
22	$\mathbb{G}_5(A_{2g}, 2)$	$A_{2g}$	5	$G, M$	2	-	$\frac{3\sqrt{35}z(x^2 - 2xy - y^2)(x^2 + 2xy - y^2)}{8}$
23	$\mathbb{Q}_6(A_{2g})$	$A_{2g}$	6	$Q, T$	-	-	$-\frac{3\sqrt{7}xy(x-y)(x+y)(x^2 + y^2 - 10z^2)}{4}$
24	$\mathbb{G}_7(A_{2g}, 1)$	$A_{2g}$	7	$G, M$	1	-	$-\frac{z(35x^6 + 105x^4y^2 - 210x^4z^2 + 105x^2y^4 - 420x^2y^2z^2 + 168x^2z^4 + 35y^6 - 210y^4z^2 + 168y^2z^4 - 16z^6)}{16}$
25	$\mathbb{G}_7(A_{2g}, 2)$	$A_{2g}$	7	$G, M$	2	-	$-\frac{\sqrt{231}z(x^2 - 2xy - y^2)(x^2 + 2xy - y^2)(3x^2 + 3y^2 - 10z^2)}{16}$
26	$\mathbb{Q}_1(A_{2u})$	$A_{2u}$	1	$Q, T$	-	-	$z$
27	$\mathbb{Q}_3(A_{2u})$	$A_{2u}$	3	$Q, T$	-	-	$-\frac{z(3x^2 + 3y^2 - 2z^2)}{2}$
28	$\mathbb{G}_4(A_{2u})$	$A_{2u}$	4	$G, M$	-	-	$\frac{\sqrt{35}xy(x-y)(x+y)}{2}$
29	$\mathbb{Q}_5(A_{2u}, 1)$	$A_{2u}$	5	$Q, T$	1	-	$\frac{z(15x^4 + 30x^2y^2 - 40x^2z^2 + 15y^4 - 40y^2z^2 + 8z^4)}{8}$

continued ...

Table 2

#	symbol	irrep.	rank	X	multiplicity	component	symmetry
30	$\mathbb{Q}_5(A_{2u}, 2)$	$A_{2u}$	5	$Q, T$	2	-	$\frac{3\sqrt{35}z(x^2-2xy-y^2)(x^2+2xy-y^2)}{8}$
31	$\mathbb{G}_6(A_{2u})$	$A_{2u}$	6	$G, M$	-	-	$-\frac{3\sqrt{7}xy(x-y)(x+y)(x^2+y^2-10z^2)}{4}$
32	$\mathbb{Q}_7(A_{2u}, 1)$	$A_{2u}$	7	$Q, T$	1	-	$-\frac{z(35x^6+105x^4y^2-210x^4z^2+105x^2y^4-420x^2y^2z^2+168x^2z^4+35y^6-210y^4z^2+168y^2z^4-16z^6)}{16}$
33	$\mathbb{Q}_7(A_{2u}, 2)$	$A_{2u}$	7	$Q, T$	2	-	$-\frac{\sqrt{231}z(x^2-2xy-y^2)(x^2+2xy-y^2)(3x^2+3y^2-10z^2)}{16}$
34	$\mathbb{G}_8(A_{2u}, 1)$	$A_{2u}$	8	$G, M$	1	-	$\frac{3\sqrt{715}xy(x-y)(x+y)(x^2-2xy-y^2)(x^2+2xy-y^2)}{16}$
35	$\mathbb{Q}_2(B_{1g})$	$B_{1g}$	2	$Q, T$	-	-	$\frac{\sqrt{3}(x-y)(x+y)}{2}$
36	$\mathbb{G}_3(B_{1g})$	$B_{1g}$	3	$G, M$	-	-	$\sqrt{15}xyz$
37	$\mathbb{Q}_4(B_{1g})$	$B_{1g}$	4	$Q, T$	-	-	$\frac{\sqrt{5}(x-y)(x+y)(x^2+y^2-6z^2)}{4}$
38	$\mathbb{G}_5(B_{1g})$	$B_{1g}$	5	$G, M$	-	-	$\frac{\sqrt{105}xyz(x^2+y^2-2z^2)}{2}$
39	$\mathbb{Q}_6(B_{1g}, 1)$	$B_{1g}$	6	$Q, T$	1	-	$-\frac{\sqrt{2310}(x-y)(x+y)(x-z)(x+z)(y-z)(y+z)}{8}$
40	$\mathbb{Q}_6(B_{1g}, 2)$	$B_{1g}$	6	$Q, T$	2	-	$\frac{\sqrt{42}(x-y)(x+y)(x^4-9x^2y^2-5x^2z^2+y^4-5y^2z^2+5z^4)}{8}$
41	$\mathbb{G}_7(B_{1g}, 1)$	$B_{1g}$	7	$G, M$	1	-	$\frac{\sqrt{91}xyz(3x^4-5x^2y^2-5x^2z^2+3y^4-5y^2z^2+3z^4)}{2}$
42	$\mathbb{G}_7(B_{1g}, 2)$	$B_{1g}$	7	$G, M$	2	-	$-\frac{\sqrt{77}xyz(3x^4-20x^2y^2+10x^2z^2+3y^4+10y^2z^2-6z^4)}{4}$
43	$\mathbb{G}_2(B_{1u})$	$B_{1u}$	2	$G, M$	-	-	$\frac{\sqrt{3}(x-y)(x+y)}{2}$
44	$\mathbb{Q}_3(B_{1u})$	$B_{1u}$	3	$Q, T$	-	-	$\sqrt{15}xyz$
45	$\mathbb{G}_4(B_{1u})$	$B_{1u}$	4	$G, M$	-	-	$\frac{\sqrt{5}(x-y)(x+y)(x^2+y^2-6z^2)}{4}$
46	$\mathbb{Q}_5(B_{1u})$	$B_{1u}$	5	$Q, T$	-	-	$\frac{\sqrt{105}xyz(x^2+y^2-2z^2)}{2}$
47	$\mathbb{G}_6(B_{1u}, 1)$	$B_{1u}$	6	$G, M$	1	-	$-\frac{\sqrt{2310}(x-y)(x+y)(x-z)(x+z)(y-z)(y+z)}{8}$
48	$\mathbb{G}_6(B_{1u}, 2)$	$B_{1u}$	6	$G, M$	2	-	$\frac{\sqrt{42}(x-y)(x+y)(x^4-9x^2y^2-5x^2z^2+y^4-5y^2z^2+5z^4)}{8}$
49	$\mathbb{Q}_7(B_{1u}, 1)$	$B_{1u}$	7	$Q, T$	1	-	$\frac{\sqrt{91}xyz(3x^4-5x^2y^2-5x^2z^2+3y^4-5y^2z^2+3z^4)}{2}$
50	$\mathbb{Q}_7(B_{1u}, 2)$	$B_{1u}$	7	$Q, T$	2	-	$-\frac{\sqrt{77}xyz(3x^4-20x^2y^2+10x^2z^2+3y^4+10y^2z^2-6z^4)}{4}$

continued ...

Table 2

#	symbol	irrep.	rank	X	multiplicity	component	symmetry
51	$\mathbb{Q}_2(B_{2g})$	$B_{2g}$	2	$Q, T$	-	-	$\sqrt{3}xy$
52	$\mathbb{G}_3(B_{2g})$	$B_{2g}$	3	$G, M$	-	-	$\frac{\sqrt{15}z(x-y)(x+y)}{2}$
53	$\mathbb{Q}_4(B_{2g})$	$B_{2g}$	4	$Q, T$	-	-	$-\frac{\sqrt{5}xy(x^2+y^2-6z^2)}{2}$
54	$\mathbb{G}_5(B_{2g})$	$B_{2g}$	5	$G, M$	-	-	$-\frac{\sqrt{105}z(x-y)(x+y)(x^2+y^2-2z^2)}{4}$
55	$\mathbb{Q}_6(B_{2g}, 1)$	$B_{2g}$	6	$Q, T$	1	-	$\frac{\sqrt{462}xy(x^2-3y^2)(3x^2-y^2)}{16}$
56	$\mathbb{Q}_6(B_{2g}, 2)$	$B_{2g}$	6	$Q, T$	2	-	$\frac{\sqrt{210}xy(x^4+2x^2y^2-16x^2z^2+y^4-16y^2z^2+16z^4)}{16}$
57	$\mathbb{G}_7(B_{2g}, 1)$	$B_{2g}$	7	$G, M$	1	-	$\frac{\sqrt{6006}z(x-y)(x+y)(x^2-4xy+y^2)(x^2+4xy+y^2)}{32}$
58	$\mathbb{G}_7(B_{2g}, 2)$	$B_{2g}$	7	$G, M$	2	-	$\frac{\sqrt{42}z(x-y)(x+y)(15x^4+30x^2y^2-80x^2z^2+15y^4-80y^2z^2+48z^4)}{32}$
59	$\mathbb{G}_2(B_{2u})$	$B_{2u}$	2	$G, M$	-	-	$\sqrt{3}xy$
60	$\mathbb{Q}_3(B_{2u})$	$B_{2u}$	3	$Q, T$	-	-	$\frac{\sqrt{15}z(x-y)(x+y)}{2}$
61	$\mathbb{G}_4(B_{2u})$	$B_{2u}$	4	$G, M$	-	-	$-\frac{\sqrt{5}xy(x^2+y^2-6z^2)}{2}$
62	$\mathbb{Q}_5(B_{2u})$	$B_{2u}$	5	$Q, T$	-	-	$-\frac{\sqrt{105}z(x-y)(x+y)(x^2+y^2-2z^2)}{4}$
63	$\mathbb{G}_6(B_{2u}, 1)$	$B_{2u}$	6	$G, M$	1	-	$\frac{\sqrt{462}xy(x^2-3y^2)(3x^2-y^2)}{16}$
64	$\mathbb{G}_6(B_{2u}, 2)$	$B_{2u}$	6	$G, M$	2	-	$\frac{\sqrt{210}xy(x^4+2x^2y^2-16x^2z^2+y^4-16y^2z^2+16z^4)}{16}$
65	$\mathbb{Q}_7(B_{2u}, 1)$	$B_{2u}$	7	$Q, T$	1	-	$\frac{\sqrt{6006}z(x-y)(x+y)(x^2-4xy+y^2)(x^2+4xy+y^2)}{32}$
66	$\mathbb{Q}_7(B_{2u}, 2)$	$B_{2u}$	7	$Q, T$	2	-	$\frac{\sqrt{42}z(x-y)(x+y)(15x^4+30x^2y^2-80x^2z^2+15y^4-80y^2z^2+48z^4)}{32}$
67	$\mathbb{G}_{1,1}(E_g)$	$E_g$	1	$G, M$	-	1	$x$
68	$\mathbb{G}_{1,2}(E_g)$					2	$-y$
69	$\mathbb{Q}_{2,1}(E_g)$	$E_g$	2	$Q, T$	-	1	$\sqrt{3}yz$
70	$\mathbb{Q}_{2,2}(E_g)$					2	$\sqrt{3}xz$
71	$\mathbb{G}_{3,1}(E_g, 1)$	$E_g$	3	$G, M$	1	1	$\frac{x(2x^2-3y^2-3z^2)}{2}$

continued ...

Table 2

#	symbol	irrep.	rank	X	multiplicity	component	symmetry
72	$\mathbb{G}_{3,2}(E_g, 1)$					2	$\frac{y(3x^2 - 2y^2 + 3z^2)}{2}$
73	$\mathbb{G}_{3,1}(E_g, 2)$	$E_g$	3	$G, M$	2	1	$\frac{\sqrt{15}x(y-z)(y+z)}{2}$
74	$\mathbb{G}_{3,2}(E_g, 2)$					2	$-\frac{\sqrt{15}y(x-z)(x+z)}{2}$
75	$\mathbb{Q}_{4,1}(E_g, 1)$	$E_g$	4	$Q, T$	1	1	$\frac{\sqrt{35}yz(y-z)(y+z)}{2}$
76	$\mathbb{Q}_{4,2}(E_g, 1)$					2	$\frac{\sqrt{35}xz(x-z)(x+z)}{2}$
77	$\mathbb{Q}_{4,1}(E_g, 2)$	$E_g$	4	$Q, T$	2	1	$\frac{\sqrt{5}yz(6x^2 - y^2 - z^2)}{2}$
78	$\mathbb{Q}_{4,2}(E_g, 2)$					2	$-\frac{\sqrt{5}xz(x^2 - 6y^2 + z^2)}{2}$
79	$\mathbb{G}_{5,1}(E_g, 1)$	$E_g$	5	$G, M$	1	1	$\frac{x(8x^4 - 40x^2y^2 - 40x^2z^2 + 15y^4 + 30y^2z^2 + 15z^4)}{8}$
80	$\mathbb{G}_{5,2}(E_g, 1)$					2	$-\frac{y(15x^4 - 40x^2y^2 + 30x^2z^2 + 8y^4 - 40y^2z^2 + 15z^4)}{8}$
81	$\mathbb{G}_{5,1}(E_g, 2)$	$E_g$	5	$G, M$	2	1	$\frac{3\sqrt{35}x(y^2 - 2yz - z^2)(y^2 + 2yz - z^2)}{8}$
82	$\mathbb{G}_{5,2}(E_g, 2)$					2	$-\frac{3\sqrt{35}y(x^2 - 2xz - z^2)(x^2 + 2xz - z^2)}{8}$
83	$\mathbb{G}_{5,1}(E_g, 3)$	$E_g$	5	$G, M$	3	1	$\frac{\sqrt{105}x(y-z)(y+z)(2x^2 - y^2 - z^2)}{4}$
84	$\mathbb{G}_{5,2}(E_g, 3)$					2	$\frac{\sqrt{105}y(x-z)(x+z)(x^2 - 2y^2 + z^2)}{4}$
85	$\mathbb{Q}_{6,1}(E_g, 1)$	$E_g$	6	$Q, T$	1	1	$\frac{3\sqrt{7}yz(y-z)(y+z)(10x^2 - y^2 - z^2)}{4}$
86	$\mathbb{Q}_{6,2}(E_g, 1)$					2	$-\frac{3\sqrt{7}xz(x-z)(x+z)(x^2 - 10y^2 + z^2)}{4}$
87	$\mathbb{Q}_{6,1}(E_g, 2)$	$E_g$	6	$Q, T$	2	1	$\frac{\sqrt{462}yz(y^2 - 3z^2)(3y^2 - z^2)}{16}$
88	$\mathbb{Q}_{6,2}(E_g, 2)$					2	$\frac{\sqrt{462}xz(x^2 - 3z^2)(3x^2 - z^2)}{16}$
89	$\mathbb{Q}_{6,1}(E_g, 3)$	$E_g$	6	$Q, T$	3	1	$\frac{\sqrt{210}yz(16x^4 - 16x^2y^2 - 16x^2z^2 + y^4 + 2y^2z^2 + z^4)}{16}$
90	$\mathbb{Q}_{6,2}(E_g, 3)$					2	$\frac{\sqrt{210}xz(x^4 - 16x^2y^2 + 2x^2z^2 + 16y^4 - 16y^2z^2 + z^4)}{16}$
91	$\mathbb{G}_{7,1}(E_g, 1)$	$E_g$	7	$G, M$	1	1	$\frac{x(16x^6 - 168x^4y^2 - 168x^4z^2 + 210x^2y^4 + 420x^2y^2z^2 + 210x^2z^4 - 35y^6 - 105y^4z^2 - 105y^2z^4 - 35z^6)}{16}$
92	$\mathbb{G}_{7,2}(E_g, 1)$					2	$\frac{y(35x^6 - 210x^4y^2 + 105x^4z^2 + 168x^2y^4 - 420x^2y^2z^2 + 105x^2z^4 - 16y^6 + 168y^4z^2 - 210y^2z^4 + 35z^6)}{16}$

continued ...

Table 2

#	symbol	irrep.	rank	X	multiplicity	component	symmetry
93	$\mathbb{G}_{7,1}(E_g, 2)$	$E_g$	7	$G, M$	2	1	$\frac{\sqrt{231}x(10x^2-3y^2-3z^2)(y^2-2yz-z^2)(y^2+2yz-z^2)}{16}$
94	$\mathbb{G}_{7,2}(E_g, 2)$					2	$\frac{\sqrt{231}y(x^2-2xz-z^2)(x^2+2xz-z^2)(3x^2-10y^2+3z^2)}{16}$
95	$\mathbb{G}_{7,1}(E_g, 3)$	$E_g$	7	$G, M$	3	1	$\frac{\sqrt{6006}x(y-z)(y+z)(y^2-4yz+z^2)(y^2+4yz+z^2)}{32}$
96	$\mathbb{G}_{7,2}(E_g, 3)$					2	$-\frac{\sqrt{6006}y(x-z)(x+z)(x^2-4xz+z^2)(x^2+4xz+z^2)}{32}$
97	$\mathbb{G}_{7,1}(E_g, 4)$	$E_g$	7	$G, M$	4	1	$\frac{\sqrt{42}x(y-z)(y+z)(48x^4-80x^2y^2-80x^2z^2+15y^4+30y^2z^2+15z^4)}{32}$
98	$\mathbb{G}_{7,2}(E_g, 4)$					2	$-\frac{\sqrt{42}y(x-z)(x+z)(15x^4-80x^2y^2+30x^2z^2+48y^4-80y^2z^2+15z^4)}{32}$
99	$\mathbb{Q}_{1,1}(E_u)$	$E_u$	1	$Q, T$	-	1	$x$
100	$\mathbb{Q}_{1,2}(E_u)$					2	$y$
101	$\mathbb{G}_{2,1}(E_u)$	$E_u$	2	$G, M$	-	1	$\sqrt{3}yz$
102	$\mathbb{G}_{2,2}(E_u)$					2	$-\sqrt{3}xz$
103	$\mathbb{Q}_{3,1}(E_u, 1)$	$E_u$	3	$Q, T$	1	1	$\frac{x(2x^2-3y^2-3z^2)}{2}$
104	$\mathbb{Q}_{3,2}(E_u, 1)$					2	$-\frac{y(3x^2-2y^2+3z^2)}{2}$
105	$\mathbb{Q}_{3,1}(E_u, 2)$	$E_u$	3	$Q, T$	2	1	$\frac{\sqrt{15}x(y-z)(y+z)}{2}$
106	$\mathbb{Q}_{3,2}(E_u, 2)$					2	$\frac{\sqrt{15}y(x-z)(x+z)}{2}$
107	$\mathbb{G}_{4,1}(E_u, 1)$	$E_u$	4	$G, M$	1	1	$\frac{\sqrt{35}yz(y-z)(y+z)}{2}$
108	$\mathbb{G}_{4,2}(E_u, 1)$					2	$-\frac{\sqrt{35}xz(x-z)(x+z)}{2}$
109	$\mathbb{G}_{4,1}(E_u, 2)$	$E_u$	4	$G, M$	2	1	$\frac{\sqrt{5}yz(6x^2-y^2-z^2)}{2}$
110	$\mathbb{G}_{4,2}(E_u, 2)$					2	$\frac{\sqrt{5}xz(x^2-6y^2+z^2)}{2}$
111	$\mathbb{Q}_{5,1}(E_u, 1)$	$E_u$	5	$Q, T$	1	1	$\frac{x(8x^4-40x^2y^2-40x^2z^2+15y^4+30y^2z^2+15z^4)}{8}$
112	$\mathbb{Q}_{5,2}(E_u, 1)$					2	$\frac{y(15x^4-40x^2y^2+30x^2z^2+8y^4-40y^2z^2+15z^4)}{8}$
113	$\mathbb{Q}_{5,1}(E_u, 2)$	$E_u$	5	$Q, T$	2	1	$\frac{3\sqrt{35}x(y^2-2yz-z^2)(y^2+2yz-z^2)}{8}$

continued ...

Table 2

#	symbol	irrep.	rank	X	multiplicity	component	symmetry
114	$\mathbb{Q}_{5,2}(E_u, 2)$					2	$\frac{3\sqrt{35}y(x^2-2xz-z^2)(x^2+2xz-z^2)}{8}$
115	$\mathbb{Q}_{5,1}(E_u, 3)$	$E_u$	5	$Q, T$	3	1	$\frac{\sqrt{105}x(y-z)(y+z)(2x^2-y^2-z^2)}{4}$
116	$\mathbb{Q}_{5,2}(E_u, 3)$					2	$-\frac{\sqrt{105}y(x-z)(x+z)(x^2-2y^2+z^2)}{4}$
117	$\mathbb{G}_{6,1}(E_u, 1)$	$E_u$	6	$G, M$	1	1	$\frac{3\sqrt{7}yz(y-z)(y+z)(10x^2-y^2-z^2)}{4}$
118	$\mathbb{G}_{6,2}(E_u, 1)$					2	$\frac{3\sqrt{7}xz(x-z)(x+z)(x^2-10y^2+z^2)}{4}$
119	$\mathbb{G}_{6,1}(E_u, 2)$	$E_u$	6	$G, M$	2	1	$\frac{\sqrt{462}yz(y^2-3z^2)(3y^2-z^2)}{16}$
120	$\mathbb{G}_{6,2}(E_u, 2)$					2	$-\frac{\sqrt{462}xz(x^2-3z^2)(3x^2-z^2)}{16}$
121	$\mathbb{G}_{6,1}(E_u, 3)$	$E_u$	6	$G, M$	3	1	$\frac{\sqrt{210}yz(16x^4-16x^2y^2-16x^2z^2+y^4+2y^2z^2+z^4)}{16}$
122	$\mathbb{G}_{6,2}(E_u, 3)$					2	$-\frac{\sqrt{210}xz(x^4-16x^2y^2+2x^2z^2+16y^4-16y^2z^2+z^4)}{16}$
123	$\mathbb{Q}_{7,1}(E_u, 1)$	$E_u$	7	$Q, T$	1	1	$\frac{x(16x^6-168x^4y^2-168x^4z^2+210x^2y^4+420x^2y^2z^2+210x^2z^4-35y^6-105y^4z^2-105y^2z^4-35z^6)}{16}$
124	$\mathbb{Q}_{7,2}(E_u, 1)$					2	$-\frac{y(35x^6-210x^4y^2+105x^4z^2+168x^2y^4-420x^2y^2z^2+105x^2z^4-16y^6+168y^4z^2-210y^2z^4+35z^6)}{16}$
125	$\mathbb{Q}_{7,1}(E_u, 2)$	$E_u$	7	$Q, T$	2	1	$\frac{\sqrt{231}x(10x^2-3y^2-3z^2)(y^2-2yz-z^2)(y^2+2yz-z^2)}{16}$
126	$\mathbb{Q}_{7,2}(E_u, 2)$					2	$-\frac{\sqrt{231}y(x^2-2xz-z^2)(x^2+2xz-z^2)(3x^2-10y^2+3z^2)}{16}$
127	$\mathbb{Q}_{7,1}(E_u, 3)$	$E_u$	7	$Q, T$	3	1	$\frac{\sqrt{6006}x(y-z)(y+z)(y^2-4yz+z^2)(y^2+4yz+z^2)}{32}$
128	$\mathbb{Q}_{7,2}(E_u, 3)$					2	$\frac{\sqrt{6006}y(x-z)(x+z)(x^2-4xz+z^2)(x^2+4xz+z^2)}{32}$
129	$\mathbb{Q}_{7,1}(E_u, 4)$	$E_u$	7	$Q, T$	4	1	$\frac{\sqrt{42}x(y-z)(y+z)(48x^4-80x^2y^2-80x^2z^2+15y^4+30y^2z^2+15z^4)}{32}$
130	$\mathbb{Q}_{7,2}(E_u, 4)$					2	$\frac{\sqrt{42}y(x-z)(x+z)(15x^4-80x^2y^2+30x^2z^2+48y^4-80y^2z^2+15z^4)}{32}$

— Basis in full matrix —



Table 3: dimension = 24

#	orbital@atom(SL)	#	orbital@atom(SL)	#	orbital@atom(SL)	#	orbital@atom(SL)	#	orbital@atom(SL)
1	$ \frac{3}{2}, \frac{3}{2}; d\rangle @U(1)$	2	$ \frac{3}{2}, \frac{1}{2}; d\rangle @U(1)$	3	$ \frac{3}{2}, -\frac{1}{2}; d\rangle @U(1)$	4	$ \frac{3}{2}, -\frac{3}{2}; d\rangle @U(1)$	5	$ \frac{5}{2}, \frac{5}{2}; d\rangle @U(1)$
6	$ \frac{5}{2}, \frac{3}{2}; d\rangle @U(1)$	7	$ \frac{5}{2}, \frac{1}{2}; d\rangle @U(1)$	8	$ \frac{5}{2}, -\frac{1}{2}; d\rangle @U(1)$	9	$ \frac{5}{2}, -\frac{3}{2}; d\rangle @U(1)$	10	$ \frac{5}{2}, -\frac{5}{2}; d\rangle @U(1)$
11	$ \frac{5}{2}, \frac{5}{2}; f\rangle @U(1)$	12	$ \frac{5}{2}, \frac{3}{2}; f\rangle @U(1)$	13	$ \frac{5}{2}, \frac{1}{2}; f\rangle @U(1)$	14	$ \frac{5}{2}, -\frac{1}{2}; f\rangle @U(1)$	15	$ \frac{5}{2}, -\frac{3}{2}; f\rangle @U(1)$
16	$ \frac{5}{2}, -\frac{5}{2}; f\rangle @U(1)$	17	$ \frac{7}{2}, \frac{7}{2}; f\rangle @U(1)$	18	$ \frac{7}{2}, \frac{5}{2}; f\rangle @U(1)$	19	$ \frac{7}{2}, \frac{3}{2}; f\rangle @U(1)$	20	$ \frac{7}{2}, \frac{1}{2}; f\rangle @U(1)$
21	$ \frac{7}{2}, -\frac{1}{2}; f\rangle @U(1)$	22	$ \frac{7}{2}, -\frac{3}{2}; f\rangle @U(1)$	23	$ \frac{7}{2}, -\frac{5}{2}; f\rangle @U(1)$	24	$ \frac{7}{2}, -\frac{7}{2}; f\rangle @U(1)$		

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**SAMB**


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1086 (all 1428) SAMBs

## • 'U' site-cluster

\* bra:  $\langle \frac{3}{2}, \frac{3}{2}; d|, \langle \frac{3}{2}, \frac{1}{2}; d|, \langle \frac{3}{2}, -\frac{1}{2}; d|, \langle \frac{3}{2}, -\frac{3}{2}; d|, \langle \frac{5}{2}, \frac{5}{2}; d|, \langle \frac{5}{2}, \frac{3}{2}; d|, \langle \frac{5}{2}, \frac{1}{2}; d|, \langle \frac{5}{2}, -\frac{1}{2}; d|, \langle \frac{5}{2}, -\frac{3}{2}; d|, \langle \frac{5}{2}, -\frac{5}{2}; d|$ \* ket:  $|\frac{3}{2}, \frac{3}{2}; d\rangle, |\frac{3}{2}, \frac{1}{2}; d\rangle, |\frac{3}{2}, -\frac{1}{2}; d\rangle, |\frac{3}{2}, -\frac{3}{2}; d\rangle, |\frac{5}{2}, \frac{5}{2}; d\rangle, |\frac{5}{2}, \frac{3}{2}; d\rangle, |\frac{5}{2}, \frac{1}{2}; d\rangle, |\frac{5}{2}, -\frac{1}{2}; d\rangle, |\frac{5}{2}, -\frac{3}{2}; d\rangle, |\frac{5}{2}, -\frac{5}{2}; d\rangle$ \* wyckoff: **2a**

$$\boxed{\text{z1}} \quad \mathbb{Q}_0^{(c)}(A_{1g}) = \mathbb{Q}_0^{(a)}(A_{1g})\mathbb{Q}_0^{(s)}(A_{1g})$$

$$\boxed{\text{z2}} \quad \mathbb{Q}_2^{(c)}(A_{1g}) = \mathbb{Q}_2^{(a)}(A_{1g})\mathbb{Q}_0^{(s)}(A_{1g})$$

$$\boxed{\text{z3}} \quad \mathbb{Q}_4^{(c)}(A_{1g}, 1) = \mathbb{Q}_4^{(a)}(A_{1g}, 1)\mathbb{Q}_0^{(s)}(A_{1g})$$

$$\boxed{\text{z4}} \quad \mathbb{Q}_4^{(c)}(A_{1g}, 2) = \mathbb{Q}_4^{(a)}(A_{1g}, 2)\mathbb{Q}_0^{(s)}(A_{1g})$$

$$\boxed{\text{z5}} \quad \mathbb{Q}_2^{(1, -1; c)}(A_{1g}) = \mathbb{Q}_2^{(1, -1; a)}(A_{1g})\mathbb{Q}_0^{(s)}(A_{1g})$$

$$\boxed{\text{z6}} \quad \mathbb{Q}_4^{(1, -1; c)}(A_{1g}, 1) = \mathbb{Q}_4^{(1, -1; a)}(A_{1g}, 1)\mathbb{Q}_0^{(s)}(A_{1g})$$

$$\boxed{\text{z7}} \quad \mathbb{Q}_4^{(1,-1;c)}(A_{1g}, 2) = \mathbb{Q}_4^{(1,-1;a)}(A_{1g}, 2) \mathbb{Q}_0^{(s)}(A_{1g})$$

$$\boxed{\text{z8}} \quad \mathbb{Q}_0^{(1,1;c)}(A_{1g}) = \mathbb{Q}_0^{(1,1;a)}(A_{1g}) \mathbb{Q}_0^{(s)}(A_{1g})$$

$$\boxed{\text{z9}} \quad \mathbb{Q}_2^{(1,1;c)}(A_{1g}) = \mathbb{Q}_2^{(1,1;a)}(A_{1g}) \mathbb{Q}_0^{(s)}(A_{1g})$$

$$\boxed{\text{z104}} \quad \mathbb{Q}_4^{(c)}(A_{2g}) = \mathbb{Q}_4^{(a)}(A_{2g}) \mathbb{Q}_0^{(s)}(A_{1g})$$

$$\boxed{\text{z105}} \quad \mathbb{Q}_4^{(1,-1;c)}(A_{2g}) = \mathbb{Q}_4^{(1,-1;a)}(A_{2g}) \mathbb{Q}_0^{(s)}(A_{1g})$$

$$\boxed{\text{z106}} \quad \mathbb{Q}_2^{(c)}(B_{1g}) = \mathbb{Q}_2^{(a)}(B_{1g}) \mathbb{Q}_0^{(s)}(A_{1g})$$

$$\boxed{\text{z107}} \quad \mathbb{Q}_4^{(c)}(B_{1g}) = \mathbb{Q}_4^{(a)}(B_{1g}) \mathbb{Q}_0^{(s)}(A_{1g})$$

$$\boxed{\text{z183}} \quad \mathbb{Q}_2^{(1,-1;c)}(B_{1g}) = \mathbb{Q}_2^{(1,-1;a)}(B_{1g}) \mathbb{Q}_0^{(s)}(A_{1g})$$

$$\boxed{\text{z184}} \quad \mathbb{Q}_4^{(1,-1;c)}(B_{1g}) = \mathbb{Q}_4^{(1,-1;a)}(B_{1g}) \mathbb{Q}_0^{(s)}(A_{1g})$$

$$\boxed{\text{z185}} \quad \mathbb{Q}_2^{(1,1;c)}(B_{1g}) = \mathbb{Q}_2^{(1,1;a)}(B_{1g}) \mathbb{Q}_0^{(s)}(A_{1g})$$

$$\boxed{\text{z186}} \quad \mathbb{Q}_2^{(c)}(B_{2g}) = \mathbb{Q}_2^{(a)}(B_{2g}) \mathbb{Q}_0^{(s)}(A_{1g})$$

$$\boxed{\text{z187}} \quad \mathbb{Q}_4^{(c)}(B_{2g}) = \mathbb{Q}_4^{(a)}(B_{2g}) \mathbb{Q}_0^{(s)}(A_{1g})$$

$$\boxed{\text{z188}} \quad \mathbb{Q}_2^{(1,-1;c)}(B_{2g}) = \mathbb{Q}_2^{(1,-1;a)}(B_{2g}) \mathbb{Q}_0^{(s)}(A_{1g})$$

$$\boxed{\text{z279}} \quad \mathbb{Q}_4^{(1,-1;c)}(B_{2g}) = \mathbb{Q}_4^{(1,-1;a)}(B_{2g}) \mathbb{Q}_0^{(s)}(A_{1g})$$

$$\boxed{\text{z280}} \quad \mathbb{Q}_2^{(1,1;c)}(B_{2g}) = \mathbb{Q}_2^{(1,1;a)}(B_{2g}) \mathbb{Q}_0^{(s)}(A_{1g})$$

$$\boxed{\text{z281}} \quad \mathbb{Q}_{2,1}^{(c)}(E_g) = \frac{\sqrt{2} \mathbb{Q}_{2,1}^{(a)}(E_g) \mathbb{Q}_0^{(s)}(A_{1g})}{2}$$

$$\boxed{\text{z282}} \quad \mathbb{Q}_{2,2}^{(c)}(E_g) = \frac{\sqrt{2} \mathbb{Q}_{2,2}^{(a)}(E_g) \mathbb{Q}_0^{(s)}(A_{1g})}{2}$$

$$\boxed{\text{z283}} \quad \mathbb{Q}_{4,1}^{(c)}(E_g, 1) = \frac{\sqrt{2} \mathbb{Q}_{4,1}^{(a)}(E_g, 1) \mathbb{Q}_0^{(s)}(A_{1g})}{2}$$

$$\begin{aligned}
\boxed{\text{z284}} \quad \mathbb{Q}_{4,2}^{(c)}(E_g, 1) &= \frac{\sqrt{2}\mathbb{Q}_{4,2}^{(a)}(E_g, 1)\mathbb{Q}_0^{(s)}(A_{1g})}{2} \\
\boxed{\text{z363}} \quad \mathbb{Q}_{4,1}^{(c)}(E_g, 2) &= \frac{\sqrt{2}\mathbb{Q}_{4,1}^{(a)}(E_g, 2)\mathbb{Q}_0^{(s)}(A_{1g})}{2} \\
\boxed{\text{z364}} \quad \mathbb{Q}_{4,2}^{(c)}(E_g, 2) &= \frac{\sqrt{2}\mathbb{Q}_{4,2}^{(a)}(E_g, 2)\mathbb{Q}_0^{(s)}(A_{1g})}{2} \\
\boxed{\text{z365}} \quad \mathbb{Q}_{2,1}^{(1,-1;c)}(E_g) &= \frac{\sqrt{2}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_0^{(s)}(A_{1g})}{2} \\
\boxed{\text{z366}} \quad \mathbb{Q}_{2,2}^{(1,-1;c)}(E_g) &= \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_0^{(s)}(A_{1g})}{2} \\
\boxed{\text{z367}} \quad \mathbb{Q}_{4,1}^{(1,-1;c)}(E_g, 1) &= \frac{\sqrt{2}\mathbb{Q}_{4,1}^{(1,-1;a)}(E_g, 1)\mathbb{Q}_0^{(s)}(A_{1g})}{2} \\
\boxed{\text{z368}} \quad \mathbb{Q}_{4,2}^{(1,-1;c)}(E_g, 1) &= \frac{\sqrt{2}\mathbb{Q}_{4,2}^{(1,-1;a)}(E_g, 1)\mathbb{Q}_0^{(s)}(A_{1g})}{2} \\
\boxed{\text{z369}} \quad \mathbb{Q}_{4,1}^{(1,-1;c)}(E_g, 2) &= \frac{\sqrt{2}\mathbb{Q}_{4,1}^{(1,-1;a)}(E_g, 2)\mathbb{Q}_0^{(s)}(A_{1g})}{2} \\
\boxed{\text{z370}} \quad \mathbb{Q}_{4,2}^{(1,-1;c)}(E_g, 2) &= \frac{\sqrt{2}\mathbb{Q}_{4,2}^{(1,-1;a)}(E_g, 2)\mathbb{Q}_0^{(s)}(A_{1g})}{2} \\
\boxed{\text{z371}} \quad \mathbb{Q}_{2,1}^{(1,1;c)}(E_g) &= \frac{\sqrt{2}\mathbb{Q}_{2,1}^{(1,1;a)}(E_g)\mathbb{Q}_0^{(s)}(A_{1g})}{2} \\
\boxed{\text{z372}} \quad \mathbb{Q}_{2,2}^{(1,1;c)}(E_g) &= \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(1,1;a)}(E_g)\mathbb{Q}_0^{(s)}(A_{1g})}{2} \\
\boxed{\text{z373}} \quad \mathbb{G}_1^{(1,0;c)}(A_{2g}) &= \mathbb{G}_1^{(1,0;a)}(A_{2g})\mathbb{Q}_0^{(s)}(A_{1g}) \\
\boxed{\text{z374}} \quad \mathbb{G}_3^{(1,0;c)}(A_{2g}) &= \mathbb{G}_3^{(1,0;a)}(A_{2g})\mathbb{Q}_0^{(s)}(A_{1g}) \\
\boxed{\text{z375}} \quad \mathbb{G}_3^{(1,0;c)}(B_{1g}) &= \mathbb{G}_3^{(1,0;a)}(B_{1g})\mathbb{Q}_0^{(s)}(A_{1g})
\end{aligned}$$

$$\boxed{\text{z376}} \quad \mathbb{G}_3^{(1,0;c)}(B_{2g}) = \mathbb{G}_3^{(1,0;a)}(B_{2g})\mathbb{Q}_0^{(s)}(A_{1g})$$

$$\boxed{\text{z377}} \quad \mathbb{G}_{1,1}^{(1,0;c)}(E_g) = \frac{\sqrt{2}\mathbb{G}_{1,1}^{(1,0;a)}(E_g)\mathbb{Q}_0^{(s)}(A_{1g})}{2}$$

$$\boxed{\text{z378}} \quad \mathbb{G}_{1,2}^{(1,0;c)}(E_g) = \frac{\sqrt{2}\mathbb{G}_{1,2}^{(1,0;a)}(E_g)\mathbb{Q}_0^{(s)}(A_{1g})}{2}$$

$$\boxed{\text{z379}} \quad \mathbb{G}_{3,1}^{(1,0;c)}(E_g, 1) = \frac{\sqrt{2}\mathbb{G}_{3,1}^{(1,0;a)}(E_g, 1)\mathbb{Q}_0^{(s)}(A_{1g})}{2}$$

$$\boxed{\text{z380}} \quad \mathbb{G}_{3,2}^{(1,0;c)}(E_g, 1) = \frac{\sqrt{2}\mathbb{G}_{3,2}^{(1,0;a)}(E_g, 1)\mathbb{Q}_0^{(s)}(A_{1g})}{2}$$

$$\boxed{\text{z381}} \quad \mathbb{G}_{3,1}^{(1,0;c)}(E_g, 2) = \frac{\sqrt{2}\mathbb{G}_{3,1}^{(1,0;a)}(E_g, 2)\mathbb{Q}_0^{(s)}(A_{1g})}{2}$$

$$\boxed{\text{z382}} \quad \mathbb{G}_{3,2}^{(1,0;c)}(E_g, 2) = \frac{\sqrt{2}\mathbb{G}_{3,2}^{(1,0;a)}(E_g, 2)\mathbb{Q}_0^{(s)}(A_{1g})}{2}$$

• 'U' site-cluster

\* bra:  $\langle \frac{3}{2}, \frac{3}{2}; d |, \langle \frac{3}{2}, \frac{1}{2}; d |, \langle \frac{3}{2}, -\frac{1}{2}; d |, \langle \frac{3}{2}, -\frac{3}{2}; d |, \langle \frac{5}{2}, \frac{5}{2}; d |, \langle \frac{5}{2}, \frac{3}{2}; d |, \langle \frac{5}{2}, \frac{1}{2}; d |, \langle \frac{5}{2}, -\frac{1}{2}; d |, \langle \frac{5}{2}, -\frac{3}{2}; d |, \langle \frac{5}{2}, -\frac{5}{2}; d |$

\* ket:  $|\frac{5}{2}, \frac{5}{2}; f\rangle, |\frac{5}{2}, \frac{3}{2}; f\rangle, |\frac{5}{2}, \frac{1}{2}; f\rangle, |\frac{5}{2}, -\frac{1}{2}; f\rangle, |\frac{5}{2}, -\frac{3}{2}; f\rangle, |\frac{5}{2}, -\frac{5}{2}; f\rangle, |\frac{7}{2}, \frac{7}{2}; f\rangle, |\frac{7}{2}, \frac{5}{2}; f\rangle, |\frac{7}{2}, \frac{3}{2}; f\rangle, |\frac{7}{2}, \frac{1}{2}; f\rangle, |\frac{7}{2}, -\frac{1}{2}; f\rangle, |\frac{7}{2}, -\frac{3}{2}; f\rangle, |\frac{7}{2}, -\frac{5}{2}; f\rangle, |\frac{7}{2}, -\frac{7}{2}; f\rangle$

\* wyckoff: **2a**

$$\boxed{\text{z689}} \quad \mathbb{Q}_5^{(c)}(A_{1u}) = \mathbb{Q}_5^{(a)}(A_{1u})\mathbb{Q}_0^{(s)}(A_{1g})$$

$$\boxed{\text{z690}} \quad \mathbb{Q}_5^{(1,-1;c)}(A_{1u}) = \mathbb{Q}_5^{(1,-1;a)}(A_{1u})\mathbb{Q}_0^{(s)}(A_{1g})$$

$$\boxed{\text{z691}} \quad \mathbb{Q}_5^{(1,0;c)}(A_{1u}) = \mathbb{Q}_5^{(1,0;a)}(A_{1u})\mathbb{Q}_0^{(s)}(A_{1g})$$

$$\boxed{\text{z692}} \quad \mathbb{Q}_1^{(c)}(A_{2u}) = \mathbb{Q}_1^{(a)}(A_{2u})\mathbb{Q}_0^{(s)}(A_{1g})$$

$$\boxed{\text{z693}} \quad \mathbb{Q}_3^{(c)}(A_{2u}) = \mathbb{Q}_3^{(a)}(A_{2u})\mathbb{Q}_0^{(s)}(A_{1g})$$

$$\boxed{\text{z694}} \quad \mathbb{Q}_5^{(c)}(A_{2u}, 1) = \mathbb{Q}_5^{(a)}(A_{2u}, 1)\mathbb{Q}_0^{(s)}(A_{1g})$$

$$\boxed{\text{z695}} \quad \mathbb{Q}_5^{(c)}(A_{2u}, 2) = \mathbb{Q}_5^{(a)}(A_{2u}, 2)\mathbb{Q}_0^{(s)}(A_{1g})$$

$$\begin{aligned}
\boxed{\text{z696}} \quad \mathbb{Q}_3^{(1,-1;c)}(A_{2u}) &= \mathbb{Q}_3^{(1,-1;a)}(A_{2u})\mathbb{Q}_0^{(s)}(A_{1g}) \\
\boxed{\text{z697}} \quad \mathbb{Q}_5^{(1,-1;c)}(A_{2u},1) &= \mathbb{Q}_5^{(1,-1;a)}(A_{2u},1)\mathbb{Q}_0^{(s)}(A_{1g}) \\
\boxed{\text{z698}} \quad \mathbb{Q}_5^{(1,-1;c)}(A_{2u},2) &= \mathbb{Q}_5^{(1,-1;a)}(A_{2u},2)\mathbb{Q}_0^{(s)}(A_{1g}) \\
\boxed{\text{z699}} \quad \mathbb{Q}_1^{(1,0;c)}(A_{2u}) &= \mathbb{Q}_1^{(1,0;a)}(A_{2u})\mathbb{Q}_0^{(s)}(A_{1g}) \\
\boxed{\text{z700}} \quad \mathbb{Q}_3^{(1,0;c)}(A_{2u}) &= \mathbb{Q}_3^{(1,0;a)}(A_{2u})\mathbb{Q}_0^{(s)}(A_{1g}) \\
\boxed{\text{z701}} \quad \mathbb{Q}_5^{(1,0;c)}(A_{2u},1) &= \mathbb{Q}_5^{(1,0;a)}(A_{2u},1)\mathbb{Q}_0^{(s)}(A_{1g}) \\
\boxed{\text{z702}} \quad \mathbb{Q}_5^{(1,0;c)}(A_{2u},2) &= \mathbb{Q}_5^{(1,0;a)}(A_{2u},2)\mathbb{Q}_0^{(s)}(A_{1g}) \\
\boxed{\text{z703}} \quad \mathbb{Q}_1^{(1,1;c)}(A_{2u}) &= \mathbb{Q}_1^{(1,1;a)}(A_{2u})\mathbb{Q}_0^{(s)}(A_{1g}) \\
\boxed{\text{z704}} \quad \mathbb{Q}_3^{(1,1;c)}(A_{2u}) &= \mathbb{Q}_3^{(1,1;a)}(A_{2u})\mathbb{Q}_0^{(s)}(A_{1g}) \\
\boxed{\text{z705}} \quad \mathbb{Q}_3^{(c)}(B_{1u}) &= \mathbb{Q}_3^{(a)}(B_{1u})\mathbb{Q}_0^{(s)}(A_{1g}) \\
\boxed{\text{z706}} \quad \mathbb{Q}_5^{(c)}(B_{1u}) &= \mathbb{Q}_5^{(a)}(B_{1u})\mathbb{Q}_0^{(s)}(A_{1g}) \\
\boxed{\text{z785}} \quad \mathbb{Q}_3^{(1,-1;c)}(B_{1u}) &= \mathbb{Q}_3^{(1,-1;a)}(B_{1u})\mathbb{Q}_0^{(s)}(A_{1g}) \\
\boxed{\text{z786}} \quad \mathbb{Q}_5^{(1,-1;c)}(B_{1u}) &= \mathbb{Q}_5^{(1,-1;a)}(B_{1u})\mathbb{Q}_0^{(s)}(A_{1g}) \\
\boxed{\text{z787}} \quad \mathbb{Q}_3^{(1,0;c)}(B_{1u}) &= \mathbb{Q}_3^{(1,0;a)}(B_{1u})\mathbb{Q}_0^{(s)}(A_{1g}) \\
\boxed{\text{z788}} \quad \mathbb{Q}_5^{(1,0;c)}(B_{1u}) &= \mathbb{Q}_5^{(1,0;a)}(B_{1u})\mathbb{Q}_0^{(s)}(A_{1g}) \\
\boxed{\text{z789}} \quad \mathbb{Q}_3^{(1,1;c)}(B_{1u}) &= \mathbb{Q}_3^{(1,1;a)}(B_{1u})\mathbb{Q}_0^{(s)}(A_{1g}) \\
\boxed{\text{z790}} \quad \mathbb{Q}_3^{(c)}(B_{2u}) &= \mathbb{Q}_3^{(a)}(B_{2u})\mathbb{Q}_0^{(s)}(A_{1g}) \\
\boxed{\text{z791}} \quad \mathbb{Q}_5^{(c)}(B_{2u}) &= \mathbb{Q}_5^{(a)}(B_{2u})\mathbb{Q}_0^{(s)}(A_{1g}) \\
\boxed{\text{z792}} \quad \mathbb{Q}_3^{(1,-1;c)}(B_{2u}) &= \mathbb{Q}_3^{(1,-1;a)}(B_{2u})\mathbb{Q}_0^{(s)}(A_{1g})
\end{aligned}$$

$$\boxed{\text{z793}} \quad \mathbb{Q}_5^{(1,-1;c)}(B_{2u}) = \mathbb{Q}_5^{(1,-1;a)}(B_{2u})\mathbb{Q}_0^{(s)}(A_{1g})$$

$$\boxed{\text{z794}} \quad \mathbb{Q}_3^{(1,0;c)}(B_{2u}) = \mathbb{Q}_3^{(1,0;a)}(B_{2u})\mathbb{Q}_0^{(s)}(A_{1g})$$

$$\boxed{\text{z795}} \quad \mathbb{Q}_5^{(1,0;c)}(B_{2u}) = \mathbb{Q}_5^{(1,0;a)}(B_{2u})\mathbb{Q}_0^{(s)}(A_{1g})$$

$$\boxed{\text{z796}} \quad \mathbb{Q}_3^{(1,1;c)}(B_{2u}) = \mathbb{Q}_3^{(1,1;a)}(B_{2u})\mathbb{Q}_0^{(s)}(A_{1g})$$

$$\boxed{\text{z797}} \quad \mathbb{Q}_{1,1}^{(c)}(E_u) = \frac{\sqrt{2}\mathbb{Q}_{1,1}^{(a)}(E_u)\mathbb{Q}_0^{(s)}(A_{1g})}{2}$$

$$\boxed{\text{z798}} \quad \mathbb{Q}_{1,2}^{(c)}(E_u) = \frac{\sqrt{2}\mathbb{Q}_{1,2}^{(a)}(E_u)\mathbb{Q}_0^{(s)}(A_{1g})}{2}$$

$$\boxed{\text{z799}} \quad \mathbb{Q}_{3,1}^{(c)}(E_u, 1) = \frac{\sqrt{2}\mathbb{Q}_{3,1}^{(a)}(E_u, 1)\mathbb{Q}_0^{(s)}(A_{1g})}{2}$$

$$\boxed{\text{z800}} \quad \mathbb{Q}_{3,2}^{(c)}(E_u, 1) = \frac{\sqrt{2}\mathbb{Q}_{3,2}^{(a)}(E_u, 1)\mathbb{Q}_0^{(s)}(A_{1g})}{2}$$

$$\boxed{\text{z801}} \quad \mathbb{Q}_{3,1}^{(c)}(E_u, 2) = \frac{\sqrt{2}\mathbb{Q}_{3,1}^{(a)}(E_u, 2)\mathbb{Q}_0^{(s)}(A_{1g})}{2}$$

$$\boxed{\text{z802}} \quad \mathbb{Q}_{3,2}^{(c)}(E_u, 2) = \frac{\sqrt{2}\mathbb{Q}_{3,2}^{(a)}(E_u, 2)\mathbb{Q}_0^{(s)}(A_{1g})}{2}$$

$$\boxed{\text{z881}} \quad \mathbb{Q}_{5,1}^{(c)}(E_u, 1) = \frac{\sqrt{2}\mathbb{Q}_{5,1}^{(a)}(E_u, 1)\mathbb{Q}_0^{(s)}(A_{1g})}{2}$$

$$\boxed{\text{z882}} \quad \mathbb{Q}_{5,2}^{(c)}(E_u, 1) = \frac{\sqrt{2}\mathbb{Q}_{5,2}^{(a)}(E_u, 1)\mathbb{Q}_0^{(s)}(A_{1g})}{2}$$

$$\boxed{\text{z883}} \quad \mathbb{Q}_{5,1}^{(c)}(E_u, 2) = \frac{\sqrt{2}\mathbb{Q}_{5,1}^{(a)}(E_u, 2)\mathbb{Q}_0^{(s)}(A_{1g})}{2}$$

$$\boxed{\text{z884}} \quad \mathbb{Q}_{5,2}^{(c)}(E_u, 2) = \frac{\sqrt{2}\mathbb{Q}_{5,2}^{(a)}(E_u, 2)\mathbb{Q}_0^{(s)}(A_{1g})}{2}$$

$$\boxed{\text{z885}} \quad \mathbb{Q}_{5,1}^{(c)}(E_u, 3) = \frac{\sqrt{2}\mathbb{Q}_{5,1}^{(a)}(E_u, 3)\mathbb{Q}_0^{(s)}(A_{1g})}{2}$$

$$\begin{aligned}
\boxed{\text{z886}} \quad \mathbb{Q}_{5,2}^{(c)}(E_u, 3) &= \frac{\sqrt{2}\mathbb{Q}_{5,2}^{(a)}(E_u, 3)\mathbb{Q}_0^{(s)}(A_{1g})}{2} \\
\boxed{\text{z887}} \quad \mathbb{Q}_{3,1}^{(1,-1;c)}(E_u, 1) &= \frac{\sqrt{2}\mathbb{Q}_{3,1}^{(1,-1;a)}(E_u, 1)\mathbb{Q}_0^{(s)}(A_{1g})}{2} \\
\boxed{\text{z888}} \quad \mathbb{Q}_{3,2}^{(1,-1;c)}(E_u, 1) &= \frac{\sqrt{2}\mathbb{Q}_{3,2}^{(1,-1;a)}(E_u, 1)\mathbb{Q}_0^{(s)}(A_{1g})}{2} \\
\boxed{\text{z889}} \quad \mathbb{Q}_{3,1}^{(1,-1;c)}(E_u, 2) &= \frac{\sqrt{2}\mathbb{Q}_{3,1}^{(1,-1;a)}(E_u, 2)\mathbb{Q}_0^{(s)}(A_{1g})}{2} \\
\boxed{\text{z890}} \quad \mathbb{Q}_{3,2}^{(1,-1;c)}(E_u, 2) &= \frac{\sqrt{2}\mathbb{Q}_{3,2}^{(1,-1;a)}(E_u, 2)\mathbb{Q}_0^{(s)}(A_{1g})}{2} \\
\boxed{\text{z891}} \quad \mathbb{Q}_{5,1}^{(1,-1;c)}(E_u, 1) &= \frac{\sqrt{2}\mathbb{Q}_{5,1}^{(1,-1;a)}(E_u, 1)\mathbb{Q}_0^{(s)}(A_{1g})}{2} \\
\boxed{\text{z892}} \quad \mathbb{Q}_{5,2}^{(1,-1;c)}(E_u, 1) &= \frac{\sqrt{2}\mathbb{Q}_{5,2}^{(1,-1;a)}(E_u, 1)\mathbb{Q}_0^{(s)}(A_{1g})}{2} \\
\boxed{\text{z893}} \quad \mathbb{Q}_{5,1}^{(1,-1;c)}(E_u, 2) &= \frac{\sqrt{2}\mathbb{Q}_{5,1}^{(1,-1;a)}(E_u, 2)\mathbb{Q}_0^{(s)}(A_{1g})}{2} \\
\boxed{\text{z894}} \quad \mathbb{Q}_{5,2}^{(1,-1;c)}(E_u, 2) &= \frac{\sqrt{2}\mathbb{Q}_{5,2}^{(1,-1;a)}(E_u, 2)\mathbb{Q}_0^{(s)}(A_{1g})}{2} \\
\boxed{\text{z895}} \quad \mathbb{Q}_{5,1}^{(1,-1;c)}(E_u, 3) &= \frac{\sqrt{2}\mathbb{Q}_{5,1}^{(1,-1;a)}(E_u, 3)\mathbb{Q}_0^{(s)}(A_{1g})}{2} \\
\boxed{\text{z896}} \quad \mathbb{Q}_{5,2}^{(1,-1;c)}(E_u, 3) &= \frac{\sqrt{2}\mathbb{Q}_{5,2}^{(1,-1;a)}(E_u, 3)\mathbb{Q}_0^{(s)}(A_{1g})}{2} \\
\boxed{\text{z897}} \quad \mathbb{Q}_{1,1}^{(1,0;c)}(E_u) &= \frac{\sqrt{2}\mathbb{Q}_{1,1}^{(1,0;a)}(E_u)\mathbb{Q}_0^{(s)}(A_{1g})}{2} \\
\boxed{\text{z976}} \quad \mathbb{Q}_{1,2}^{(1,0;c)}(E_u) &= \frac{\sqrt{2}\mathbb{Q}_{1,2}^{(1,0;a)}(E_u)\mathbb{Q}_0^{(s)}(A_{1g})}{2} \\
\boxed{\text{z977}} \quad \mathbb{Q}_{3,1}^{(1,0;c)}(E_u, 1) &= \frac{\sqrt{2}\mathbb{Q}_{3,1}^{(1,0;a)}(E_u, 1)\mathbb{Q}_0^{(s)}(A_{1g})}{2}
\end{aligned}$$

$$\boxed{\text{z978}} \quad \mathbb{Q}_{3,2}^{(1,0;c)}(E_u, 1) = \frac{\sqrt{2}\mathbb{Q}_{3,2}^{(1,0;a)}(E_u, 1)\mathbb{Q}_0^{(s)}(A_{1g})}{2}$$

$$\boxed{\text{z979}} \quad \mathbb{Q}_{3,1}^{(1,0;c)}(E_u, 2) = \frac{\sqrt{2}\mathbb{Q}_{3,1}^{(1,0;a)}(E_u, 2)\mathbb{Q}_0^{(s)}(A_{1g})}{2}$$

$$\boxed{\text{z980}} \quad \mathbb{Q}_{3,2}^{(1,0;c)}(E_u, 2) = \frac{\sqrt{2}\mathbb{Q}_{3,2}^{(1,0;a)}(E_u, 2)\mathbb{Q}_0^{(s)}(A_{1g})}{2}$$

$$\boxed{\text{z981}} \quad \mathbb{Q}_{5,1}^{(1,0;c)}(E_u, 1) = \frac{\sqrt{2}\mathbb{Q}_{5,1}^{(1,0;a)}(E_u, 1)\mathbb{Q}_0^{(s)}(A_{1g})}{2}$$

$$\boxed{\text{z982}} \quad \mathbb{Q}_{5,2}^{(1,0;c)}(E_u, 1) = \frac{\sqrt{2}\mathbb{Q}_{5,2}^{(1,0;a)}(E_u, 1)\mathbb{Q}_0^{(s)}(A_{1g})}{2}$$

$$\boxed{\text{z983}} \quad \mathbb{Q}_{5,1}^{(1,0;c)}(E_u, 2) = \frac{\sqrt{2}\mathbb{Q}_{5,1}^{(1,0;a)}(E_u, 2)\mathbb{Q}_0^{(s)}(A_{1g})}{2}$$

$$\boxed{\text{z984}} \quad \mathbb{Q}_{5,2}^{(1,0;c)}(E_u, 2) = \frac{\sqrt{2}\mathbb{Q}_{5,2}^{(1,0;a)}(E_u, 2)\mathbb{Q}_0^{(s)}(A_{1g})}{2}$$

$$\boxed{\text{z985}} \quad \mathbb{Q}_{5,1}^{(1,0;c)}(E_u, 3) = \frac{\sqrt{2}\mathbb{Q}_{5,1}^{(1,0;a)}(E_u, 3)\mathbb{Q}_0^{(s)}(A_{1g})}{2}$$

$$\boxed{\text{z986}} \quad \mathbb{Q}_{5,2}^{(1,0;c)}(E_u, 3) = \frac{\sqrt{2}\mathbb{Q}_{5,2}^{(1,0;a)}(E_u, 3)\mathbb{Q}_0^{(s)}(A_{1g})}{2}$$

$$\boxed{\text{z987}} \quad \mathbb{Q}_{1,1}^{(1,1;c)}(E_u) = \frac{\sqrt{2}\mathbb{Q}_{1,1}^{(1,1;a)}(E_u)\mathbb{Q}_0^{(s)}(A_{1g})}{2}$$

$$\boxed{\text{z988}} \quad \mathbb{Q}_{1,2}^{(1,1;c)}(E_u) = \frac{\sqrt{2}\mathbb{Q}_{1,2}^{(1,1;a)}(E_u)\mathbb{Q}_0^{(s)}(A_{1g})}{2}$$

$$\boxed{\text{z989}} \quad \mathbb{Q}_{3,1}^{(1,1;c)}(E_u, 1) = \frac{\sqrt{2}\mathbb{Q}_{3,1}^{(1,1;a)}(E_u, 1)\mathbb{Q}_0^{(s)}(A_{1g})}{2}$$

$$\boxed{\text{z990}} \quad \mathbb{Q}_{3,2}^{(1,1;c)}(E_u, 1) = \frac{\sqrt{2}\mathbb{Q}_{3,2}^{(1,1;a)}(E_u, 1)\mathbb{Q}_0^{(s)}(A_{1g})}{2}$$

$$\boxed{\text{z991}} \quad \mathbb{Q}_{3,1}^{(1,1;c)}(E_u, 2) = \frac{\sqrt{2}\mathbb{Q}_{3,1}^{(1,1;a)}(E_u, 2)\mathbb{Q}_0^{(s)}(A_{1g})}{2}$$



$$\boxed{\text{z992}} \quad \mathbb{Q}_{3,2}^{(1,1;c)}(Eu, 2) = \frac{\sqrt{2}\mathbb{Q}_{3,2}^{(1,1;a)}(Eu, 2)\mathbb{Q}_0^{(s)}(A_{1g})}{2}$$

$$\boxed{\text{z1071}} \quad \mathbb{G}_2^{(c)}(A_{1u}) = \mathbb{G}_2^{(a)}(A_{1u})\mathbb{Q}_0^{(s)}(A_{1g})$$

$$\boxed{\text{z1072}} \quad \mathbb{G}_4^{(c)}(A_{1u}, 1) = \mathbb{G}_4^{(a)}(A_{1u}, 1)\mathbb{Q}_0^{(s)}(A_{1g})$$

$$\boxed{\text{z1073}} \quad \mathbb{G}_4^{(c)}(A_{1u}, 2) = \mathbb{G}_4^{(a)}(A_{1u}, 2)\mathbb{Q}_0^{(s)}(A_{1g})$$

$$\boxed{\text{z1074}} \quad \mathbb{G}_2^{(1,-1;c)}(A_{1u}) = \mathbb{G}_2^{(1,-1;a)}(A_{1u})\mathbb{Q}_0^{(s)}(A_{1g})$$

$$\boxed{\text{z1075}} \quad \mathbb{G}_4^{(1,-1;c)}(A_{1u}, 1) = \mathbb{G}_4^{(1,-1;a)}(A_{1u}, 1)\mathbb{Q}_0^{(s)}(A_{1g})$$

$$\boxed{\text{z1076}} \quad \mathbb{G}_4^{(1,-1;c)}(A_{1u}, 2) = \mathbb{G}_4^{(1,-1;a)}(A_{1u}, 2)\mathbb{Q}_0^{(s)}(A_{1g})$$

$$\boxed{\text{z1077}} \quad \mathbb{G}_6^{(1,-1;c)}(A_{1u}, 1) = \mathbb{G}_6^{(1,-1;a)}(A_{1u}, 1)\mathbb{Q}_0^{(s)}(A_{1g})$$

$$\boxed{\text{z1078}} \quad \mathbb{G}_6^{(1,-1;c)}(A_{1u}, 2) = \mathbb{G}_6^{(1,-1;a)}(A_{1u}, 2)\mathbb{Q}_0^{(s)}(A_{1g})$$

$$\boxed{\text{z1079}} \quad \mathbb{G}_2^{(1,0;c)}(A_{1u}) = \mathbb{G}_2^{(1,0;a)}(A_{1u})\mathbb{Q}_0^{(s)}(A_{1g})$$

$$\boxed{\text{z1080}} \quad \mathbb{G}_4^{(1,0;c)}(A_{1u}, 1) = \mathbb{G}_4^{(1,0;a)}(A_{1u}, 1)\mathbb{Q}_0^{(s)}(A_{1g})$$

$$\boxed{\text{z1081}} \quad \mathbb{G}_4^{(1,0;c)}(A_{1u}, 2) = \mathbb{G}_4^{(1,0;a)}(A_{1u}, 2)\mathbb{Q}_0^{(s)}(A_{1g})$$

$$\boxed{\text{z1082}} \quad \mathbb{G}_0^{(1,1;c)}(A_{1u}) = \mathbb{G}_0^{(1,1;a)}(A_{1u})\mathbb{Q}_0^{(s)}(A_{1g})$$

$$\boxed{\text{z1083}} \quad \mathbb{G}_2^{(1,1;c)}(A_{1u}) = \mathbb{G}_2^{(1,1;a)}(A_{1u})\mathbb{Q}_0^{(s)}(A_{1g})$$

$$\boxed{\text{z1084}} \quad \mathbb{G}_4^{(1,1;c)}(A_{1u}, 1) = \mathbb{G}_4^{(1,1;a)}(A_{1u}, 1)\mathbb{Q}_0^{(s)}(A_{1g})$$

$$\boxed{\text{z1085}} \quad \mathbb{G}_4^{(1,1;c)}(A_{1u}, 2) = \mathbb{G}_4^{(1,1;a)}(A_{1u}, 2)\mathbb{Q}_0^{(s)}(A_{1g})$$

$$\boxed{\text{z1086}} \quad \mathbb{G}_4^{(c)}(A_{2u}) = \mathbb{G}_4^{(a)}(A_{2u})\mathbb{Q}_0^{(s)}(A_{1g})$$

$$\boxed{\text{z1087}} \quad \mathbb{G}_4^{(1,-1;c)}(A_{2u}) = \mathbb{G}_4^{(1,-1;a)}(A_{2u})\mathbb{Q}_0^{(s)}(A_{1g})$$

$$\begin{aligned}
\boxed{\text{z1088}} \quad \mathbb{G}_6^{(1,-1;c)}(A_{2u}) &= \mathbb{G}_6^{(1,-1;a)}(A_{2u})\mathbb{Q}_0^{(s)}(A_{1g}) \\
\boxed{\text{z1089}} \quad \mathbb{G}_4^{(1,0;c)}(A_{2u}) &= \mathbb{G}_4^{(1,0;a)}(A_{2u})\mathbb{Q}_0^{(s)}(A_{1g}) \\
\boxed{\text{z1090}} \quad \mathbb{G}_4^{(1,1;c)}(A_{2u}) &= \mathbb{G}_4^{(1,1;a)}(A_{2u})\mathbb{Q}_0^{(s)}(A_{1g}) \\
\boxed{\text{z1091}} \quad \mathbb{G}_2^{(c)}(B_{1u}) &= \mathbb{G}_2^{(a)}(B_{1u})\mathbb{Q}_0^{(s)}(A_{1g}) \\
\boxed{\text{z1092}} \quad \mathbb{G}_4^{(c)}(B_{1u}) &= \mathbb{G}_4^{(a)}(B_{1u})\mathbb{Q}_0^{(s)}(A_{1g}) \\
\boxed{\text{z1093}} \quad \mathbb{G}_2^{(1,-1;c)}(B_{1u}) &= \mathbb{G}_2^{(1,-1;a)}(B_{1u})\mathbb{Q}_0^{(s)}(A_{1g}) \\
\boxed{\text{z1094}} \quad \mathbb{G}_4^{(1,-1;c)}(B_{1u}) &= \mathbb{G}_4^{(1,-1;a)}(B_{1u})\mathbb{Q}_0^{(s)}(A_{1g}) \\
\boxed{\text{z1095}} \quad \mathbb{G}_6^{(1,-1;c)}(B_{1u}, 1) &= \mathbb{G}_6^{(1,-1;a)}(B_{1u}, 1)\mathbb{Q}_0^{(s)}(A_{1g}) \\
\boxed{\text{z1096}} \quad \mathbb{G}_6^{(1,-1;c)}(B_{1u}, 2) &= \mathbb{G}_6^{(1,-1;a)}(B_{1u}, 2)\mathbb{Q}_0^{(s)}(A_{1g}) \\
\boxed{\text{z1097}} \quad \mathbb{G}_2^{(1,0;c)}(B_{1u}) &= \mathbb{G}_2^{(1,0;a)}(B_{1u})\mathbb{Q}_0^{(s)}(A_{1g}) \\
\boxed{\text{z1098}} \quad \mathbb{G}_4^{(1,0;c)}(B_{1u}) &= \mathbb{G}_4^{(1,0;a)}(B_{1u})\mathbb{Q}_0^{(s)}(A_{1g}) \\
\boxed{\text{z1099}} \quad \mathbb{G}_2^{(1,1;c)}(B_{1u}) &= \mathbb{G}_2^{(1,1;a)}(B_{1u})\mathbb{Q}_0^{(s)}(A_{1g}) \\
\boxed{\text{z1100}} \quad \mathbb{G}_4^{(1,1;c)}(B_{1u}) &= \mathbb{G}_4^{(1,1;a)}(B_{1u})\mathbb{Q}_0^{(s)}(A_{1g}) \\
\boxed{\text{z1101}} \quad \mathbb{G}_2^{(c)}(B_{2u}) &= \mathbb{G}_2^{(a)}(B_{2u})\mathbb{Q}_0^{(s)}(A_{1g}) \\
\boxed{\text{z1102}} \quad \mathbb{G}_4^{(c)}(B_{2u}) &= \mathbb{G}_4^{(a)}(B_{2u})\mathbb{Q}_0^{(s)}(A_{1g}) \\
\boxed{\text{z1103}} \quad \mathbb{G}_2^{(1,-1;c)}(B_{2u}) &= \mathbb{G}_2^{(1,-1;a)}(B_{2u})\mathbb{Q}_0^{(s)}(A_{1g}) \\
\boxed{\text{z1104}} \quad \mathbb{G}_4^{(1,-1;c)}(B_{2u}) &= \mathbb{G}_4^{(1,-1;a)}(B_{2u})\mathbb{Q}_0^{(s)}(A_{1g}) \\
\boxed{\text{z1105}} \quad \mathbb{G}_6^{(1,-1;c)}(B_{2u}, 1) &= \mathbb{G}_6^{(1,-1;a)}(B_{2u}, 1)\mathbb{Q}_0^{(s)}(A_{1g}) \\
\boxed{\text{z1106}} \quad \mathbb{G}_6^{(1,-1;c)}(B_{2u}, 2) &= \mathbb{G}_6^{(1,-1;a)}(B_{2u}, 2)\mathbb{Q}_0^{(s)}(A_{1g})
\end{aligned}$$

$$\boxed{\text{z1107}} \quad \mathbb{G}_2^{(1,0;c)}(B_{2u}) = \mathbb{G}_2^{(1,0;a)}(B_{2u})\mathbb{Q}_0^{(s)}(A_{1g})$$

$$\boxed{\text{z1108}} \quad \mathbb{G}_4^{(1,0;c)}(B_{2u}) = \mathbb{G}_4^{(1,0;a)}(B_{2u})\mathbb{Q}_0^{(s)}(A_{1g})$$

$$\boxed{\text{z1109}} \quad \mathbb{G}_2^{(1,1;c)}(B_{2u}) = \mathbb{G}_2^{(1,1;a)}(B_{2u})\mathbb{Q}_0^{(s)}(A_{1g})$$

$$\boxed{\text{z1110}} \quad \mathbb{G}_4^{(1,1;c)}(B_{2u}) = \mathbb{G}_4^{(1,1;a)}(B_{2u})\mathbb{Q}_0^{(s)}(A_{1g})$$

$$\boxed{\text{z1111}} \quad \mathbb{G}_{2,1}^{(c)}(E_u) = \frac{\sqrt{2}\mathbb{G}_{2,1}^{(a)}(E_u)\mathbb{Q}_0^{(s)}(A_{1g})}{2}$$

$$\boxed{\text{z1112}} \quad \mathbb{G}_{2,2}^{(c)}(E_u) = \frac{\sqrt{2}\mathbb{G}_{2,2}^{(a)}(E_u)\mathbb{Q}_0^{(s)}(A_{1g})}{2}$$

$$\boxed{\text{z1113}} \quad \mathbb{G}_{4,1}^{(c)}(E_u, 1) = \frac{\sqrt{2}\mathbb{G}_{4,1}^{(a)}(E_u, 1)\mathbb{Q}_0^{(s)}(A_{1g})}{2}$$

$$\boxed{\text{z1114}} \quad \mathbb{G}_{4,2}^{(c)}(E_u, 1) = \frac{\sqrt{2}\mathbb{G}_{4,2}^{(a)}(E_u, 1)\mathbb{Q}_0^{(s)}(A_{1g})}{2}$$

$$\boxed{\text{z1115}} \quad \mathbb{G}_{4,1}^{(c)}(E_u, 2) = \frac{\sqrt{2}\mathbb{G}_{4,1}^{(a)}(E_u, 2)\mathbb{Q}_0^{(s)}(A_{1g})}{2}$$

$$\boxed{\text{z1116}} \quad \mathbb{G}_{4,2}^{(c)}(E_u, 2) = \frac{\sqrt{2}\mathbb{G}_{4,2}^{(a)}(E_u, 2)\mathbb{Q}_0^{(s)}(A_{1g})}{2}$$

$$\boxed{\text{z1117}} \quad \mathbb{G}_{2,1}^{(1,-1;c)}(E_u) = \frac{\sqrt{2}\mathbb{G}_{2,1}^{(1,-1;a)}(E_u)\mathbb{Q}_0^{(s)}(A_{1g})}{2}$$

$$\boxed{\text{z1118}} \quad \mathbb{G}_{2,2}^{(1,-1;c)}(E_u) = \frac{\sqrt{2}\mathbb{G}_{2,2}^{(1,-1;a)}(E_u)\mathbb{Q}_0^{(s)}(A_{1g})}{2}$$

$$\boxed{\text{z1119}} \quad \mathbb{G}_{4,1}^{(1,-1;c)}(E_u, 1) = \frac{\sqrt{2}\mathbb{G}_{4,1}^{(1,-1;a)}(E_u, 1)\mathbb{Q}_0^{(s)}(A_{1g})}{2}$$

$$\boxed{\text{z1120}} \quad \mathbb{G}_{4,2}^{(1,-1;c)}(E_u, 1) = \frac{\sqrt{2}\mathbb{G}_{4,2}^{(1,-1;a)}(E_u, 1)\mathbb{Q}_0^{(s)}(A_{1g})}{2}$$

$$\boxed{\text{z1121}} \quad \mathbb{G}_{4,1}^{(1,-1;c)}(E_u, 2) = \frac{\sqrt{2}\mathbb{G}_{4,1}^{(1,-1;a)}(E_u, 2)\mathbb{Q}_0^{(s)}(A_{1g})}{2}$$

$$\boxed{\text{z1122}} \quad \mathbb{G}_{4,2}^{(1,-1;c)}(E_u, 2) = \frac{\sqrt{2}\mathbb{G}_{4,2}^{(1,-1;a)}(E_u, 2)\mathbb{Q}_0^{(s)}(A_{1g})}{2}$$

$$\boxed{\text{z1123}} \quad \mathbb{G}_{6,1}^{(1,-1;c)}(E_u, 1) = \frac{\sqrt{2}\mathbb{G}_{6,1}^{(1,-1;a)}(E_u, 1)\mathbb{Q}_0^{(s)}(A_{1g})}{2}$$

$$\boxed{\text{z1124}} \quad \mathbb{G}_{6,2}^{(1,-1;c)}(E_u, 1) = \frac{\sqrt{2}\mathbb{G}_{6,2}^{(1,-1;a)}(E_u, 1)\mathbb{Q}_0^{(s)}(A_{1g})}{2}$$

$$\boxed{\text{z1125}} \quad \mathbb{G}_{6,1}^{(1,-1;c)}(E_u, 2) = \frac{\sqrt{2}\mathbb{G}_{6,1}^{(1,-1;a)}(E_u, 2)\mathbb{Q}_0^{(s)}(A_{1g})}{2}$$

$$\boxed{\text{z1126}} \quad \mathbb{G}_{6,2}^{(1,-1;c)}(E_u, 2) = \frac{\sqrt{2}\mathbb{G}_{6,2}^{(1,-1;a)}(E_u, 2)\mathbb{Q}_0^{(s)}(A_{1g})}{2}$$

$$\boxed{\text{z1127}} \quad \mathbb{G}_{6,1}^{(1,-1;c)}(E_u, 3) = \frac{\sqrt{2}\mathbb{G}_{6,1}^{(1,-1;a)}(E_u, 3)\mathbb{Q}_0^{(s)}(A_{1g})}{2}$$

$$\boxed{\text{z1128}} \quad \mathbb{G}_{6,2}^{(1,-1;c)}(E_u, 3) = \frac{\sqrt{2}\mathbb{G}_{6,2}^{(1,-1;a)}(E_u, 3)\mathbb{Q}_0^{(s)}(A_{1g})}{2}$$

$$\boxed{\text{z1129}} \quad \mathbb{G}_{2,1}^{(1,0;c)}(E_u) = \frac{\sqrt{2}\mathbb{G}_{2,1}^{(1,0;a)}(E_u)\mathbb{Q}_0^{(s)}(A_{1g})}{2}$$

$$\boxed{\text{z1130}} \quad \mathbb{G}_{2,2}^{(1,0;c)}(E_u) = \frac{\sqrt{2}\mathbb{G}_{2,2}^{(1,0;a)}(E_u)\mathbb{Q}_0^{(s)}(A_{1g})}{2}$$

$$\boxed{\text{z1131}} \quad \mathbb{G}_{4,1}^{(1,0;c)}(E_u, 1) = \frac{\sqrt{2}\mathbb{G}_{4,1}^{(1,0;a)}(E_u, 1)\mathbb{Q}_0^{(s)}(A_{1g})}{2}$$

$$\boxed{\text{z1132}} \quad \mathbb{G}_{4,2}^{(1,0;c)}(E_u, 1) = \frac{\sqrt{2}\mathbb{G}_{4,2}^{(1,0;a)}(E_u, 1)\mathbb{Q}_0^{(s)}(A_{1g})}{2}$$

$$\boxed{\text{z1133}} \quad \mathbb{G}_{4,1}^{(1,0;c)}(E_u, 2) = \frac{\sqrt{2}\mathbb{G}_{4,1}^{(1,0;a)}(E_u, 2)\mathbb{Q}_0^{(s)}(A_{1g})}{2}$$

$$\boxed{\text{z1134}} \quad \mathbb{G}_{4,2}^{(1,0;c)}(E_u, 2) = \frac{\sqrt{2}\mathbb{G}_{4,2}^{(1,0;a)}(E_u, 2)\mathbb{Q}_0^{(s)}(A_{1g})}{2}$$

$$\boxed{\text{z1135}} \quad \mathbb{G}_{2,1}^{(1,1;c)}(E_u) = \frac{\sqrt{2}\mathbb{G}_{2,1}^{(1,1;a)}(E_u)\mathbb{Q}_0^{(s)}(A_{1g})}{2}$$

$$\boxed{\text{z1136}} \quad \mathbb{G}_{2,2}^{(1,1;c)}(E_u) = \frac{\sqrt{2}\mathbb{G}_{2,2}^{(1,1;a)}(E_u)\mathbb{Q}_0^{(s)}(A_{1g})}{2}$$

$$\boxed{\text{z1137}} \quad \mathbb{G}_{4,1}^{(1,1;c)}(E_u, 1) = \frac{\sqrt{2}\mathbb{G}_{4,1}^{(1,1;a)}(E_u, 1)\mathbb{Q}_0^{(s)}(A_{1g})}{2}$$

$$\boxed{\text{z1138}} \quad \mathbb{G}_{4,2}^{(1,1;c)}(E_u, 1) = \frac{\sqrt{2}\mathbb{G}_{4,2}^{(1,1;a)}(E_u, 1)\mathbb{Q}_0^{(s)}(A_{1g})}{2}$$

$$\boxed{\text{z1139}} \quad \mathbb{G}_{4,1}^{(1,1;c)}(E_u, 2) = \frac{\sqrt{2}\mathbb{G}_{4,1}^{(1,1;a)}(E_u, 2)\mathbb{Q}_0^{(s)}(A_{1g})}{2}$$

$$\boxed{\text{z1140}} \quad \mathbb{G}_{4,2}^{(1,1;c)}(E_u, 2) = \frac{\sqrt{2}\mathbb{G}_{4,2}^{(1,1;a)}(E_u, 2)\mathbb{Q}_0^{(s)}(A_{1g})}{2}$$

• 'U' site-cluster

\* bra:  $\langle \frac{5}{2}, \frac{5}{2}; f |, \langle \frac{5}{2}, \frac{3}{2}; f |, \langle \frac{5}{2}, \frac{1}{2}; f |, \langle \frac{5}{2}, -\frac{1}{2}; f |, \langle \frac{5}{2}, -\frac{3}{2}; f |, \langle \frac{5}{2}, -\frac{5}{2}; f |, \langle \frac{7}{2}, \frac{7}{2}; f |, \langle \frac{7}{2}, \frac{5}{2}; f |, \langle \frac{7}{2}, \frac{3}{2}; f |, \langle \frac{7}{2}, \frac{1}{2}; f |, \langle \frac{7}{2}, -\frac{1}{2}; f |, \langle \frac{7}{2}, -\frac{3}{2}; f |, \langle \frac{7}{2}, -\frac{5}{2}; f |, \langle \frac{7}{2}, -\frac{7}{2}; f |$

\* ket:  $|\frac{5}{2}, \frac{5}{2}; f\rangle, |\frac{5}{2}, \frac{3}{2}; f\rangle, |\frac{5}{2}, \frac{1}{2}; f\rangle, |\frac{5}{2}, -\frac{1}{2}; f\rangle, |\frac{5}{2}, -\frac{3}{2}; f\rangle, |\frac{5}{2}, -\frac{5}{2}; f\rangle, |\frac{7}{2}, \frac{7}{2}; f\rangle, |\frac{7}{2}, \frac{5}{2}; f\rangle, |\frac{7}{2}, \frac{3}{2}; f\rangle, |\frac{7}{2}, \frac{1}{2}; f\rangle, |\frac{7}{2}, -\frac{1}{2}; f\rangle, |\frac{7}{2}, -\frac{3}{2}; f\rangle, |\frac{7}{2}, -\frac{5}{2}; f\rangle, |\frac{7}{2}, -\frac{7}{2}; f\rangle$

\* wyckoff: **2a**

$$\boxed{\text{z10}} \quad \mathbb{Q}_0^{(c)}(A_{1g}) = \mathbb{Q}_0^{(a)}(A_{1g})\mathbb{Q}_0^{(s)}(A_{1g})$$

$$\boxed{\text{z11}} \quad \mathbb{Q}_2^{(c)}(A_{1g}) = \mathbb{Q}_2^{(a)}(A_{1g})\mathbb{Q}_0^{(s)}(A_{1g})$$

$$\boxed{\text{z12}} \quad \mathbb{Q}_4^{(c)}(A_{1g}, 1) = \mathbb{Q}_4^{(a)}(A_{1g}, 1)\mathbb{Q}_0^{(s)}(A_{1g})$$

$$\boxed{\text{z13}} \quad \mathbb{Q}_4^{(c)}(A_{1g}, 2) = \mathbb{Q}_4^{(a)}(A_{1g}, 2)\mathbb{Q}_0^{(s)}(A_{1g})$$

$$\boxed{\text{z14}} \quad \mathbb{Q}_6^{(c)}(A_{1g}, 1) = \mathbb{Q}_6^{(a)}(A_{1g}, 1)\mathbb{Q}_0^{(s)}(A_{1g})$$

$$\boxed{\text{z15}} \quad \mathbb{Q}_6^{(c)}(A_{1g}, 2) = \mathbb{Q}_6^{(a)}(A_{1g}, 2)\mathbb{Q}_0^{(s)}(A_{1g})$$

$$\boxed{\text{z16}} \quad \mathbb{Q}_2^{(1,-1;c)}(A_{1g}) = \mathbb{Q}_2^{(1,-1;a)}(A_{1g})\mathbb{Q}_0^{(s)}(A_{1g})$$

$$\boxed{\text{z17}} \quad \mathbb{Q}_4^{(1,-1;c)}(A_{1g}, 1) = \mathbb{Q}_4^{(1,-1;a)}(A_{1g}, 1)\mathbb{Q}_0^{(s)}(A_{1g})$$

$$\boxed{\text{z18}} \quad \mathbb{Q}_4^{(1,-1;c)}(A_{1g}, 2) = \mathbb{Q}_4^{(1,-1;a)}(A_{1g}, 2)\mathbb{Q}_0^{(s)}(A_{1g})$$

$$\boxed{\text{z19}} \quad \mathbb{Q}_6^{(1,-1;c)}(A_{1g}, 1) = \mathbb{Q}_6^{(1,-1;a)}(A_{1g}, 1) \mathbb{Q}_0^{(s)}(A_{1g})$$

$$\boxed{\text{z20}} \quad \mathbb{Q}_6^{(1,-1;c)}(A_{1g}, 2) = \mathbb{Q}_6^{(1,-1;a)}(A_{1g}, 2) \mathbb{Q}_0^{(s)}(A_{1g})$$

$$\boxed{\text{z21}} \quad \mathbb{Q}_0^{(1,1;c)}(A_{1g}) = \mathbb{Q}_0^{(1,1;a)}(A_{1g}) \mathbb{Q}_0^{(s)}(A_{1g})$$

$$\boxed{\text{z22}} \quad \mathbb{Q}_2^{(1,1;c)}(A_{1g}) = \mathbb{Q}_2^{(1,1;a)}(A_{1g}) \mathbb{Q}_0^{(s)}(A_{1g})$$

$$\boxed{\text{z23}} \quad \mathbb{Q}_4^{(1,1;c)}(A_{1g}, 1) = \mathbb{Q}_4^{(1,1;a)}(A_{1g}, 1) \mathbb{Q}_0^{(s)}(A_{1g})$$

$$\boxed{\text{z24}} \quad \mathbb{Q}_4^{(1,1;c)}(A_{1g}, 2) = \mathbb{Q}_4^{(1,1;a)}(A_{1g}, 2) \mathbb{Q}_0^{(s)}(A_{1g})$$

$$\boxed{\text{z25}} \quad \mathbb{Q}_4^{(c)}(A_{2g}) = \mathbb{Q}_4^{(a)}(A_{2g}) \mathbb{Q}_0^{(s)}(A_{1g})$$

$$\boxed{\text{z108}} \quad \mathbb{Q}_6^{(c)}(A_{2g}) = \mathbb{Q}_6^{(a)}(A_{2g}) \mathbb{Q}_0^{(s)}(A_{1g})$$

$$\boxed{\text{z109}} \quad \mathbb{Q}_4^{(1,-1;c)}(A_{2g}) = \mathbb{Q}_4^{(1,-1;a)}(A_{2g}) \mathbb{Q}_0^{(s)}(A_{1g})$$

$$\boxed{\text{z110}} \quad \mathbb{Q}_6^{(1,-1;c)}(A_{2g}) = \mathbb{Q}_6^{(1,-1;a)}(A_{2g}) \mathbb{Q}_0^{(s)}(A_{1g})$$

$$\boxed{\text{z111}} \quad \mathbb{Q}_4^{(1,1;c)}(A_{2g}) = \mathbb{Q}_4^{(1,1;a)}(A_{2g}) \mathbb{Q}_0^{(s)}(A_{1g})$$

$$\boxed{\text{z112}} \quad \mathbb{Q}_2^{(c)}(B_{1g}) = \mathbb{Q}_2^{(a)}(B_{1g}) \mathbb{Q}_0^{(s)}(A_{1g})$$

$$\boxed{\text{z113}} \quad \mathbb{Q}_4^{(c)}(B_{1g}) = \mathbb{Q}_4^{(a)}(B_{1g}) \mathbb{Q}_0^{(s)}(A_{1g})$$

$$\boxed{\text{z114}} \quad \mathbb{Q}_6^{(c)}(B_{1g}, 1) = \mathbb{Q}_6^{(a)}(B_{1g}, 1) \mathbb{Q}_0^{(s)}(A_{1g})$$

$$\boxed{\text{z115}} \quad \mathbb{Q}_6^{(c)}(B_{1g}, 2) = \mathbb{Q}_6^{(a)}(B_{1g}, 2) \mathbb{Q}_0^{(s)}(A_{1g})$$

$$\boxed{\text{z116}} \quad \mathbb{Q}_2^{(1,-1;c)}(B_{1g}) = \mathbb{Q}_2^{(1,-1;a)}(B_{1g}) \mathbb{Q}_0^{(s)}(A_{1g})$$

$$\boxed{\text{z189}} \quad \mathbb{Q}_4^{(1,-1;c)}(B_{1g}) = \mathbb{Q}_4^{(1,-1;a)}(B_{1g}) \mathbb{Q}_0^{(s)}(A_{1g})$$

$$\boxed{\text{z190}} \quad \mathbb{Q}_6^{(1,-1;c)}(B_{1g}, 1) = \mathbb{Q}_6^{(1,-1;a)}(B_{1g}, 1) \mathbb{Q}_0^{(s)}(A_{1g})$$

$$\boxed{\text{z191}} \quad \mathbb{Q}_6^{(1,-1;c)}(B_{1g}, 2) = \mathbb{Q}_6^{(1,-1;a)}(B_{1g}, 2) \mathbb{Q}_0^{(s)}(A_{1g})$$

$$\begin{aligned}
\boxed{\text{z192}} \quad \mathbb{Q}_2^{(1,1;c)}(B_{1g}) &= \mathbb{Q}_2^{(1,1;a)}(B_{1g})\mathbb{Q}_0^{(s)}(A_{1g}) \\
\boxed{\text{z193}} \quad \mathbb{Q}_4^{(1,1;c)}(B_{1g}) &= \mathbb{Q}_4^{(1,1;a)}(B_{1g})\mathbb{Q}_0^{(s)}(A_{1g}) \\
\boxed{\text{z194}} \quad \mathbb{Q}_2^{(c)}(B_{2g}) &= \mathbb{Q}_2^{(a)}(B_{2g})\mathbb{Q}_0^{(s)}(A_{1g}) \\
\boxed{\text{z195}} \quad \mathbb{Q}_4^{(c)}(B_{2g}) &= \mathbb{Q}_4^{(a)}(B_{2g})\mathbb{Q}_0^{(s)}(A_{1g}) \\
\boxed{\text{z196}} \quad \mathbb{Q}_6^{(c)}(B_{2g}, 1) &= \mathbb{Q}_6^{(a)}(B_{2g}, 1)\mathbb{Q}_0^{(s)}(A_{1g}) \\
\boxed{\text{z197}} \quad \mathbb{Q}_6^{(c)}(B_{2g}, 2) &= \mathbb{Q}_6^{(a)}(B_{2g}, 2)\mathbb{Q}_0^{(s)}(A_{1g}) \\
\boxed{\text{z198}} \quad \mathbb{Q}_2^{(1,-1;c)}(B_{2g}) &= \mathbb{Q}_2^{(1,-1;a)}(B_{2g})\mathbb{Q}_0^{(s)}(A_{1g}) \\
\boxed{\text{z199}} \quad \mathbb{Q}_4^{(1,-1;c)}(B_{2g}) &= \mathbb{Q}_4^{(1,-1;a)}(B_{2g})\mathbb{Q}_0^{(s)}(A_{1g}) \\
\boxed{\text{z200}} \quad \mathbb{Q}_6^{(1,-1;c)}(B_{2g}, 1) &= \mathbb{Q}_6^{(1,-1;a)}(B_{2g}, 1)\mathbb{Q}_0^{(s)}(A_{1g}) \\
\boxed{\text{z285}} \quad \mathbb{Q}_6^{(1,-1;c)}(B_{2g}, 2) &= \mathbb{Q}_6^{(1,-1;a)}(B_{2g}, 2)\mathbb{Q}_0^{(s)}(A_{1g}) \\
\boxed{\text{z286}} \quad \mathbb{Q}_2^{(1,1;c)}(B_{2g}) &= \mathbb{Q}_2^{(1,1;a)}(B_{2g})\mathbb{Q}_0^{(s)}(A_{1g}) \\
\boxed{\text{z287}} \quad \mathbb{Q}_4^{(1,1;c)}(B_{2g}) &= \mathbb{Q}_4^{(1,1;a)}(B_{2g})\mathbb{Q}_0^{(s)}(A_{1g}) \\
\boxed{\text{z288}} \quad \mathbb{Q}_{2,1}^{(c)}(E_g) &= \frac{\sqrt{2}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_0^{(s)}(A_{1g})}{2} \\
\boxed{\text{z289}} \quad \mathbb{Q}_{2,2}^{(c)}(E_g) &= \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_0^{(s)}(A_{1g})}{2} \\
\boxed{\text{z290}} \quad \mathbb{Q}_{4,1}^{(c)}(E_g, 1) &= \frac{\sqrt{2}\mathbb{Q}_{4,1}^{(a)}(E_g, 1)\mathbb{Q}_0^{(s)}(A_{1g})}{2} \\
\boxed{\text{z291}} \quad \mathbb{Q}_{4,2}^{(c)}(E_g, 1) &= \frac{\sqrt{2}\mathbb{Q}_{4,2}^{(a)}(E_g, 1)\mathbb{Q}_0^{(s)}(A_{1g})}{2} \\
\boxed{\text{z292}} \quad \mathbb{Q}_{4,1}^{(c)}(E_g, 2) &= \frac{\sqrt{2}\mathbb{Q}_{4,1}^{(a)}(E_g, 2)\mathbb{Q}_0^{(s)}(A_{1g})}{2}
\end{aligned}$$

$$\begin{aligned}
\boxed{\text{z293}} \quad \mathbb{Q}_{4,2}^{(c)}(E_g, 2) &= \frac{\sqrt{2}\mathbb{Q}_{4,2}^{(a)}(E_g, 2)\mathbb{Q}_0^{(s)}(A_{1g})}{2} \\
\boxed{\text{z294}} \quad \mathbb{Q}_{6,1}^{(c)}(E_g, 1) &= \frac{\sqrt{2}\mathbb{Q}_{6,1}^{(a)}(E_g, 1)\mathbb{Q}_0^{(s)}(A_{1g})}{2} \\
\boxed{\text{z295}} \quad \mathbb{Q}_{6,2}^{(c)}(E_g, 1) &= \frac{\sqrt{2}\mathbb{Q}_{6,2}^{(a)}(E_g, 1)\mathbb{Q}_0^{(s)}(A_{1g})}{2} \\
\boxed{\text{z296}} \quad \mathbb{Q}_{6,1}^{(c)}(E_g, 2) &= \frac{\sqrt{2}\mathbb{Q}_{6,1}^{(a)}(E_g, 2)\mathbb{Q}_0^{(s)}(A_{1g})}{2} \\
\boxed{\text{z383}} \quad \mathbb{Q}_{6,2}^{(c)}(E_g, 2) &= \frac{\sqrt{2}\mathbb{Q}_{6,2}^{(a)}(E_g, 2)\mathbb{Q}_0^{(s)}(A_{1g})}{2} \\
\boxed{\text{z384}} \quad \mathbb{Q}_{6,1}^{(c)}(E_g, 3) &= \frac{\sqrt{2}\mathbb{Q}_{6,1}^{(a)}(E_g, 3)\mathbb{Q}_0^{(s)}(A_{1g})}{2} \\
\boxed{\text{z385}} \quad \mathbb{Q}_{6,2}^{(c)}(E_g, 3) &= \frac{\sqrt{2}\mathbb{Q}_{6,2}^{(a)}(E_g, 3)\mathbb{Q}_0^{(s)}(A_{1g})}{2} \\
\boxed{\text{z386}} \quad \mathbb{Q}_{2,1}^{(1,-1;c)}(E_g) &= \frac{\sqrt{2}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_0^{(s)}(A_{1g})}{2} \\
\boxed{\text{z387}} \quad \mathbb{Q}_{2,2}^{(1,-1;c)}(E_g) &= \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_0^{(s)}(A_{1g})}{2} \\
\boxed{\text{z388}} \quad \mathbb{Q}_{4,1}^{(1,-1;c)}(E_g, 1) &= \frac{\sqrt{2}\mathbb{Q}_{4,1}^{(1,-1;a)}(E_g, 1)\mathbb{Q}_0^{(s)}(A_{1g})}{2} \\
\boxed{\text{z389}} \quad \mathbb{Q}_{4,2}^{(1,-1;c)}(E_g, 1) &= \frac{\sqrt{2}\mathbb{Q}_{4,2}^{(1,-1;a)}(E_g, 1)\mathbb{Q}_0^{(s)}(A_{1g})}{2} \\
\boxed{\text{z390}} \quad \mathbb{Q}_{4,1}^{(1,-1;c)}(E_g, 2) &= \frac{\sqrt{2}\mathbb{Q}_{4,1}^{(1,-1;a)}(E_g, 2)\mathbb{Q}_0^{(s)}(A_{1g})}{2} \\
\boxed{\text{z391}} \quad \mathbb{Q}_{4,2}^{(1,-1;c)}(E_g, 2) &= \frac{\sqrt{2}\mathbb{Q}_{4,2}^{(1,-1;a)}(E_g, 2)\mathbb{Q}_0^{(s)}(A_{1g})}{2} \\
\boxed{\text{z392}} \quad \mathbb{Q}_{6,1}^{(1,-1;c)}(E_g, 1) &= \frac{\sqrt{2}\mathbb{Q}_{6,1}^{(1,-1;a)}(E_g, 1)\mathbb{Q}_0^{(s)}(A_{1g})}{2}
\end{aligned}$$



$$\boxed{\text{z393}} \quad \mathbb{Q}_{6,2}^{(1,-1;c)}(E_g, 1) = \frac{\sqrt{2}\mathbb{Q}_{6,2}^{(1,-1;a)}(E_g, 1)\mathbb{Q}_0^{(s)}(A_{1g})}{2}$$

$$\boxed{\text{z394}} \quad \mathbb{Q}_{6,1}^{(1,-1;c)}(E_g, 2) = \frac{\sqrt{2}\mathbb{Q}_{6,1}^{(1,-1;a)}(E_g, 2)\mathbb{Q}_0^{(s)}(A_{1g})}{2}$$

$$\boxed{\text{z395}} \quad \mathbb{Q}_{6,2}^{(1,-1;c)}(E_g, 2) = \frac{\sqrt{2}\mathbb{Q}_{6,2}^{(1,-1;a)}(E_g, 2)\mathbb{Q}_0^{(s)}(A_{1g})}{2}$$

$$\boxed{\text{z396}} \quad \mathbb{Q}_{6,1}^{(1,-1;c)}(E_g, 3) = \frac{\sqrt{2}\mathbb{Q}_{6,1}^{(1,-1;a)}(E_g, 3)\mathbb{Q}_0^{(s)}(A_{1g})}{2}$$

$$\boxed{\text{z397}} \quad \mathbb{Q}_{6,2}^{(1,-1;c)}(E_g, 3) = \frac{\sqrt{2}\mathbb{Q}_{6,2}^{(1,-1;a)}(E_g, 3)\mathbb{Q}_0^{(s)}(A_{1g})}{2}$$

$$\boxed{\text{z398}} \quad \mathbb{Q}_{2,1}^{(1,1;c)}(E_g) = \frac{\sqrt{2}\mathbb{Q}_{2,1}^{(1,1;a)}(E_g)\mathbb{Q}_0^{(s)}(A_{1g})}{2}$$

$$\boxed{\text{z399}} \quad \mathbb{Q}_{2,2}^{(1,1;c)}(E_g) = \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(1,1;a)}(E_g)\mathbb{Q}_0^{(s)}(A_{1g})}{2}$$

$$\boxed{\text{z400}} \quad \mathbb{Q}_{4,1}^{(1,1;c)}(E_g, 1) = \frac{\sqrt{2}\mathbb{Q}_{4,1}^{(1,1;a)}(E_g, 1)\mathbb{Q}_0^{(s)}(A_{1g})}{2}$$

$$\boxed{\text{z401}} \quad \mathbb{Q}_{4,2}^{(1,1;c)}(E_g, 1) = \frac{\sqrt{2}\mathbb{Q}_{4,2}^{(1,1;a)}(E_g, 1)\mathbb{Q}_0^{(s)}(A_{1g})}{2}$$

$$\boxed{\text{z402}} \quad \mathbb{Q}_{4,1}^{(1,1;c)}(E_g, 2) = \frac{\sqrt{2}\mathbb{Q}_{4,1}^{(1,1;a)}(E_g, 2)\mathbb{Q}_0^{(s)}(A_{1g})}{2}$$

$$\boxed{\text{z403}} \quad \mathbb{Q}_{4,2}^{(1,1;c)}(E_g, 2) = \frac{\sqrt{2}\mathbb{Q}_{4,2}^{(1,1;a)}(E_g, 2)\mathbb{Q}_0^{(s)}(A_{1g})}{2}$$

$$\boxed{\text{z404}} \quad \mathbb{G}_5^{(1,0;c)}(A_{1g}) = \mathbb{G}_5^{(1,0;a)}(A_{1g})\mathbb{Q}_0^{(s)}(A_{1g})$$

$$\boxed{\text{z405}} \quad \mathbb{G}_1^{(1,0;c)}(A_{2g}) = \mathbb{G}_1^{(1,0;a)}(A_{2g})\mathbb{Q}_0^{(s)}(A_{1g})$$

$$\boxed{\text{z406}} \quad \mathbb{G}_3^{(1,0;c)}(A_{2g}) = \mathbb{G}_3^{(1,0;a)}(A_{2g})\mathbb{Q}_0^{(s)}(A_{1g})$$

$$\boxed{\text{z407}} \quad \mathbb{G}_5^{(1,0;c)}(A_{2g}, 1) = \mathbb{G}_5^{(1,0;a)}(A_{2g}, 1) \mathbb{Q}_0^{(s)}(A_{1g})$$

$$\boxed{\text{z408}} \quad \mathbb{G}_5^{(1,0;c)}(A_{2g}, 2) = \mathbb{G}_5^{(1,0;a)}(A_{2g}, 2) \mathbb{Q}_0^{(s)}(A_{1g})$$

$$\boxed{\text{z409}} \quad \mathbb{G}_3^{(1,0;c)}(B_{1g}) = \mathbb{G}_3^{(1,0;a)}(B_{1g}) \mathbb{Q}_0^{(s)}(A_{1g})$$

$$\boxed{\text{z410}} \quad \mathbb{G}_5^{(1,0;c)}(B_{1g}) = \mathbb{G}_5^{(1,0;a)}(B_{1g}) \mathbb{Q}_0^{(s)}(A_{1g})$$

$$\boxed{\text{z411}} \quad \mathbb{G}_3^{(1,0;c)}(B_{2g}) = \mathbb{G}_3^{(1,0;a)}(B_{2g}) \mathbb{Q}_0^{(s)}(A_{1g})$$

$$\boxed{\text{z412}} \quad \mathbb{G}_5^{(1,0;c)}(B_{2g}) = \mathbb{G}_5^{(1,0;a)}(B_{2g}) \mathbb{Q}_0^{(s)}(A_{1g})$$

$$\boxed{\text{z413}} \quad \mathbb{G}_{1,1}^{(1,0;c)}(E_g) = \frac{\sqrt{2} \mathbb{G}_{1,1}^{(1,0;a)}(E_g) \mathbb{Q}_0^{(s)}(A_{1g})}{2}$$

$$\boxed{\text{z414}} \quad \mathbb{G}_{1,2}^{(1,0;c)}(E_g) = \frac{\sqrt{2} \mathbb{G}_{1,2}^{(1,0;a)}(E_g) \mathbb{Q}_0^{(s)}(A_{1g})}{2}$$

$$\boxed{\text{z415}} \quad \mathbb{G}_{3,1}^{(1,0;c)}(E_g, 1) = \frac{\sqrt{2} \mathbb{G}_{3,1}^{(1,0;a)}(E_g, 1) \mathbb{Q}_0^{(s)}(A_{1g})}{2}$$

$$\boxed{\text{z416}} \quad \mathbb{G}_{3,2}^{(1,0;c)}(E_g, 1) = \frac{\sqrt{2} \mathbb{G}_{3,2}^{(1,0;a)}(E_g, 1) \mathbb{Q}_0^{(s)}(A_{1g})}{2}$$

$$\boxed{\text{z417}} \quad \mathbb{G}_{3,1}^{(1,0;c)}(E_g, 2) = \frac{\sqrt{2} \mathbb{G}_{3,1}^{(1,0;a)}(E_g, 2) \mathbb{Q}_0^{(s)}(A_{1g})}{2}$$

$$\boxed{\text{z418}} \quad \mathbb{G}_{3,2}^{(1,0;c)}(E_g, 2) = \frac{\sqrt{2} \mathbb{G}_{3,2}^{(1,0;a)}(E_g, 2) \mathbb{Q}_0^{(s)}(A_{1g})}{2}$$

$$\boxed{\text{z419}} \quad \mathbb{G}_{5,1}^{(1,0;c)}(E_g, 1) = \frac{\sqrt{2} \mathbb{G}_{5,1}^{(1,0;a)}(E_g, 1) \mathbb{Q}_0^{(s)}(A_{1g})}{2}$$

$$\boxed{\text{z420}} \quad \mathbb{G}_{5,2}^{(1,0;c)}(E_g, 1) = \frac{\sqrt{2} \mathbb{G}_{5,2}^{(1,0;a)}(E_g, 1) \mathbb{Q}_0^{(s)}(A_{1g})}{2}$$

$$\boxed{\text{z421}} \quad \mathbb{G}_{5,1}^{(1,0;c)}(E_g, 2) = \frac{\sqrt{2} \mathbb{G}_{5,1}^{(1,0;a)}(E_g, 2) \mathbb{Q}_0^{(s)}(A_{1g})}{2}$$

$$\boxed{\text{z422}} \quad \mathbb{G}_{5,2}^{(1,0;c)}(E_g, 2) = \frac{\sqrt{2}\mathbb{G}_{5,2}^{(1,0;a)}(E_g, 2)\mathbb{Q}_0^{(s)}(A_{1g})}{2}$$

$$\boxed{\text{z423}} \quad \mathbb{G}_{5,1}^{(1,0;c)}(E_g, 3) = \frac{\sqrt{2}\mathbb{G}_{5,1}^{(1,0;a)}(E_g, 3)\mathbb{Q}_0^{(s)}(A_{1g})}{2}$$

$$\boxed{\text{z424}} \quad \mathbb{G}_{5,2}^{(1,0;c)}(E_g, 3) = \frac{\sqrt{2}\mathbb{G}_{5,2}^{(1,0;a)}(E_g, 3)\mathbb{Q}_0^{(s)}(A_{1g})}{2}$$

• 'U'-'U' bond-cluster

\* bra:  $\langle \frac{3}{2}, \frac{3}{2}; d |, \langle \frac{3}{2}, \frac{1}{2}; d |, \langle \frac{3}{2}, -\frac{1}{2}; d |, \langle \frac{3}{2}, -\frac{3}{2}; d |, \langle \frac{5}{2}, \frac{5}{2}; d |, \langle \frac{5}{2}, \frac{3}{2}; d |, \langle \frac{5}{2}, \frac{1}{2}; d |, \langle \frac{5}{2}, -\frac{1}{2}; d |, \langle \frac{5}{2}, -\frac{3}{2}; d |, \langle \frac{5}{2}, -\frac{5}{2}; d |$

\* ket:  $|\frac{3}{2}, \frac{3}{2}; d\rangle, |\frac{3}{2}, \frac{1}{2}; d\rangle, |\frac{3}{2}, -\frac{1}{2}; d\rangle, |\frac{3}{2}, -\frac{3}{2}; d\rangle, |\frac{5}{2}, \frac{5}{2}; d\rangle, |\frac{5}{2}, \frac{3}{2}; d\rangle, |\frac{5}{2}, \frac{1}{2}; d\rangle, |\frac{5}{2}, -\frac{1}{2}; d\rangle, |\frac{5}{2}, -\frac{3}{2}; d\rangle, |\frac{5}{2}, -\frac{5}{2}; d\rangle$

\* wyckoff: **4b04c**

$$\boxed{\text{z26}} \quad \mathbb{Q}_0^{(c)}(A_{1g}, a) = \mathbb{Q}_0^{(a)}(A_{1g})\mathbb{Q}_0^{(b)}(A_{1g})$$

$$\boxed{\text{z27}} \quad \mathbb{Q}_0^{(c)}(A_{1g}, b) = \mathbb{Q}_2^{(a)}(B_{1g})\mathbb{Q}_2^{(b)}(B_{1g})$$

$$\boxed{\text{z28}} \quad \mathbb{Q}_2^{(c)}(A_{1g}, a) = \mathbb{Q}_2^{(a)}(A_{1g})\mathbb{Q}_0^{(b)}(A_{1g})$$

$$\boxed{\text{z29}} \quad \mathbb{Q}_2^{(c)}(A_{1g}, b) = -\mathbb{Q}_4^{(a)}(B_{1g})\mathbb{Q}_2^{(b)}(B_{1g})$$

$$\boxed{\text{z30}} \quad \mathbb{Q}_4^{(c)}(A_{1g}, 1) = \mathbb{Q}_4^{(a)}(A_{1g}, 1)\mathbb{Q}_0^{(b)}(A_{1g})$$

$$\boxed{\text{z31}} \quad \mathbb{Q}_4^{(c)}(A_{1g}, 2) = \mathbb{Q}_4^{(a)}(A_{1g}, 2)\mathbb{Q}_0^{(b)}(A_{1g})$$

$$\boxed{\text{z32}} \quad \mathbb{Q}_0^{(1,-1;c)}(A_{1g}) = \mathbb{Q}_2^{(1,-1;a)}(B_{1g})\mathbb{Q}_2^{(b)}(B_{1g})$$

$$\boxed{\text{z33}} \quad \mathbb{Q}_2^{(1,-1;c)}(A_{1g}, a) = \mathbb{Q}_2^{(1,-1;a)}(A_{1g})\mathbb{Q}_0^{(b)}(A_{1g})$$

$$\boxed{\text{z34}} \quad \mathbb{Q}_2^{(1,-1;c)}(A_{1g}, b) = -\mathbb{Q}_4^{(1,-1;a)}(B_{1g})\mathbb{Q}_2^{(b)}(B_{1g})$$

$$\boxed{\text{z35}} \quad \mathbb{Q}_4^{(1,-1;c)}(A_{1g}, 1) = \mathbb{Q}_4^{(1,-1;a)}(A_{1g}, 1)\mathbb{Q}_0^{(b)}(A_{1g})$$

$$\boxed{\text{z36}} \quad \mathbb{Q}_4^{(1,-1;c)}(A_{1g}, 2) = \mathbb{Q}_4^{(1,-1;a)}(A_{1g}, 2)\mathbb{Q}_0^{(b)}(A_{1g})$$

$$\boxed{\text{z37}} \quad \mathbb{Q}_2^{(1,0;c)}(A_{1g}) = -\mathbb{G}_3^{(1,0;a)}(B_{1g})\mathbb{Q}_2^{(b)}(B_{1g})$$

$$\boxed{\text{z38}} \quad \mathbb{Q}_0^{(1,1;c)}(A_{1g}, a) = \mathbb{Q}_0^{(1,1;a)}(A_{1g})\mathbb{Q}_0^{(b)}(A_{1g})$$

$$\boxed{\text{z39}} \quad \mathbb{Q}_0^{(1,1;c)}(A_{1g}, b) = \mathbb{Q}_2^{(1,1;a)}(B_{1g})\mathbb{Q}_2^{(b)}(B_{1g})$$

$$\boxed{\text{z40}} \quad \mathbb{Q}_2^{(1,1;c)}(A_{1g}) = \mathbb{Q}_2^{(1,1;a)}(A_{1g})\mathbb{Q}_0^{(b)}(A_{1g})$$

$$\boxed{\text{z117}} \quad \mathbb{Q}_5^{(1,-1;c)}(A_{1u}) = \frac{\sqrt{14}\mathbb{M}_{5,1}^{(1,-1;a)}(E_g, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{7} - \frac{\sqrt{42}\mathbb{M}_{5,1}^{(1,-1;a)}(E_g, 3)\mathbb{T}_{1,1}^{(b)}(E_u)}{14} - \frac{\sqrt{14}\mathbb{M}_{5,2}^{(1,-1;a)}(E_g, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{7} + \frac{\sqrt{42}\mathbb{M}_{5,2}^{(1,-1;a)}(E_g, 3)\mathbb{T}_{1,2}^{(b)}(E_u)}{14}$$

$$\boxed{\text{z118}} \quad \mathbb{Q}_5^{(1,0;c)}(A_{1u}) = -\frac{\mathbb{T}_{4,1}^{(1,0;a)}(E_g, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{4} + \frac{\sqrt{7}\mathbb{T}_{4,1}^{(1,0;a)}(E_g, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{4} + \frac{\mathbb{T}_{4,2}^{(1,0;a)}(E_g, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{4} - \frac{\sqrt{7}\mathbb{T}_{4,2}^{(1,0;a)}(E_g, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{4}$$

$$\boxed{\text{z119}} \quad \mathbb{Q}_4^{(c)}(A_{2g}, a) = \mathbb{Q}_2^{(a)}(B_{2g})\mathbb{Q}_2^{(b)}(B_{1g})$$

$$\boxed{\text{z120}} \quad \mathbb{Q}_4^{(c)}(A_{2g}, b) = \mathbb{Q}_4^{(a)}(A_{2g})\mathbb{Q}_0^{(b)}(A_{1g})$$

$$\boxed{\text{z121}} \quad \mathbb{Q}_4^{(c)}(A_{2g}, c) = -\mathbb{Q}_4^{(a)}(B_{2g})\mathbb{Q}_2^{(b)}(B_{1g})$$

$$\boxed{\text{z122}} \quad \mathbb{Q}_4^{(1,-1;c)}(A_{2g}, a) = \mathbb{Q}_2^{(1,-1;a)}(B_{2g})\mathbb{Q}_2^{(b)}(B_{1g})$$

$$\boxed{\text{z123}} \quad \mathbb{Q}_4^{(1,-1;c)}(A_{2g}, b) = \mathbb{Q}_4^{(1,-1;a)}(A_{2g})\mathbb{Q}_0^{(b)}(A_{1g})$$

$$\boxed{\text{z124}} \quad \mathbb{Q}_4^{(1,-1;c)}(A_{2g}, c) = -\mathbb{Q}_4^{(1,-1;a)}(B_{2g})\mathbb{Q}_2^{(b)}(B_{1g})$$

$$\boxed{\text{z125}} \quad \mathbb{Q}_4^{(1,0;c)}(A_{2g}) = \mathbb{G}_3^{(1,0;a)}(B_{2g})\mathbb{Q}_2^{(b)}(B_{1g})$$

$$\boxed{\text{z126}} \quad \mathbb{Q}_4^{(1,1;c)}(A_{2g}) = \mathbb{Q}_2^{(1,1;a)}(B_{2g})\mathbb{Q}_2^{(b)}(B_{1g})$$

$$\boxed{\text{z201}} \quad \mathbb{Q}_1^{(c)}(A_{2u}) = \frac{\sqrt{2}\mathbb{M}_{1,1}^{(a)}(E_g)\mathbb{T}_{1,2}^{(b)}(E_u)}{2} + \frac{\sqrt{2}\mathbb{M}_{1,2}^{(a)}(E_g)\mathbb{T}_{1,1}^{(b)}(E_u)}{2}$$

$$\boxed{\text{z202}} \quad \mathbb{Q}_3^{(c)}(A_{2u}) = -\frac{\sqrt{3}\mathbb{M}_{3,1}^{(a)}(E_g, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{4} - \frac{\sqrt{5}\mathbb{M}_{3,1}^{(a)}(E_g, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{4} - \frac{\sqrt{3}\mathbb{M}_{3,2}^{(a)}(E_g, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{4} - \frac{\sqrt{5}\mathbb{M}_{3,2}^{(a)}(E_g, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{4}$$

$$\boxed{\text{z203}} \quad \mathbb{Q}_1^{(1,-1;c)}(A_{2u}) = \frac{\sqrt{2}\mathbb{M}_{1,1}^{(1,-1;a)}(E_g)\mathbb{T}_{1,2}^{(b)}(E_u)}{2} + \frac{\sqrt{2}\mathbb{M}_{1,2}^{(1,-1;a)}(E_g)\mathbb{T}_{1,1}^{(b)}(E_u)}{2}$$

$$\boxed{\text{z204}} \quad \mathbb{Q}_3^{(1,-1;c)}(A_{2u}) = -\frac{\sqrt{3}\mathbb{M}_{3,1}^{(1,-1;a)}(E_g, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{4} - \frac{\sqrt{5}\mathbb{M}_{3,1}^{(1,-1;a)}(E_g, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{4} - \frac{\sqrt{3}\mathbb{M}_{3,2}^{(1,-1;a)}(E_g, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{4} - \frac{\sqrt{5}\mathbb{M}_{3,2}^{(1,-1;a)}(E_g, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{4}$$

$$\begin{aligned}
\text{z205} \quad \mathbb{Q}_5^{(1,-1;c)}(A_{2u},1) &= \frac{\sqrt{30}\mathbb{M}_{5,1}^{(1,-1;a)}(E_g,1)\mathbb{T}_{1,2}^{(b)}(E_u)}{16} + \frac{\sqrt{42}\mathbb{M}_{5,1}^{(1,-1;a)}(E_g,2)\mathbb{T}_{1,2}^{(b)}(E_u)}{16} + \frac{\sqrt{14}\mathbb{M}_{5,1}^{(1,-1;a)}(E_g,3)\mathbb{T}_{1,2}^{(b)}(E_u)}{8} \\
&+ \frac{\sqrt{30}\mathbb{M}_{5,2}^{(1,-1;a)}(E_g,1)\mathbb{T}_{1,1}^{(b)}(E_u)}{16} + \frac{\sqrt{42}\mathbb{M}_{5,2}^{(1,-1;a)}(E_g,2)\mathbb{T}_{1,1}^{(b)}(E_u)}{16} + \frac{\sqrt{14}\mathbb{M}_{5,2}^{(1,-1;a)}(E_g,3)\mathbb{T}_{1,1}^{(b)}(E_u)}{8} \\
\text{z206} \quad \mathbb{Q}_5^{(1,-1;c)}(A_{2u},2) &= \frac{3\sqrt{10}\mathbb{M}_{5,1}^{(1,-1;a)}(E_g,1)\mathbb{T}_{1,2}^{(b)}(E_u)}{16} - \frac{11\sqrt{14}\mathbb{M}_{5,1}^{(1,-1;a)}(E_g,2)\mathbb{T}_{1,2}^{(b)}(E_u)}{112} - \frac{\sqrt{42}\mathbb{M}_{5,1}^{(1,-1;a)}(E_g,3)\mathbb{T}_{1,2}^{(b)}(E_u)}{56} \\
&+ \frac{3\sqrt{10}\mathbb{M}_{5,2}^{(1,-1;a)}(E_g,1)\mathbb{T}_{1,1}^{(b)}(E_u)}{16} - \frac{11\sqrt{14}\mathbb{M}_{5,2}^{(1,-1;a)}(E_g,2)\mathbb{T}_{1,1}^{(b)}(E_u)}{112} - \frac{\sqrt{42}\mathbb{M}_{5,2}^{(1,-1;a)}(E_g,3)\mathbb{T}_{1,1}^{(b)}(E_u)}{56} \\
\text{z207} \quad \mathbb{Q}_1^{(1,0;c)}(A_{2u}) &= \frac{\sqrt{2}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{T}_{1,2}^{(b)}(E_u)}{2} + \frac{\sqrt{2}\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{T}_{1,1}^{(b)}(E_u)}{2} \\
\text{z208} \quad \mathbb{Q}_3^{(1,0;c)}(A_{2u}) &= -\frac{\sqrt{7}\mathbb{T}_{4,1}^{(1,0;a)}(E_g,1)\mathbb{T}_{1,2}^{(b)}(E_u)}{4} - \frac{\mathbb{T}_{4,1}^{(1,0;a)}(E_g,2)\mathbb{T}_{1,2}^{(b)}(E_u)}{4} - \frac{\sqrt{7}\mathbb{T}_{4,2}^{(1,0;a)}(E_g,1)\mathbb{T}_{1,1}^{(b)}(E_u)}{4} - \frac{\mathbb{T}_{4,2}^{(1,0;a)}(E_g,2)\mathbb{T}_{1,1}^{(b)}(E_u)}{4} \\
\text{z209} \quad \mathbb{Q}_5^{(1,0;c)}(A_{2u},2) &= \frac{\mathbb{T}_{4,1}^{(1,0;a)}(E_g,1)\mathbb{T}_{1,2}^{(b)}(E_u)}{4} - \frac{\sqrt{7}\mathbb{T}_{4,1}^{(1,0;a)}(E_g,2)\mathbb{T}_{1,2}^{(b)}(E_u)}{4} + \frac{\mathbb{T}_{4,2}^{(1,0;a)}(E_g,1)\mathbb{T}_{1,1}^{(b)}(E_u)}{4} - \frac{\sqrt{7}\mathbb{T}_{4,2}^{(1,0;a)}(E_g,2)\mathbb{T}_{1,1}^{(b)}(E_u)}{4} \\
\text{z210} \quad \mathbb{Q}_1^{(1,1;c)}(A_{2u}) &= \frac{\sqrt{2}\mathbb{M}_{1,1}^{(1,1;a)}(E_g)\mathbb{T}_{1,2}^{(b)}(E_u)}{2} + \frac{\sqrt{2}\mathbb{M}_{1,2}^{(1,1;a)}(E_g)\mathbb{T}_{1,1}^{(b)}(E_u)}{2} \\
\text{z211} \quad \mathbb{Q}_3^{(1,1;c)}(A_{2u}) &= -\frac{\sqrt{3}\mathbb{M}_{3,1}^{(1,1;a)}(E_g,1)\mathbb{T}_{1,2}^{(b)}(E_u)}{4} - \frac{\sqrt{5}\mathbb{M}_{3,1}^{(1,1;a)}(E_g,2)\mathbb{T}_{1,2}^{(b)}(E_u)}{4} - \frac{\sqrt{3}\mathbb{M}_{3,2}^{(1,1;a)}(E_g,1)\mathbb{T}_{1,1}^{(b)}(E_u)}{4} - \frac{\sqrt{5}\mathbb{M}_{3,2}^{(1,1;a)}(E_g,2)\mathbb{T}_{1,1}^{(b)}(E_u)}{4} \\
\text{z212} \quad \mathbb{Q}_2^{(c)}(B_{1g},a) &= \mathbb{Q}_0^{(a)}(A_{1g})\mathbb{Q}_2^{(b)}(B_{1g}) \\
\text{z213} \quad \mathbb{Q}_2^{(c)}(B_{1g},b) &= \mathbb{Q}_2^{(a)}(B_{1g})\mathbb{Q}_0^{(b)}(A_{1g}) \\
\text{z214} \quad \mathbb{Q}_2^{(c)}(B_{1g},c) &= -\mathbb{Q}_2^{(a)}(A_{1g})\mathbb{Q}_2^{(b)}(B_{1g}) \\
\text{z215} \quad \mathbb{Q}_2^{(c)}(B_{1g},d) &= \frac{\sqrt{21}\mathbb{Q}_4^{(a)}(A_{1g},1)\mathbb{Q}_2^{(b)}(B_{1g})}{6} - \frac{\sqrt{15}\mathbb{Q}_4^{(a)}(A_{1g},2)\mathbb{Q}_2^{(b)}(B_{1g})}{6} \\
\text{z297} \quad \mathbb{Q}_4^{(c)}(B_{1g},a) &= \mathbb{Q}_4^{(a)}(B_{1g})\mathbb{Q}_0^{(b)}(A_{1g}) \\
\text{z298} \quad \mathbb{Q}_4^{(c)}(B_{1g},b) &= \frac{\sqrt{15}\mathbb{Q}_4^{(a)}(A_{1g},1)\mathbb{Q}_2^{(b)}(B_{1g})}{6} + \frac{\sqrt{21}\mathbb{Q}_4^{(a)}(A_{1g},2)\mathbb{Q}_2^{(b)}(B_{1g})}{6}
\end{aligned}$$

$$\begin{aligned}
\text{z299} \quad \mathbb{Q}_2^{(1,-1;c)}(B_{1g}, a) &= \mathbb{Q}_2^{(1,-1;a)}(B_{1g})\mathbb{Q}_0^{(b)}(A_{1g}) \\
\text{z300} \quad \mathbb{Q}_2^{(1,-1;c)}(B_{1g}, b) &= -\mathbb{Q}_2^{(1,-1;a)}(A_{1g})\mathbb{Q}_2^{(b)}(B_{1g}) \\
\text{z301} \quad \mathbb{Q}_2^{(1,-1;c)}(B_{1g}, c) &= \frac{\sqrt{21}\mathbb{Q}_4^{(1,-1;a)}(A_{1g}, 1)\mathbb{Q}_2^{(b)}(B_{1g})}{6} - \frac{\sqrt{15}\mathbb{Q}_4^{(1,-1;a)}(A_{1g}, 2)\mathbb{Q}_2^{(b)}(B_{1g})}{6} \\
\text{z302} \quad \mathbb{Q}_4^{(1,-1;c)}(B_{1g}, a) &= \mathbb{Q}_4^{(1,-1;a)}(B_{1g})\mathbb{Q}_0^{(b)}(A_{1g}) \\
\text{z303} \quad \mathbb{Q}_4^{(1,-1;c)}(B_{1g}, b) &= \frac{\sqrt{15}\mathbb{Q}_4^{(1,-1;a)}(A_{1g}, 1)\mathbb{Q}_2^{(b)}(B_{1g})}{6} + \frac{\sqrt{21}\mathbb{Q}_4^{(1,-1;a)}(A_{1g}, 2)\mathbb{Q}_2^{(b)}(B_{1g})}{6} \\
\text{z304} \quad \mathbb{Q}_2^{(1,1;c)}(B_{1g}, a) &= \mathbb{Q}_0^{(1,1;a)}(A_{1g})\mathbb{Q}_2^{(b)}(B_{1g}) \\
\text{z305} \quad \mathbb{Q}_2^{(1,1;c)}(B_{1g}, b) &= \mathbb{Q}_2^{(1,1;a)}(B_{1g})\mathbb{Q}_0^{(b)}(A_{1g}) \\
\text{z306} \quad \mathbb{Q}_2^{(1,1;c)}(B_{1g}, c) &= -\mathbb{Q}_2^{(1,1;a)}(A_{1g})\mathbb{Q}_2^{(b)}(B_{1g}) \\
\text{z425} \quad \mathbb{Q}_3^{(c)}(B_{1u}) &= -\frac{\sqrt{2}\mathbb{M}_{3,1}^{(a)}(E_g, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{2} - \frac{\sqrt{2}\mathbb{M}_{3,2}^{(a)}(E_g, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{2} \\
\text{z426} \quad \mathbb{Q}_3^{(1,-1;c)}(B_{1u}) &= -\frac{\sqrt{2}\mathbb{M}_{3,1}^{(1,-1;a)}(E_g, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{2} - \frac{\sqrt{2}\mathbb{M}_{3,2}^{(1,-1;a)}(E_g, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{2} \\
\text{z427} \quad \mathbb{Q}_5^{(1,-1;c)}(B_{1u}) &= -\frac{\sqrt{78}\mathbb{M}_{5,1}^{(1,-1;a)}(E_g, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{13} - \frac{\sqrt{26}\mathbb{M}_{5,1}^{(1,-1;a)}(E_g, 3)\mathbb{T}_{1,1}^{(b)}(E_u)}{26} - \frac{\sqrt{78}\mathbb{M}_{5,2}^{(1,-1;a)}(E_g, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{13} - \frac{\sqrt{26}\mathbb{M}_{5,2}^{(1,-1;a)}(E_g, 3)\mathbb{T}_{1,2}^{(b)}(E_u)}{26} \\
\text{z428} \quad \mathbb{Q}_3^{(1,0;c)}(B_{1u}, a) &= \frac{\sqrt{2}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{T}_{1,1}^{(b)}(E_u)}{2} + \frac{\sqrt{2}\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{T}_{1,2}^{(b)}(E_u)}{2} \\
\text{z429} \quad \mathbb{Q}_3^{(1,0;c)}(B_{1u}, b) &= \frac{\sqrt{2}\mathbb{T}_{4,1}^{(1,0;a)}(E_g, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{2} + \frac{\sqrt{2}\mathbb{T}_{4,2}^{(1,0;a)}(E_g, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{2} \\
\text{z430} \quad \mathbb{Q}_5^{(1,0;c)}(B_{1u}) &= \frac{\sqrt{2}\mathbb{T}_{4,1}^{(1,0;a)}(E_g, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{2} + \frac{\sqrt{2}\mathbb{T}_{4,2}^{(1,0;a)}(E_g, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{2} \\
\text{z431} \quad \mathbb{Q}_3^{(1,1;c)}(B_{1u}) &= -\frac{\sqrt{2}\mathbb{M}_{3,1}^{(1,1;a)}(E_g, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{2} - \frac{\sqrt{2}\mathbb{M}_{3,2}^{(1,1;a)}(E_g, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{2}
\end{aligned}$$

$$\boxed{\text{z432}} \quad \mathbb{Q}_2^{(c)}(B_{2g}, a) = \mathbb{Q}_2^{(a)}(B_{2g})\mathbb{Q}_0^{(b)}(A_{1g})$$

$$\boxed{\text{z433}} \quad \mathbb{Q}_2^{(c)}(B_{2g}, b) = \mathbb{Q}_4^{(a)}(A_{2g})\mathbb{Q}_2^{(b)}(B_{1g})$$

$$\boxed{\text{z434}} \quad \mathbb{Q}_4^{(c)}(B_{2g}) = \mathbb{Q}_4^{(a)}(B_{2g})\mathbb{Q}_0^{(b)}(A_{1g})$$

$$\boxed{\text{z435}} \quad \mathbb{Q}_2^{(1,-1;c)}(B_{2g}, a) = \mathbb{Q}_2^{(1,-1;a)}(B_{2g})\mathbb{Q}_0^{(b)}(A_{1g})$$

$$\boxed{\text{z436}} \quad \mathbb{Q}_2^{(1,-1;c)}(B_{2g}, b) = \mathbb{Q}_4^{(1,-1;a)}(A_{2g})\mathbb{Q}_2^{(b)}(B_{1g})$$

$$\boxed{\text{z437}} \quad \mathbb{Q}_4^{(1,-1;c)}(B_{2g}) = \mathbb{Q}_4^{(1,-1;a)}(B_{2g})\mathbb{Q}_0^{(b)}(A_{1g})$$

$$\boxed{\text{z438}} \quad \mathbb{Q}_2^{(1,0;c)}(B_{2g}, a) = \mathbb{G}_1^{(1,0;a)}(A_{2g})\mathbb{Q}_2^{(b)}(B_{1g})$$

$$\boxed{\text{z439}} \quad \mathbb{Q}_2^{(1,0;c)}(B_{2g}, b) = -\mathbb{G}_3^{(1,0;a)}(A_{2g})\mathbb{Q}_2^{(b)}(B_{1g})$$

$$\boxed{\text{z440}} \quad \mathbb{Q}_2^{(1,1;c)}(B_{2g}) = \mathbb{Q}_2^{(1,1;a)}(B_{2g})\mathbb{Q}_0^{(b)}(A_{1g})$$

$$\boxed{\text{z441}} \quad \mathbb{Q}_3^{(c)}(B_{2u}) = \frac{\sqrt{30}\mathbb{M}_{3,1}^{(a)}(E_g, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{8} + \frac{\sqrt{2}\mathbb{M}_{3,1}^{(a)}(E_g, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{8} - \frac{\sqrt{30}\mathbb{M}_{3,2}^{(a)}(E_g, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{8} - \frac{\sqrt{2}\mathbb{M}_{3,2}^{(a)}(E_g, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{8}$$

$$\boxed{\text{z442}} \quad \mathbb{Q}_3^{(1,-1;c)}(B_{2u}) = \frac{\sqrt{30}\mathbb{M}_{3,1}^{(1,-1;a)}(E_g, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{8} + \frac{\sqrt{2}\mathbb{M}_{3,1}^{(1,-1;a)}(E_g, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{8} - \frac{\sqrt{30}\mathbb{M}_{3,2}^{(1,-1;a)}(E_g, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{8} - \frac{\sqrt{2}\mathbb{M}_{3,2}^{(1,-1;a)}(E_g, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{8}$$

$$\boxed{\text{z443}} \quad \mathbb{Q}_5^{(1,-1;c)}(B_{2u}) = -\frac{\sqrt{2730}\mathbb{M}_{5,1}^{(1,-1;a)}(E_g, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{104} + \frac{\sqrt{78}\mathbb{M}_{5,1}^{(1,-1;a)}(E_g, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{104} - \frac{5\sqrt{26}\mathbb{M}_{5,1}^{(1,-1;a)}(E_g, 3)\mathbb{T}_{1,2}^{(b)}(E_u)}{52} \\ + \frac{\sqrt{2730}\mathbb{M}_{5,2}^{(1,-1;a)}(E_g, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{104} - \frac{\sqrt{78}\mathbb{M}_{5,2}^{(1,-1;a)}(E_g, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{104} + \frac{5\sqrt{26}\mathbb{M}_{5,2}^{(1,-1;a)}(E_g, 3)\mathbb{T}_{1,1}^{(b)}(E_u)}{52}$$

$$\boxed{\text{z444}} \quad \mathbb{Q}_3^{(1,0;c)}(B_{2u}, a) = -\frac{\sqrt{2}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{T}_{1,2}^{(b)}(E_u)}{2} + \frac{\sqrt{2}\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{T}_{1,1}^{(b)}(E_u)}{2}$$

$$\boxed{\text{z445}} \quad \mathbb{Q}_3^{(1,0;c)}(B_{2u}, b) = -\frac{\sqrt{14}\mathbb{T}_{4,1}^{(1,0;a)}(E_g, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{8} + \frac{3\sqrt{2}\mathbb{T}_{4,1}^{(1,0;a)}(E_g, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{8} + \frac{\sqrt{14}\mathbb{T}_{4,2}^{(1,0;a)}(E_g, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{8} - \frac{3\sqrt{2}\mathbb{T}_{4,2}^{(1,0;a)}(E_g, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{8}$$

$$\boxed{\text{z446}} \quad \mathbb{Q}_5^{(1,0;c)}(B_{2u}) = \frac{3\sqrt{2}\mathbb{T}_{4,1}^{(1,0;a)}(E_g, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{8} + \frac{\sqrt{14}\mathbb{T}_{4,1}^{(1,0;a)}(E_g, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{8} - \frac{3\sqrt{2}\mathbb{T}_{4,2}^{(1,0;a)}(E_g, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{8} - \frac{\sqrt{14}\mathbb{T}_{4,2}^{(1,0;a)}(E_g, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{8}$$

$$\begin{aligned}
\boxed{\text{z447}} \quad \mathbb{Q}_3^{(1,1;c)}(B_{2u}) &= \frac{\sqrt{30}\mathbb{M}_{3,1}^{(1,1;a)}(E_g, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{8} + \frac{\sqrt{2}\mathbb{M}_{3,1}^{(1,1;a)}(E_g, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{8} - \frac{\sqrt{30}\mathbb{M}_{3,2}^{(1,1;a)}(E_g, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{8} - \frac{\sqrt{2}\mathbb{M}_{3,2}^{(1,1;a)}(E_g, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{8} \\
\boxed{\text{z448}} \quad \mathbb{Q}_{2,1}^{(c)}(E_g, a) &= \frac{\sqrt{2}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_0^{(b)}(A_{1g})}{2} \\
\boxed{\text{z449}} \quad \mathbb{Q}_{2,2}^{(c)}(E_g, a) &= \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_0^{(b)}(A_{1g})}{2} \\
\boxed{\text{z450}} \quad \mathbb{Q}_{2,1}^{(c)}(E_g, b) &= -\frac{\sqrt{2}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_2^{(b)}(B_{1g})}{2} \\
\boxed{\text{z451}} \quad \mathbb{Q}_{2,2}^{(c)}(E_g, b) &= \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_2^{(b)}(B_{1g})}{2} \\
\boxed{\text{z452}} \quad \mathbb{Q}_{2,1}^{(c)}(E_g, c) &= -\frac{\sqrt{14}\mathbb{Q}_{4,1}^{(a)}(E_g, 1)\mathbb{Q}_2^{(b)}(B_{1g})}{8} + \frac{3\sqrt{2}\mathbb{Q}_{4,1}^{(a)}(E_g, 2)\mathbb{Q}_2^{(b)}(B_{1g})}{8} \\
\boxed{\text{z453}} \quad \mathbb{Q}_{2,2}^{(c)}(E_g, c) &= \frac{\sqrt{14}\mathbb{Q}_{4,2}^{(a)}(E_g, 1)\mathbb{Q}_2^{(b)}(B_{1g})}{8} - \frac{3\sqrt{2}\mathbb{Q}_{4,2}^{(a)}(E_g, 2)\mathbb{Q}_2^{(b)}(B_{1g})}{8} \\
\boxed{\text{z454}} \quad \mathbb{Q}_{4,1}^{(c)}(E_g, 1a) &= \frac{\sqrt{2}\mathbb{Q}_{4,1}^{(a)}(E_g, 1)\mathbb{Q}_0^{(b)}(A_{1g})}{2} \\
\boxed{\text{z455}} \quad \mathbb{Q}_{4,2}^{(c)}(E_g, 1a) &= \frac{\sqrt{2}\mathbb{Q}_{4,2}^{(a)}(E_g, 1)\mathbb{Q}_0^{(b)}(A_{1g})}{2} \\
\boxed{\text{z456}} \quad \mathbb{Q}_{4,1}^{(c)}(E_g, 1b) &= -\frac{3\sqrt{2}\mathbb{Q}_{4,1}^{(a)}(E_g, 1)\mathbb{Q}_2^{(b)}(B_{1g})}{8} - \frac{\sqrt{14}\mathbb{Q}_{4,1}^{(a)}(E_g, 2)\mathbb{Q}_2^{(b)}(B_{1g})}{8} \\
\boxed{\text{z457}} \quad \mathbb{Q}_{4,2}^{(c)}(E_g, 1b) &= \frac{3\sqrt{2}\mathbb{Q}_{4,2}^{(a)}(E_g, 1)\mathbb{Q}_2^{(b)}(B_{1g})}{8} + \frac{\sqrt{14}\mathbb{Q}_{4,2}^{(a)}(E_g, 2)\mathbb{Q}_2^{(b)}(B_{1g})}{8} \\
\boxed{\text{z458}} \quad \mathbb{Q}_{4,1}^{(c)}(E_g, 2) &= \frac{\sqrt{2}\mathbb{Q}_{4,1}^{(a)}(E_g, 2)\mathbb{Q}_0^{(b)}(A_{1g})}{2} \\
\boxed{\text{z459}} \quad \mathbb{Q}_{4,2}^{(c)}(E_g, 2) &= \frac{\sqrt{2}\mathbb{Q}_{4,2}^{(a)}(E_g, 2)\mathbb{Q}_0^{(b)}(A_{1g})}{2} \\
\boxed{\text{z460}} \quad \mathbb{Q}_{2,1}^{(1,-1;c)}(E_g, a) &= \frac{\sqrt{2}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_0^{(b)}(A_{1g})}{2}
\end{aligned}$$



$$\boxed{\text{z461}} \quad \mathbb{Q}_{2,2}^{(1,-1;c)}(E_g, a) = \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_0^{(b)}(A_{1g})}{2}$$

$$\boxed{\text{z462}} \quad \mathbb{Q}_{2,1}^{(1,-1;c)}(E_g, b) = -\frac{\sqrt{2}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_2^{(b)}(B_{1g})}{2}$$

$$\boxed{\text{z463}} \quad \mathbb{Q}_{2,2}^{(1,-1;c)}(E_g, b) = \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_2^{(b)}(B_{1g})}{2}$$

$$\boxed{\text{z464}} \quad \mathbb{Q}_{2,1}^{(1,-1;c)}(E_g, c) = -\frac{\sqrt{14}\mathbb{Q}_{4,1}^{(1,-1;a)}(E_g, 1)\mathbb{Q}_2^{(b)}(B_{1g})}{8} + \frac{3\sqrt{2}\mathbb{Q}_{4,1}^{(1,-1;a)}(E_g, 2)\mathbb{Q}_2^{(b)}(B_{1g})}{8}$$

$$\boxed{\text{z707}} \quad \mathbb{Q}_{2,2}^{(1,-1;c)}(E_g, c) = \frac{\sqrt{14}\mathbb{Q}_{4,2}^{(1,-1;a)}(E_g, 1)\mathbb{Q}_2^{(b)}(B_{1g})}{8} - \frac{3\sqrt{2}\mathbb{Q}_{4,2}^{(1,-1;a)}(E_g, 2)\mathbb{Q}_2^{(b)}(B_{1g})}{8}$$

$$\boxed{\text{z708}} \quad \mathbb{Q}_{4,1}^{(1,-1;c)}(E_g, 1a) = \frac{\sqrt{2}\mathbb{Q}_{4,1}^{(1,-1;a)}(E_g, 1)\mathbb{Q}_0^{(b)}(A_{1g})}{2}$$

$$\boxed{\text{z709}} \quad \mathbb{Q}_{4,2}^{(1,-1;c)}(E_g, 1a) = \frac{\sqrt{2}\mathbb{Q}_{4,2}^{(1,-1;a)}(E_g, 1)\mathbb{Q}_0^{(b)}(A_{1g})}{2}$$

$$\boxed{\text{z710}} \quad \mathbb{Q}_{4,1}^{(1,-1;c)}(E_g, 1b) = -\frac{3\sqrt{2}\mathbb{Q}_{4,1}^{(1,-1;a)}(E_g, 1)\mathbb{Q}_2^{(b)}(B_{1g})}{8} - \frac{\sqrt{14}\mathbb{Q}_{4,1}^{(1,-1;a)}(E_g, 2)\mathbb{Q}_2^{(b)}(B_{1g})}{8}$$

$$\boxed{\text{z711}} \quad \mathbb{Q}_{4,2}^{(1,-1;c)}(E_g, 1b) = \frac{3\sqrt{2}\mathbb{Q}_{4,2}^{(1,-1;a)}(E_g, 1)\mathbb{Q}_2^{(b)}(B_{1g})}{8} + \frac{\sqrt{14}\mathbb{Q}_{4,2}^{(1,-1;a)}(E_g, 2)\mathbb{Q}_2^{(b)}(B_{1g})}{8}$$

$$\boxed{\text{z712}} \quad \mathbb{Q}_{4,1}^{(1,-1;c)}(E_g, 2) = \frac{\sqrt{2}\mathbb{Q}_{4,1}^{(1,-1;a)}(E_g, 2)\mathbb{Q}_0^{(b)}(A_{1g})}{2}$$

$$\boxed{\text{z713}} \quad \mathbb{Q}_{4,2}^{(1,-1;c)}(E_g, 2) = \frac{\sqrt{2}\mathbb{Q}_{4,2}^{(1,-1;a)}(E_g, 2)\mathbb{Q}_0^{(b)}(A_{1g})}{2}$$

$$\boxed{\text{z714}} \quad \mathbb{Q}_{2,1}^{(1,0;c)}(E_g, a) = -\frac{\sqrt{2}\mathbb{G}_{1,1}^{(1,0;a)}(E_g)\mathbb{Q}_2^{(b)}(B_{1g})}{2}$$

$$\boxed{\text{z715}} \quad \mathbb{Q}_{2,2}^{(1,0;c)}(E_g, a) = \frac{\sqrt{2}\mathbb{G}_{1,2}^{(1,0;a)}(E_g)\mathbb{Q}_2^{(b)}(B_{1g})}{2}$$

$$\boxed{\text{z716}} \quad \mathbb{Q}_{2,1}^{(1,0;c)}(E_g, b) = \frac{\sqrt{2}\mathbb{G}_{3,1}^{(1,0;a)}(E_g, 1)\mathbb{Q}_2^{(b)}(B_{1g})}{8} - \frac{\sqrt{30}\mathbb{G}_{3,1}^{(1,0;a)}(E_g, 2)\mathbb{Q}_2^{(b)}(B_{1g})}{8}$$

$$\boxed{\text{z717}} \quad \mathbb{Q}_{2,2}^{(1,0;c)}(E_g, b) = -\frac{\sqrt{2}\mathbb{G}_{3,2}^{(1,0;a)}(E_g, 1)\mathbb{Q}_2^{(b)}(B_{1g})}{8} + \frac{\sqrt{30}\mathbb{G}_{3,2}^{(1,0;a)}(E_g, 2)\mathbb{Q}_2^{(b)}(B_{1g})}{8}$$

$$\boxed{\text{z718}} \quad \mathbb{Q}_{4,1}^{(1,0;c)}(E_g, 1) = -\frac{\sqrt{30}\mathbb{G}_{3,1}^{(1,0;a)}(E_g, 1)\mathbb{Q}_2^{(b)}(B_{1g})}{8} - \frac{\sqrt{2}\mathbb{G}_{3,1}^{(1,0;a)}(E_g, 2)\mathbb{Q}_2^{(b)}(B_{1g})}{8}$$

$$\boxed{\text{z719}} \quad \mathbb{Q}_{4,2}^{(1,0;c)}(E_g, 1) = \frac{\sqrt{30}\mathbb{G}_{3,2}^{(1,0;a)}(E_g, 1)\mathbb{Q}_2^{(b)}(B_{1g})}{8} + \frac{\sqrt{2}\mathbb{G}_{3,2}^{(1,0;a)}(E_g, 2)\mathbb{Q}_2^{(b)}(B_{1g})}{8}$$

$$\boxed{\text{z720}} \quad \mathbb{Q}_{2,1}^{(1,1;c)}(E_g, a) = \frac{\sqrt{2}\mathbb{Q}_{2,1}^{(1,1;a)}(E_g)\mathbb{Q}_0^{(b)}(A_{1g})}{2}$$

$$\boxed{\text{z721}} \quad \mathbb{Q}_{2,2}^{(1,1;c)}(E_g, a) = \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(1,1;a)}(E_g)\mathbb{Q}_0^{(b)}(A_{1g})}{2}$$

$$\boxed{\text{z803}} \quad \mathbb{Q}_{2,1}^{(1,1;c)}(E_g, b) = -\frac{\sqrt{2}\mathbb{Q}_{2,1}^{(1,1;a)}(E_g)\mathbb{Q}_2^{(b)}(B_{1g})}{2}$$

$$\boxed{\text{z804}} \quad \mathbb{Q}_{2,2}^{(1,1;c)}(E_g, b) = \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(1,1;a)}(E_g)\mathbb{Q}_2^{(b)}(B_{1g})}{2}$$

$$\boxed{\text{z805}} \quad \mathbb{Q}_{1,1}^{(c)}(E_u) = -\frac{\sqrt{2}\mathbb{M}_1^{(a)}(A_{2g})\mathbb{T}_{1,2}^{(b)}(E_u)}{2}$$

$$\boxed{\text{z806}} \quad \mathbb{Q}_{1,2}^{(c)}(E_u) = \frac{\sqrt{2}\mathbb{M}_1^{(a)}(A_{2g})\mathbb{T}_{1,1}^{(b)}(E_u)}{2}$$

$$\boxed{\text{z807}} \quad \mathbb{Q}_{3,1}^{(c)}(E_u, 1) = \frac{\sqrt{3}\mathbb{M}_3^{(a)}(A_{2g})\mathbb{T}_{1,2}^{(b)}(E_u)}{4} - \frac{\sqrt{5}\mathbb{M}_3^{(a)}(B_{2g})\mathbb{T}_{1,2}^{(b)}(E_u)}{4}$$

$$\boxed{\text{z808}} \quad \mathbb{Q}_{3,2}^{(c)}(E_u, 1) = -\frac{\sqrt{3}\mathbb{M}_3^{(a)}(A_{2g})\mathbb{T}_{1,1}^{(b)}(E_u)}{4} - \frac{\sqrt{5}\mathbb{M}_3^{(a)}(B_{2g})\mathbb{T}_{1,1}^{(b)}(E_u)}{4}$$

$$\boxed{\text{z809}} \quad \mathbb{Q}_{3,1}^{(c)}(E_u, 2) = \frac{\sqrt{165}\mathbb{M}_3^{(a)}(A_{2g})\mathbb{T}_{1,2}^{(b)}(E_u)}{44} + \frac{2\sqrt{11}\mathbb{M}_3^{(a)}(B_{1g})\mathbb{T}_{1,1}^{(b)}(E_u)}{11} + \frac{3\sqrt{11}\mathbb{M}_3^{(a)}(B_{2g})\mathbb{T}_{1,2}^{(b)}(E_u)}{44}$$

$$\boxed{\text{z810}} \quad \mathbb{Q}_{3,2}^{(c)}(E_u, 2) = -\frac{\sqrt{165}\mathbb{M}_3^{(a)}(A_{2g})\mathbb{T}_{1,1}^{(b)}(E_u)}{44} - \frac{2\sqrt{11}\mathbb{M}_3^{(a)}(B_{1g})\mathbb{T}_{1,2}^{(b)}(E_u)}{11} + \frac{3\sqrt{11}\mathbb{M}_3^{(a)}(B_{2g})\mathbb{T}_{1,1}^{(b)}(E_u)}{44}$$

$$\boxed{\text{z811}} \quad \mathbb{Q}_{1,1}^{(1,-1;c)}(E_u) = -\frac{\sqrt{2}\mathbb{M}_1^{(1,-1;a)}(A_{2g})\mathbb{T}_{1,2}^{(b)}(E_u)}{2}$$

$$\begin{aligned}
\text{z812} \quad \mathbb{Q}_{1,2}^{(1,-1;c)}(Eu) &= \frac{\sqrt{2}\mathbb{M}_1^{(1,-1;a)}(A_{2g})\mathbb{T}_{1,1}^{(b)}(Eu)}{2} \\
\text{z813} \quad \mathbb{Q}_{3,1}^{(1,-1;c)}(Eu, 1) &= \frac{\sqrt{3}\mathbb{M}_3^{(1,-1;a)}(A_{2g})\mathbb{T}_{1,2}^{(b)}(Eu)}{4} - \frac{\sqrt{5}\mathbb{M}_3^{(1,-1;a)}(B_{2g})\mathbb{T}_{1,2}^{(b)}(Eu)}{4} \\
\text{z814} \quad \mathbb{Q}_{3,2}^{(1,-1;c)}(Eu, 1) &= -\frac{\sqrt{3}\mathbb{M}_3^{(1,-1;a)}(A_{2g})\mathbb{T}_{1,1}^{(b)}(Eu)}{4} - \frac{\sqrt{5}\mathbb{M}_3^{(1,-1;a)}(B_{2g})\mathbb{T}_{1,1}^{(b)}(Eu)}{4} \\
\text{z815} \quad \mathbb{Q}_{3,1}^{(1,-1;c)}(Eu, 2) &= \frac{\sqrt{165}\mathbb{M}_3^{(1,-1;a)}(A_{2g})\mathbb{T}_{1,2}^{(b)}(Eu)}{44} + \frac{2\sqrt{11}\mathbb{M}_3^{(1,-1;a)}(B_{1g})\mathbb{T}_{1,1}^{(b)}(Eu)}{11} + \frac{3\sqrt{11}\mathbb{M}_3^{(1,-1;a)}(B_{2g})\mathbb{T}_{1,2}^{(b)}(Eu)}{44} \\
\text{z816} \quad \mathbb{Q}_{3,2}^{(1,-1;c)}(Eu, 2) &= -\frac{\sqrt{165}\mathbb{M}_3^{(1,-1;a)}(A_{2g})\mathbb{T}_{1,1}^{(b)}(Eu)}{44} - \frac{2\sqrt{11}\mathbb{M}_3^{(1,-1;a)}(B_{1g})\mathbb{T}_{1,2}^{(b)}(Eu)}{11} + \frac{3\sqrt{11}\mathbb{M}_3^{(1,-1;a)}(B_{2g})\mathbb{T}_{1,1}^{(b)}(Eu)}{44} \\
\text{z817} \quad \mathbb{Q}_{5,1}^{(1,-1;c)}(Eu, 1) &= -\frac{\sqrt{30}\mathbb{M}_5^{(1,-1;a)}(A_{2g}, 1)\mathbb{T}_{1,2}^{(b)}(Eu)}{16} - \frac{\sqrt{42}\mathbb{M}_5^{(1,-1;a)}(A_{2g}, 2)\mathbb{T}_{1,2}^{(b)}(Eu)}{16} + \frac{\sqrt{14}\mathbb{M}_5^{(1,-1;a)}(B_{2g})\mathbb{T}_{1,2}^{(b)}(Eu)}{8} \\
\text{z898} \quad \mathbb{Q}_{5,2}^{(1,-1;c)}(Eu, 1) &= \frac{\sqrt{30}\mathbb{M}_5^{(1,-1;a)}(A_{2g}, 1)\mathbb{T}_{1,1}^{(b)}(Eu)}{16} + \frac{\sqrt{42}\mathbb{M}_5^{(1,-1;a)}(A_{2g}, 2)\mathbb{T}_{1,1}^{(b)}(Eu)}{16} + \frac{\sqrt{14}\mathbb{M}_5^{(1,-1;a)}(B_{2g})\mathbb{T}_{1,1}^{(b)}(Eu)}{8} \\
\text{z899} \quad \mathbb{Q}_{5,1}^{(1,-1;c)}(Eu, 2) &= -\frac{\sqrt{46}\mathbb{M}_5^{(1,-1;a)}(A_{1g})\mathbb{T}_{1,1}^{(b)}(Eu)}{23} - \frac{3\sqrt{1610}\mathbb{M}_5^{(1,-1;a)}(A_{2g}, 1)\mathbb{T}_{1,2}^{(b)}(Eu)}{368} + \frac{11\sqrt{46}\mathbb{M}_5^{(1,-1;a)}(A_{2g}, 2)\mathbb{T}_{1,2}^{(b)}(Eu)}{368} \\
&\quad + \frac{\sqrt{138}\mathbb{M}_5^{(1,-1;a)}(B_{1g})\mathbb{T}_{1,1}^{(b)}(Eu)}{23} - \frac{\sqrt{138}\mathbb{M}_5^{(1,-1;a)}(B_{2g})\mathbb{T}_{1,2}^{(b)}(Eu)}{184} \\
\text{z900} \quad \mathbb{Q}_{5,2}^{(1,-1;c)}(Eu, 2) &= -\frac{\sqrt{46}\mathbb{M}_5^{(1,-1;a)}(A_{1g})\mathbb{T}_{1,2}^{(b)}(Eu)}{23} + \frac{3\sqrt{1610}\mathbb{M}_5^{(1,-1;a)}(A_{2g}, 1)\mathbb{T}_{1,1}^{(b)}(Eu)}{368} - \frac{11\sqrt{46}\mathbb{M}_5^{(1,-1;a)}(A_{2g}, 2)\mathbb{T}_{1,1}^{(b)}(Eu)}{368} \\
&\quad - \frac{\sqrt{138}\mathbb{M}_5^{(1,-1;a)}(B_{1g})\mathbb{T}_{1,2}^{(b)}(Eu)}{23} - \frac{\sqrt{138}\mathbb{M}_5^{(1,-1;a)}(B_{2g})\mathbb{T}_{1,1}^{(b)}(Eu)}{184} \\
\text{z901} \quad \mathbb{Q}_{5,1}^{(1,-1;c)}(Eu, 3) &= \frac{\sqrt{28014}\mathbb{M}_5^{(1,-1;a)}(A_{1g})\mathbb{T}_{1,1}^{(b)}(Eu)}{322} - \frac{7\sqrt{20010}\mathbb{M}_5^{(1,-1;a)}(A_{2g}, 1)\mathbb{T}_{1,2}^{(b)}(Eu)}{5336} + \frac{3\sqrt{28014}\mathbb{M}_5^{(1,-1;a)}(A_{2g}, 2)\mathbb{T}_{1,2}^{(b)}(Eu)}{1288} \\
&\quad + \frac{5\sqrt{9338}\mathbb{M}_5^{(1,-1;a)}(B_{1g})\mathbb{T}_{1,1}^{(b)}(Eu)}{9338} + \frac{39\sqrt{9338}\mathbb{M}_5^{(1,-1;a)}(B_{2g})\mathbb{T}_{1,2}^{(b)}(Eu)}{18676} \\
\text{z902} \quad \mathbb{Q}_{5,2}^{(1,-1;c)}(Eu, 3) &= \frac{\sqrt{28014}\mathbb{M}_5^{(1,-1;a)}(A_{1g})\mathbb{T}_{1,2}^{(b)}(Eu)}{322} + \frac{7\sqrt{20010}\mathbb{M}_5^{(1,-1;a)}(A_{2g}, 1)\mathbb{T}_{1,1}^{(b)}(Eu)}{5336} - \frac{3\sqrt{28014}\mathbb{M}_5^{(1,-1;a)}(A_{2g}, 2)\mathbb{T}_{1,1}^{(b)}(Eu)}{1288} \\
&\quad - \frac{5\sqrt{9338}\mathbb{M}_5^{(1,-1;a)}(B_{1g})\mathbb{T}_{1,2}^{(b)}(Eu)}{9338} + \frac{39\sqrt{9338}\mathbb{M}_5^{(1,-1;a)}(B_{2g})\mathbb{T}_{1,1}^{(b)}(Eu)}{18676}
\end{aligned}$$

$$\begin{aligned}
\text{z903} \quad \mathbb{Q}_{1,1}^{(1,0;c)}(E_u) &= -\frac{\sqrt{14}\mathbb{T}_2^{(1,0;a)}(A_{1g})\mathbb{T}_{1,1}^{(b)}(E_u)}{14} + \frac{\sqrt{42}\mathbb{T}_2^{(1,0;a)}(B_{1g})\mathbb{T}_{1,1}^{(b)}(E_u)}{14} + \frac{\sqrt{42}\mathbb{T}_2^{(1,0;a)}(B_{2g})\mathbb{T}_{1,2}^{(b)}(E_u)}{14} \\
\text{z904} \quad \mathbb{Q}_{1,2}^{(1,0;c)}(E_u) &= -\frac{\sqrt{14}\mathbb{T}_2^{(1,0;a)}(A_{1g})\mathbb{T}_{1,2}^{(b)}(E_u)}{14} - \frac{\sqrt{42}\mathbb{T}_2^{(1,0;a)}(B_{1g})\mathbb{T}_{1,2}^{(b)}(E_u)}{14} + \frac{\sqrt{42}\mathbb{T}_2^{(1,0;a)}(B_{2g})\mathbb{T}_{1,1}^{(b)}(E_u)}{14} \\
\text{z905} \quad \mathbb{Q}_{3,1}^{(1,0;c)}(E_u, 1a) &= -\frac{\sqrt{42}\mathbb{T}_2^{(1,0;a)}(A_{1g})\mathbb{T}_{1,1}^{(b)}(E_u)}{28} + \frac{3\sqrt{14}\mathbb{T}_2^{(1,0;a)}(B_{1g})\mathbb{T}_{1,1}^{(b)}(E_u)}{28} - \frac{\sqrt{14}\mathbb{T}_2^{(1,0;a)}(B_{2g})\mathbb{T}_{1,2}^{(b)}(E_u)}{7} \\
\text{z906} \quad \mathbb{Q}_{3,2}^{(1,0;c)}(E_u, 1a) &= -\frac{\sqrt{42}\mathbb{T}_2^{(1,0;a)}(A_{1g})\mathbb{T}_{1,2}^{(b)}(E_u)}{28} - \frac{3\sqrt{14}\mathbb{T}_2^{(1,0;a)}(B_{1g})\mathbb{T}_{1,2}^{(b)}(E_u)}{28} - \frac{\sqrt{14}\mathbb{T}_2^{(1,0;a)}(B_{2g})\mathbb{T}_{1,1}^{(b)}(E_u)}{7} \\
\text{z907} \quad \mathbb{Q}_{3,1}^{(1,0;c)}(E_u, 1b) &= \frac{\sqrt{273}\mathbb{T}_4^{(1,0;a)}(A_{1g}, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{39} - \frac{\sqrt{195}\mathbb{T}_4^{(1,0;a)}(A_{1g}, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{78} + \frac{\sqrt{455}\mathbb{T}_4^{(1,0;a)}(A_{2g})\mathbb{T}_{1,2}^{(b)}(E_u)}{52} + \frac{\sqrt{65}\mathbb{T}_4^{(1,0;a)}(B_{1g})\mathbb{T}_{1,1}^{(b)}(E_u)}{26} - \frac{\sqrt{65}\mathbb{T}_4^{(1,0;a)}(B_{2g})\mathbb{T}_{1,2}^{(b)}(E_u)}{52} \\
\text{z908} \quad \mathbb{Q}_{3,2}^{(1,0;c)}(E_u, 1b) &= \frac{\sqrt{273}\mathbb{T}_4^{(1,0;a)}(A_{1g}, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{39} - \frac{\sqrt{195}\mathbb{T}_4^{(1,0;a)}(A_{1g}, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{78} - \frac{\sqrt{455}\mathbb{T}_4^{(1,0;a)}(A_{2g})\mathbb{T}_{1,1}^{(b)}(E_u)}{52} - \frac{\sqrt{65}\mathbb{T}_4^{(1,0;a)}(B_{1g})\mathbb{T}_{1,2}^{(b)}(E_u)}{26} - \frac{\sqrt{65}\mathbb{T}_4^{(1,0;a)}(B_{2g})\mathbb{T}_{1,1}^{(b)}(E_u)}{52} \\
\text{z909} \quad \mathbb{Q}_{3,1}^{(1,0;c)}(E_u, 2a) &= -\frac{\sqrt{6}\mathbb{T}_2^{(1,0;a)}(A_{1g})\mathbb{T}_{1,1}^{(b)}(E_u)}{4} - \frac{\sqrt{2}\mathbb{T}_2^{(1,0;a)}(B_{1g})\mathbb{T}_{1,1}^{(b)}(E_u)}{4} \\
\text{z910} \quad \mathbb{Q}_{3,2}^{(1,0;c)}(E_u, 2a) &= -\frac{\sqrt{6}\mathbb{T}_2^{(1,0;a)}(A_{1g})\mathbb{T}_{1,2}^{(b)}(E_u)}{4} + \frac{\sqrt{2}\mathbb{T}_2^{(1,0;a)}(B_{1g})\mathbb{T}_{1,2}^{(b)}(E_u)}{4} \\
\text{z911} \quad \mathbb{Q}_{3,1}^{(1,0;c)}(E_u, 2b) &= \frac{\sqrt{5655}\mathbb{T}_4^{(1,0;a)}(A_{1g}, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{1131} + \frac{73\sqrt{7917}\mathbb{T}_4^{(1,0;a)}(A_{1g}, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{15834} - \frac{21\sqrt{377}\mathbb{T}_4^{(1,0;a)}(A_{2g})\mathbb{T}_{1,2}^{(b)}(E_u)}{1508} \\
&\quad + \frac{31\sqrt{2639}\mathbb{T}_4^{(1,0;a)}(B_{1g})\mathbb{T}_{1,1}^{(b)}(E_u)}{5278} - \frac{83\sqrt{2639}\mathbb{T}_4^{(1,0;a)}(B_{2g})\mathbb{T}_{1,2}^{(b)}(E_u)}{10556} \\
\text{z912} \quad \mathbb{Q}_{3,2}^{(1,0;c)}(E_u, 2b) &= \frac{\sqrt{5655}\mathbb{T}_4^{(1,0;a)}(A_{1g}, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{1131} + \frac{73\sqrt{7917}\mathbb{T}_4^{(1,0;a)}(A_{1g}, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{15834} + \frac{21\sqrt{377}\mathbb{T}_4^{(1,0;a)}(A_{2g})\mathbb{T}_{1,1}^{(b)}(E_u)}{1508} \\
&\quad - \frac{31\sqrt{2639}\mathbb{T}_4^{(1,0;a)}(B_{1g})\mathbb{T}_{1,2}^{(b)}(E_u)}{5278} - \frac{83\sqrt{2639}\mathbb{T}_4^{(1,0;a)}(B_{2g})\mathbb{T}_{1,1}^{(b)}(E_u)}{10556} \\
\text{z993} \quad \mathbb{Q}_{5,1}^{(1,0;c)}(E_u, 1) &= \frac{5\sqrt{58}\mathbb{T}_4^{(1,0;a)}(A_{1g}, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{116} - \frac{41\sqrt{2030}\mathbb{T}_4^{(1,0;a)}(A_{1g}, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{8120} - \frac{7\sqrt{870}\mathbb{T}_4^{(1,0;a)}(A_{2g})\mathbb{T}_{1,2}^{(b)}(E_u)}{435} \\
&\quad + \frac{59\sqrt{6090}\mathbb{T}_4^{(1,0;a)}(B_{1g})\mathbb{T}_{1,1}^{(b)}(E_u)}{24360} + \frac{11\sqrt{6090}\mathbb{T}_4^{(1,0;a)}(B_{2g})\mathbb{T}_{1,2}^{(b)}(E_u)}{3045}
\end{aligned}$$

$$\begin{aligned}
\boxed{\text{z994}} \quad \mathbb{Q}_{5,2}^{(1,0;c)}(E_u, 1) &= \frac{5\sqrt{58}\mathbb{T}_4^{(1,0;a)}(A_{1g}, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{116} - \frac{41\sqrt{2030}\mathbb{T}_4^{(1,0;a)}(A_{1g}, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{8120} + \frac{7\sqrt{870}\mathbb{T}_4^{(1,0;a)}(A_{2g})\mathbb{T}_{1,1}^{(b)}(E_u)}{435} \\
&\quad - \frac{59\sqrt{6090}\mathbb{T}_4^{(1,0;a)}(B_{1g})\mathbb{T}_{1,2}^{(b)}(E_u)}{24360} + \frac{11\sqrt{6090}\mathbb{T}_4^{(1,0;a)}(B_{2g})\mathbb{T}_{1,1}^{(b)}(E_u)}{3045} \\
\boxed{\text{z995}} \quad \mathbb{Q}_{5,1}^{(1,0;c)}(E_u, 2) &= \frac{5\sqrt{62}\mathbb{T}_4^{(1,0;a)}(A_{1g}, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{124} - \frac{3\sqrt{2170}\mathbb{T}_4^{(1,0;a)}(A_{1g}, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{1240} - \frac{2\sqrt{930}\mathbb{T}_4^{(1,0;a)}(A_{2g})\mathbb{T}_{1,2}^{(b)}(E_u)}{465} \\
&\quad - \frac{23\sqrt{6510}\mathbb{T}_4^{(1,0;a)}(B_{1g})\mathbb{T}_{1,1}^{(b)}(E_u)}{3720} - \frac{2\sqrt{6510}\mathbb{T}_4^{(1,0;a)}(B_{2g})\mathbb{T}_{1,2}^{(b)}(E_u)}{465} \\
\boxed{\text{z996}} \quad \mathbb{Q}_{5,2}^{(1,0;c)}(E_u, 2) &= \frac{5\sqrt{62}\mathbb{T}_4^{(1,0;a)}(A_{1g}, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{124} - \frac{3\sqrt{2170}\mathbb{T}_4^{(1,0;a)}(A_{1g}, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{1240} + \frac{2\sqrt{930}\mathbb{T}_4^{(1,0;a)}(A_{2g})\mathbb{T}_{1,1}^{(b)}(E_u)}{465} \\
&\quad + \frac{23\sqrt{6510}\mathbb{T}_4^{(1,0;a)}(B_{1g})\mathbb{T}_{1,2}^{(b)}(E_u)}{3720} - \frac{2\sqrt{6510}\mathbb{T}_4^{(1,0;a)}(B_{2g})\mathbb{T}_{1,1}^{(b)}(E_u)}{465} \\
\boxed{\text{z997}} \quad \mathbb{Q}_{5,1}^{(1,0;c)}(E_u, 3) &= \frac{\sqrt{930}\mathbb{T}_4^{(1,0;a)}(A_{1g}, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{93} + \frac{5\sqrt{1302}\mathbb{T}_4^{(1,0;a)}(A_{1g}, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{372} + \frac{\sqrt{62}\mathbb{T}_4^{(1,0;a)}(A_{2g})\mathbb{T}_{1,2}^{(b)}(E_u)}{62} \\
&\quad - \frac{\sqrt{434}\mathbb{T}_4^{(1,0;a)}(B_{1g})\mathbb{T}_{1,1}^{(b)}(E_u)}{124} + \frac{\sqrt{434}\mathbb{T}_4^{(1,0;a)}(B_{2g})\mathbb{T}_{1,2}^{(b)}(E_u)}{62} \\
\boxed{\text{z998}} \quad \mathbb{Q}_{5,2}^{(1,0;c)}(E_u, 3) &= \frac{\sqrt{930}\mathbb{T}_4^{(1,0;a)}(A_{1g}, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{93} + \frac{5\sqrt{1302}\mathbb{T}_4^{(1,0;a)}(A_{1g}, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{372} - \frac{\sqrt{62}\mathbb{T}_4^{(1,0;a)}(A_{2g})\mathbb{T}_{1,1}^{(b)}(E_u)}{62} \\
&\quad + \frac{\sqrt{434}\mathbb{T}_4^{(1,0;a)}(B_{1g})\mathbb{T}_{1,2}^{(b)}(E_u)}{124} + \frac{\sqrt{434}\mathbb{T}_4^{(1,0;a)}(B_{2g})\mathbb{T}_{1,1}^{(b)}(E_u)}{62} \\
\boxed{\text{z999}} \quad \mathbb{Q}_{1,1}^{(1,1;c)}(E_u) &= -\frac{\sqrt{2}\mathbb{M}_1^{(1,1;a)}(A_{2g})\mathbb{T}_{1,2}^{(b)}(E_u)}{2} \\
\boxed{\text{z1000}} \quad \mathbb{Q}_{1,2}^{(1,1;c)}(E_u) &= \frac{\sqrt{2}\mathbb{M}_1^{(1,1;a)}(A_{2g})\mathbb{T}_{1,1}^{(b)}(E_u)}{2} \\
\boxed{\text{z1001}} \quad \mathbb{Q}_{3,1}^{(1,1;c)}(E_u, 1) &= \frac{\sqrt{3}\mathbb{M}_3^{(1,1;a)}(A_{2g})\mathbb{T}_{1,2}^{(b)}(E_u)}{4} - \frac{\sqrt{5}\mathbb{M}_3^{(1,1;a)}(B_{2g})\mathbb{T}_{1,2}^{(b)}(E_u)}{4} \\
\boxed{\text{z1002}} \quad \mathbb{Q}_{3,2}^{(1,1;c)}(E_u, 1) &= -\frac{\sqrt{3}\mathbb{M}_3^{(1,1;a)}(A_{2g})\mathbb{T}_{1,1}^{(b)}(E_u)}{4} - \frac{\sqrt{5}\mathbb{M}_3^{(1,1;a)}(B_{2g})\mathbb{T}_{1,1}^{(b)}(E_u)}{4} \\
\boxed{\text{z1003}} \quad \mathbb{Q}_{3,1}^{(1,1;c)}(E_u, 2) &= \frac{\sqrt{165}\mathbb{M}_3^{(1,1;a)}(A_{2g})\mathbb{T}_{1,2}^{(b)}(E_u)}{44} + \frac{2\sqrt{11}\mathbb{M}_3^{(1,1;a)}(B_{1g})\mathbb{T}_{1,1}^{(b)}(E_u)}{11} + \frac{3\sqrt{11}\mathbb{M}_3^{(1,1;a)}(B_{2g})\mathbb{T}_{1,2}^{(b)}(E_u)}{44} \\
\boxed{\text{z1004}} \quad \mathbb{Q}_{3,2}^{(1,1;c)}(E_u, 2) &= -\frac{\sqrt{165}\mathbb{M}_3^{(1,1;a)}(A_{2g})\mathbb{T}_{1,1}^{(b)}(E_u)}{44} - \frac{2\sqrt{11}\mathbb{M}_3^{(1,1;a)}(B_{1g})\mathbb{T}_{1,2}^{(b)}(E_u)}{11} + \frac{3\sqrt{11}\mathbb{M}_3^{(1,1;a)}(B_{2g})\mathbb{T}_{1,1}^{(b)}(E_u)}{44} \\
\boxed{\text{z1005}} \quad \mathbb{G}_0^{(c)}(A_{1u}) &= \frac{\sqrt{2}\mathbb{M}_{1,1}^{(a)}(E_g)\mathbb{T}_{1,1}^{(b)}(E_u)}{2} - \frac{\sqrt{2}\mathbb{M}_{1,2}^{(a)}(E_g)\mathbb{T}_{1,2}^{(b)}(E_u)}{2} \\
\boxed{\text{z1006}} \quad \mathbb{G}_2^{(c)}(A_{1u}) &= -\frac{\sqrt{3}\mathbb{M}_{3,1}^{(a)}(E_g, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{4} - \frac{\sqrt{5}\mathbb{M}_{3,1}^{(a)}(E_g, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{4} + \frac{\sqrt{3}\mathbb{M}_{3,2}^{(a)}(E_g, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{4} + \frac{\sqrt{5}\mathbb{M}_{3,2}^{(a)}(E_g, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{4}
\end{aligned}$$

$$\begin{aligned}
\boxed{\text{z1007}} \quad \mathbb{G}_4^{(c)}(A_{1u}, 1) &= \frac{\sqrt{5}\mathbb{M}_{3,1}^{(a)}(E_g, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{4} - \frac{\sqrt{3}\mathbb{M}_{3,1}^{(a)}(E_g, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{4} - \frac{\sqrt{5}\mathbb{M}_{3,2}^{(a)}(E_g, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{4} + \frac{\sqrt{3}\mathbb{M}_{3,2}^{(a)}(E_g, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{4} \\
\boxed{\text{z1141}} \quad \mathbb{G}_0^{(1,-1;c)}(A_{1u}) &= \frac{\sqrt{2}\mathbb{M}_{1,1}^{(1,-1;a)}(E_g)\mathbb{T}_{1,1}^{(b)}(E_u)}{2} - \frac{\sqrt{2}\mathbb{M}_{1,2}^{(1,-1;a)}(E_g)\mathbb{T}_{1,2}^{(b)}(E_u)}{2} \\
\boxed{\text{z1142}} \quad \mathbb{G}_2^{(1,-1;c)}(A_{1u}) &= -\frac{\sqrt{3}\mathbb{M}_{3,1}^{(1,-1;a)}(E_g, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{4} - \frac{\sqrt{5}\mathbb{M}_{3,1}^{(1,-1;a)}(E_g, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{4} + \frac{\sqrt{3}\mathbb{M}_{3,2}^{(1,-1;a)}(E_g, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{4} + \frac{\sqrt{5}\mathbb{M}_{3,2}^{(1,-1;a)}(E_g, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{4} \\
\boxed{\text{z1143}} \quad \mathbb{G}_4^{(1,-1;c)}(A_{1u}, 1a) &= \frac{7\sqrt{170}\mathbb{M}_{5,1}^{(1,-1;a)}(E_g, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{136} + \frac{9\sqrt{238}\mathbb{M}_{5,1}^{(1,-1;a)}(E_g, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{952} + \frac{3\sqrt{714}\mathbb{M}_{5,1}^{(1,-1;a)}(E_g, 3)\mathbb{T}_{1,1}^{(b)}(E_u)}{476} \\
&\quad - \frac{7\sqrt{170}\mathbb{M}_{5,2}^{(1,-1;a)}(E_g, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{136} - \frac{9\sqrt{238}\mathbb{M}_{5,2}^{(1,-1;a)}(E_g, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{952} - \frac{3\sqrt{714}\mathbb{M}_{5,2}^{(1,-1;a)}(E_g, 3)\mathbb{T}_{1,2}^{(b)}(E_u)}{476} \\
\boxed{\text{z1144}} \quad \mathbb{G}_4^{(1,-1;c)}(A_{1u}, 1b) &= \frac{\sqrt{5}\mathbb{M}_{3,1}^{(1,-1;a)}(E_g, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{4} - \frac{\sqrt{3}\mathbb{M}_{3,1}^{(1,-1;a)}(E_g, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{4} - \frac{\sqrt{5}\mathbb{M}_{3,2}^{(1,-1;a)}(E_g, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{4} + \frac{\sqrt{3}\mathbb{M}_{3,2}^{(1,-1;a)}(E_g, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{4} \\
\boxed{\text{z1145}} \quad \mathbb{G}_4^{(1,-1;c)}(A_{1u}, 2) &= -\frac{3\sqrt{102}\mathbb{M}_{5,1}^{(1,-1;a)}(E_g, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{136} + \frac{\sqrt{3570}\mathbb{M}_{5,1}^{(1,-1;a)}(E_g, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{136} + \frac{\sqrt{1190}\mathbb{M}_{5,1}^{(1,-1;a)}(E_g, 3)\mathbb{T}_{1,1}^{(b)}(E_u)}{68} \\
&\quad + \frac{3\sqrt{102}\mathbb{M}_{5,2}^{(1,-1;a)}(E_g, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{136} - \frac{\sqrt{3570}\mathbb{M}_{5,2}^{(1,-1;a)}(E_g, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{136} - \frac{\sqrt{1190}\mathbb{M}_{5,2}^{(1,-1;a)}(E_g, 3)\mathbb{T}_{1,2}^{(b)}(E_u)}{68} \\
\boxed{\text{z1146}} \quad \mathbb{G}_2^{(1,0;c)}(A_{1u}) &= -\frac{\sqrt{2}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{T}_{1,1}^{(b)}(E_u)}{2} + \frac{\sqrt{2}\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{T}_{1,2}^{(b)}(E_u)}{2} \\
\boxed{\text{z1147}} \quad \mathbb{G}_4^{(1,0;c)}(A_{1u}, 1) &= \frac{\sqrt{7}\mathbb{T}_{4,1}^{(1,0;a)}(E_g, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{4} + \frac{\mathbb{T}_{4,1}^{(1,0;a)}(E_g, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{4} - \frac{\sqrt{7}\mathbb{T}_{4,2}^{(1,0;a)}(E_g, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{4} - \frac{\mathbb{T}_{4,2}^{(1,0;a)}(E_g, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{4} \\
\boxed{\text{z1148}} \quad \mathbb{G}_0^{(1,1;c)}(A_{1u}) &= \frac{\sqrt{2}\mathbb{M}_{1,1}^{(1,1;a)}(E_g)\mathbb{T}_{1,1}^{(b)}(E_u)}{2} - \frac{\sqrt{2}\mathbb{M}_{1,2}^{(1,1;a)}(E_g)\mathbb{T}_{1,2}^{(b)}(E_u)}{2} \\
\boxed{\text{z1149}} \quad \mathbb{G}_2^{(1,1;c)}(A_{1u}) &= -\frac{\sqrt{3}\mathbb{M}_{3,1}^{(1,1;a)}(E_g, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{4} - \frac{\sqrt{5}\mathbb{M}_{3,1}^{(1,1;a)}(E_g, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{4} + \frac{\sqrt{3}\mathbb{M}_{3,2}^{(1,1;a)}(E_g, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{4} + \frac{\sqrt{5}\mathbb{M}_{3,2}^{(1,1;a)}(E_g, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{4} \\
\boxed{\text{z1150}} \quad \mathbb{G}_4^{(1,1;c)}(A_{1u}, 1) &= \frac{\sqrt{5}\mathbb{M}_{3,1}^{(1,1;a)}(E_g, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{4} - \frac{\sqrt{3}\mathbb{M}_{3,1}^{(1,1;a)}(E_g, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{4} - \frac{\sqrt{5}\mathbb{M}_{3,2}^{(1,1;a)}(E_g, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{4} + \frac{\sqrt{3}\mathbb{M}_{3,2}^{(1,1;a)}(E_g, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{4} \\
\boxed{\text{z1151}} \quad \mathbb{G}_1^{(1,0;c)}(A_{2g}) &= \mathbb{G}_1^{(1,0;a)}(A_{2g})\mathbb{Q}_0^{(b)}(A_{1g})
\end{aligned}$$

$$\boxed{\text{z1152}} \quad \mathbb{G}_3^{(1,0;c)}(A_{2g}) = \mathbb{G}_3^{(1,0;a)}(A_{2g})\mathbb{Q}_0^{(b)}(A_{1g})$$

$$\boxed{\text{z1153}} \quad \mathbb{G}_4^{(c)}(A_{2u}) = \frac{\sqrt{5}\mathbb{M}_{3,1}^{(a)}(E_g, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{4} - \frac{\sqrt{3}\mathbb{M}_{3,1}^{(a)}(E_g, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{4} + \frac{\sqrt{5}\mathbb{M}_{3,2}^{(a)}(E_g, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{4} - \frac{\sqrt{3}\mathbb{M}_{3,2}^{(a)}(E_g, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{4}$$

$$\boxed{\text{z1154}} \quad \mathbb{G}_4^{(1,-1;c)}(A_{2u}, a) = -\frac{\sqrt{2}\mathbb{M}_{5,1}^{(1,-1;a)}(E_g, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{8} - \frac{3\sqrt{70}\mathbb{M}_{5,1}^{(1,-1;a)}(E_g, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{56} + \frac{\sqrt{210}\mathbb{M}_{5,1}^{(1,-1;a)}(E_g, 3)\mathbb{T}_{1,2}^{(b)}(E_u)}{28} \\ - \frac{\sqrt{2}\mathbb{M}_{5,2}^{(1,-1;a)}(E_g, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{8} - \frac{3\sqrt{70}\mathbb{M}_{5,2}^{(1,-1;a)}(E_g, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{56} + \frac{\sqrt{210}\mathbb{M}_{5,2}^{(1,-1;a)}(E_g, 3)\mathbb{T}_{1,1}^{(b)}(E_u)}{28}$$

$$\boxed{\text{z1155}} \quad \mathbb{G}_4^{(1,-1;c)}(A_{2u}, b) = \frac{\sqrt{5}\mathbb{M}_{3,1}^{(1,-1;a)}(E_g, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{4} - \frac{\sqrt{3}\mathbb{M}_{3,1}^{(1,-1;a)}(E_g, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{4} + \frac{\sqrt{5}\mathbb{M}_{3,2}^{(1,-1;a)}(E_g, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{4} - \frac{\sqrt{3}\mathbb{M}_{3,2}^{(1,-1;a)}(E_g, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{4}$$

$$\boxed{\text{z1156}} \quad \mathbb{G}_4^{(1,1;c)}(A_{2u}) = \frac{\sqrt{5}\mathbb{M}_{3,1}^{(1,1;a)}(E_g, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{4} - \frac{\sqrt{3}\mathbb{M}_{3,1}^{(1,1;a)}(E_g, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{4} + \frac{\sqrt{5}\mathbb{M}_{3,2}^{(1,1;a)}(E_g, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{4} - \frac{\sqrt{3}\mathbb{M}_{3,2}^{(1,1;a)}(E_g, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{4}$$

$$\boxed{\text{z1157}} \quad \mathbb{G}_3^{(1,0;c)}(B_{1g}) = \mathbb{G}_3^{(1,0;a)}(B_{1g})\mathbb{Q}_0^{(b)}(A_{1g})$$

$$\boxed{\text{z1158}} \quad \mathbb{G}_2^{(c)}(B_{1u}, a) = \frac{\sqrt{2}\mathbb{M}_{1,1}^{(a)}(E_g)\mathbb{T}_{1,1}^{(b)}(E_u)}{2} + \frac{\sqrt{2}\mathbb{M}_{1,2}^{(a)}(E_g)\mathbb{T}_{1,2}^{(b)}(E_u)}{2}$$

$$\boxed{\text{z1159}} \quad \mathbb{G}_2^{(c)}(B_{1u}, b) = \frac{\sqrt{2}\mathbb{M}_{3,1}^{(a)}(E_g, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{2} + \frac{\sqrt{2}\mathbb{M}_{3,2}^{(a)}(E_g, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{2}$$

$$\boxed{\text{z1160}} \quad \mathbb{G}_2^{(1,-1;c)}(B_{1u}, a) = \frac{\sqrt{2}\mathbb{M}_{1,1}^{(1,-1;a)}(E_g)\mathbb{T}_{1,1}^{(b)}(E_u)}{2} + \frac{\sqrt{2}\mathbb{M}_{1,2}^{(1,-1;a)}(E_g)\mathbb{T}_{1,2}^{(b)}(E_u)}{2}$$

$$\boxed{\text{z1161}} \quad \mathbb{G}_2^{(1,-1;c)}(B_{1u}, b) = \frac{\sqrt{2}\mathbb{M}_{3,1}^{(1,-1;a)}(E_g, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{2} + \frac{\sqrt{2}\mathbb{M}_{3,2}^{(1,-1;a)}(E_g, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{2}$$

$$\boxed{\text{z1162}} \quad \mathbb{G}_4^{(1,-1;c)}(B_{1u}) = \frac{\sqrt{65}\mathbb{M}_{5,1}^{(1,-1;a)}(E_g, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{16} - \frac{3\sqrt{91}\mathbb{M}_{5,1}^{(1,-1;a)}(E_g, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{208} + \frac{3\sqrt{273}\mathbb{M}_{5,1}^{(1,-1;a)}(E_g, 3)\mathbb{T}_{1,1}^{(b)}(E_u)}{104} \\ + \frac{\sqrt{65}\mathbb{M}_{5,2}^{(1,-1;a)}(E_g, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{16} - \frac{3\sqrt{91}\mathbb{M}_{5,2}^{(1,-1;a)}(E_g, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{208} + \frac{3\sqrt{273}\mathbb{M}_{5,2}^{(1,-1;a)}(E_g, 3)\mathbb{T}_{1,2}^{(b)}(E_u)}{104}$$

$$\boxed{\text{z1163}} \quad \mathbb{G}_6^{(1,-1;c)}(B_{1u}, 1) = \frac{3\sqrt{7}\mathbb{M}_{5,1}^{(1,-1;a)}(E_g, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{16} + \frac{\sqrt{5}\mathbb{M}_{5,1}^{(1,-1;a)}(E_g, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{16} - \frac{\sqrt{15}\mathbb{M}_{5,1}^{(1,-1;a)}(E_g, 3)\mathbb{T}_{1,1}^{(b)}(E_u)}{8} \\ + \frac{3\sqrt{7}\mathbb{M}_{5,2}^{(1,-1;a)}(E_g, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{16} + \frac{\sqrt{5}\mathbb{M}_{5,2}^{(1,-1;a)}(E_g, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{16} - \frac{\sqrt{15}\mathbb{M}_{5,2}^{(1,-1;a)}(E_g, 3)\mathbb{T}_{1,2}^{(b)}(E_u)}{8}$$

$$\boxed{\text{z1164}} \quad \mathbb{G}_2^{(1,1;c)}(B_{1u}, a) = \frac{\sqrt{2}\mathbb{M}_{1,1}^{(1,1;a)}(E_g)\mathbb{T}_{1,1}^{(b)}(E_u)}{2} + \frac{\sqrt{2}\mathbb{M}_{1,2}^{(1,1;a)}(E_g)\mathbb{T}_{1,2}^{(b)}(E_u)}{2}$$

$$\boxed{\text{z1165}} \quad \mathbb{G}_2^{(1,1;c)}(B_{1u}, b) = \frac{\sqrt{2}\mathbb{M}_{3,1}^{(1,1;a)}(E_g, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{2} + \frac{\sqrt{2}\mathbb{M}_{3,2}^{(1,1;a)}(E_g, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{2}$$

$$\boxed{\text{z1166}} \quad \mathbb{G}_3^{(1,0;c)}(B_{2g}) = \mathbb{G}_3^{(1,0;a)}(B_{2g})\mathbb{Q}_0^{(b)}(A_{1g})$$

$$\boxed{\text{z1167}} \quad \mathbb{G}_2^{(c)}(B_{2u}, a) = \frac{\sqrt{2}\mathbb{M}_{1,1}^{(a)}(E_g)\mathbb{T}_{1,2}^{(b)}(E_u)}{2} - \frac{\sqrt{2}\mathbb{M}_{1,2}^{(a)}(E_g)\mathbb{T}_{1,1}^{(b)}(E_u)}{2}$$

$$\boxed{\text{z1168}} \quad \mathbb{G}_2^{(c)}(B_{2u}, b) = -\frac{\sqrt{2}\mathbb{M}_{3,1}^{(a)}(E_g, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{8} + \frac{\sqrt{30}\mathbb{M}_{3,1}^{(a)}(E_g, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{8} + \frac{\sqrt{2}\mathbb{M}_{3,2}^{(a)}(E_g, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{8} - \frac{\sqrt{30}\mathbb{M}_{3,2}^{(a)}(E_g, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{8}$$

$$\boxed{\text{z1169}} \quad \mathbb{G}_2^{(1,-1;c)}(B_{2u}, a) = \frac{\sqrt{2}\mathbb{M}_{1,1}^{(1,-1;a)}(E_g)\mathbb{T}_{1,2}^{(b)}(E_u)}{2} - \frac{\sqrt{2}\mathbb{M}_{1,2}^{(1,-1;a)}(E_g)\mathbb{T}_{1,1}^{(b)}(E_u)}{2}$$

$$\boxed{\text{z1170}} \quad \mathbb{G}_2^{(1,-1;c)}(B_{2u}, b) = -\frac{\sqrt{2}\mathbb{M}_{3,1}^{(1,-1;a)}(E_g, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{8} + \frac{\sqrt{30}\mathbb{M}_{3,1}^{(1,-1;a)}(E_g, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{8} + \frac{\sqrt{2}\mathbb{M}_{3,2}^{(1,-1;a)}(E_g, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{8} - \frac{\sqrt{30}\mathbb{M}_{3,2}^{(1,-1;a)}(E_g, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{8}$$

$$\boxed{\text{z1171}} \quad \mathbb{G}_4^{(1,-1;c)}(B_{2u}) = \frac{\sqrt{65}\mathbb{M}_{5,1}^{(1,-1;a)}(E_g, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{208} - \frac{15\sqrt{91}\mathbb{M}_{5,1}^{(1,-1;a)}(E_g, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{208} - \frac{\sqrt{273}\mathbb{M}_{5,1}^{(1,-1;a)}(E_g, 3)\mathbb{T}_{1,2}^{(b)}(E_u)}{104} \\ - \frac{\sqrt{65}\mathbb{M}_{5,2}^{(1,-1;a)}(E_g, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{208} + \frac{15\sqrt{91}\mathbb{M}_{5,2}^{(1,-1;a)}(E_g, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{208} + \frac{\sqrt{273}\mathbb{M}_{5,2}^{(1,-1;a)}(E_g, 3)\mathbb{T}_{1,1}^{(b)}(E_u)}{104}$$

$$\boxed{\text{z1172}} \quad \mathbb{G}_6^{(1,-1;c)}(B_{2u}, 1) = \frac{3\sqrt{7}\mathbb{M}_{5,1}^{(1,-1;a)}(E_g, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{16} + \frac{\sqrt{5}\mathbb{M}_{5,1}^{(1,-1;a)}(E_g, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{16} - \frac{\sqrt{15}\mathbb{M}_{5,1}^{(1,-1;a)}(E_g, 3)\mathbb{T}_{1,2}^{(b)}(E_u)}{8} \\ - \frac{3\sqrt{7}\mathbb{M}_{5,2}^{(1,-1;a)}(E_g, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{16} - \frac{\sqrt{5}\mathbb{M}_{5,2}^{(1,-1;a)}(E_g, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{16} + \frac{\sqrt{15}\mathbb{M}_{5,2}^{(1,-1;a)}(E_g, 3)\mathbb{T}_{1,1}^{(b)}(E_u)}{8}$$

$$\boxed{\text{z1173}} \quad \mathbb{G}_2^{(1,1;c)}(B_{2u}, a) = \frac{\sqrt{2}\mathbb{M}_{1,1}^{(1,1;a)}(E_g)\mathbb{T}_{1,2}^{(b)}(E_u)}{2} - \frac{\sqrt{2}\mathbb{M}_{1,2}^{(1,1;a)}(E_g)\mathbb{T}_{1,1}^{(b)}(E_u)}{2}$$

$$\boxed{\text{z1174}} \quad \mathbb{G}_2^{(1,1;c)}(B_{2u}, b) = -\frac{\sqrt{2}\mathbb{M}_{3,1}^{(1,1;a)}(E_g, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{8} + \frac{\sqrt{30}\mathbb{M}_{3,1}^{(1,1;a)}(E_g, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{8} + \frac{\sqrt{2}\mathbb{M}_{3,2}^{(1,1;a)}(E_g, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{8} - \frac{\sqrt{30}\mathbb{M}_{3,2}^{(1,1;a)}(E_g, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{8}$$

$$\boxed{\text{z1175}} \quad \mathbb{G}_{1,1}^{(1,0;c)}(E_g) = \frac{\sqrt{2}\mathbb{G}_{1,1}^{(1,0;a)}(E_g)\mathbb{Q}_0^{(b)}(A_{1g})}{2}$$



$$\begin{aligned}
\boxed{\text{z1176}} \quad \mathbb{G}_{1,2}^{(1,0;c)}(E_g) &= \frac{\sqrt{2}\mathbb{G}_{1,2}^{(1,0;a)}(E_g)\mathbb{Q}_0^{(b)}(A_{1g})}{2} \\
\boxed{\text{z1177}} \quad \mathbb{G}_{3,1}^{(1,0;c)}(E_g, 1) &= \frac{\sqrt{2}\mathbb{G}_{3,1}^{(1,0;a)}(E_g, 1)\mathbb{Q}_0^{(b)}(A_{1g})}{2} \\
\boxed{\text{z1178}} \quad \mathbb{G}_{3,2}^{(1,0;c)}(E_g, 1) &= \frac{\sqrt{2}\mathbb{G}_{3,2}^{(1,0;a)}(E_g, 1)\mathbb{Q}_0^{(b)}(A_{1g})}{2} \\
\boxed{\text{z1179}} \quad \mathbb{G}_{3,1}^{(1,0;c)}(E_g, 2) &= \frac{\sqrt{2}\mathbb{G}_{3,1}^{(1,0;a)}(E_g, 2)\mathbb{Q}_0^{(b)}(A_{1g})}{2} \\
\boxed{\text{z1180}} \quad \mathbb{G}_{3,2}^{(1,0;c)}(E_g, 2) &= \frac{\sqrt{2}\mathbb{G}_{3,2}^{(1,0;a)}(E_g, 2)\mathbb{Q}_0^{(b)}(A_{1g})}{2} \\
\boxed{\text{z1181}} \quad \mathbb{G}_{2,1}^{(c)}(E_u) &= -\frac{\sqrt{110}\mathbb{M}_3^{(a)}(A_{2g})\mathbb{T}_{1,2}^{(b)}(E_u)}{22} + \frac{\sqrt{66}\mathbb{M}_3^{(a)}(B_{1g})\mathbb{T}_{1,1}^{(b)}(E_u)}{22} - \frac{\sqrt{66}\mathbb{M}_3^{(a)}(B_{2g})\mathbb{T}_{1,2}^{(b)}(E_u)}{22} \\
\boxed{\text{z1182}} \quad \mathbb{G}_{2,2}^{(c)}(E_u) &= \frac{\sqrt{110}\mathbb{M}_3^{(a)}(A_{2g})\mathbb{T}_{1,1}^{(b)}(E_u)}{22} - \frac{\sqrt{66}\mathbb{M}_3^{(a)}(B_{1g})\mathbb{T}_{1,2}^{(b)}(E_u)}{22} - \frac{\sqrt{66}\mathbb{M}_3^{(a)}(B_{2g})\mathbb{T}_{1,1}^{(b)}(E_u)}{22} \\
\boxed{\text{z1183}} \quad \mathbb{G}_{2,1}^{(1,-1;c)}(E_u) &= -\frac{\sqrt{110}\mathbb{M}_3^{(1,-1;a)}(A_{2g})\mathbb{T}_{1,2}^{(b)}(E_u)}{22} + \frac{\sqrt{66}\mathbb{M}_3^{(1,-1;a)}(B_{1g})\mathbb{T}_{1,1}^{(b)}(E_u)}{22} - \frac{\sqrt{66}\mathbb{M}_3^{(1,-1;a)}(B_{2g})\mathbb{T}_{1,2}^{(b)}(E_u)}{22} \\
\boxed{\text{z1184}} \quad \mathbb{G}_{2,2}^{(1,-1;c)}(E_u) &= \frac{\sqrt{110}\mathbb{M}_3^{(1,-1;a)}(A_{2g})\mathbb{T}_{1,1}^{(b)}(E_u)}{22} - \frac{\sqrt{66}\mathbb{M}_3^{(1,-1;a)}(B_{1g})\mathbb{T}_{1,2}^{(b)}(E_u)}{22} - \frac{\sqrt{66}\mathbb{M}_3^{(1,-1;a)}(B_{2g})\mathbb{T}_{1,1}^{(b)}(E_u)}{22} \\
\boxed{\text{z1185}} \quad \mathbb{G}_{4,1}^{(1,-1;c)}(E_u, 1) &= -\frac{3\sqrt{100282}\mathbb{M}_5^{(1,-1;a)}(A_{1g})\mathbb{T}_{1,1}^{(b)}(E_u)}{6916} + \frac{49\sqrt{71630}\mathbb{M}_5^{(1,-1;a)}(A_{2g}, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{28652} + \frac{3\sqrt{100282}\mathbb{M}_5^{(1,-1;a)}(A_{2g}, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{6916} \\
&\quad + \frac{79\sqrt{300846}\mathbb{M}_5^{(1,-1;a)}(B_{1g})\mathbb{T}_{1,1}^{(b)}(E_u)}{200564} + \frac{83\sqrt{300846}\mathbb{M}_5^{(1,-1;a)}(B_{2g})\mathbb{T}_{1,2}^{(b)}(E_u)}{100282} \\
\boxed{\text{z1186}} \quad \mathbb{G}_{4,2}^{(1,-1;c)}(E_u, 1) &= -\frac{3\sqrt{100282}\mathbb{M}_5^{(1,-1;a)}(A_{1g})\mathbb{T}_{1,2}^{(b)}(E_u)}{6916} - \frac{49\sqrt{71630}\mathbb{M}_5^{(1,-1;a)}(A_{2g}, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{28652} - \frac{3\sqrt{100282}\mathbb{M}_5^{(1,-1;a)}(A_{2g}, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{6916} \\
&\quad - \frac{79\sqrt{300846}\mathbb{M}_5^{(1,-1;a)}(B_{1g})\mathbb{T}_{1,2}^{(b)}(E_u)}{200564} + \frac{83\sqrt{300846}\mathbb{M}_5^{(1,-1;a)}(B_{2g})\mathbb{T}_{1,1}^{(b)}(E_u)}{100282} \\
\boxed{\text{z1187}} \quad \mathbb{G}_{4,1}^{(1,-1;c)}(E_u, 2) &= \frac{7\sqrt{2470}\mathbb{M}_5^{(1,-1;a)}(A_{1g})\mathbb{T}_{1,1}^{(b)}(E_u)}{988} + \frac{3\sqrt{3458}\mathbb{M}_5^{(1,-1;a)}(A_{2g}, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{988} \\
&\quad - \frac{7\sqrt{2470}\mathbb{M}_5^{(1,-1;a)}(A_{2g}, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{988} + \frac{5\sqrt{7410}\mathbb{M}_5^{(1,-1;a)}(B_{1g})\mathbb{T}_{1,1}^{(b)}(E_u)}{988} - \frac{\sqrt{7410}\mathbb{M}_5^{(1,-1;a)}(B_{2g})\mathbb{T}_{1,2}^{(b)}(E_u)}{494}
\end{aligned}$$

$$\boxed{\text{z1188}} \quad \mathbb{G}_{4,2}^{(1,-1;c)}(E_u, 2) = \frac{7\sqrt{2470}\mathbb{M}_5^{(1,-1;a)}(A_{1g})\mathbb{T}_{1,2}^{(b)}(E_u)}{988} - \frac{3\sqrt{3458}\mathbb{M}_5^{(1,-1;a)}(A_{2g}, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{988} \\ + \frac{7\sqrt{2470}\mathbb{M}_5^{(1,-1;a)}(A_{2g}, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{988} - \frac{5\sqrt{7410}\mathbb{M}_5^{(1,-1;a)}(B_{1g})\mathbb{T}_{1,2}^{(b)}(E_u)}{988} - \frac{\sqrt{7410}\mathbb{M}_5^{(1,-1;a)}(B_{2g})\mathbb{T}_{1,1}^{(b)}(E_u)}{494}$$

$$\boxed{\text{z1189}} \quad \mathbb{G}_{2,1}^{(1,1;c)}(E_u) = -\frac{\sqrt{110}\mathbb{M}_3^{(1,1;a)}(A_{2g})\mathbb{T}_{1,2}^{(b)}(E_u)}{22} + \frac{\sqrt{66}\mathbb{M}_3^{(1,1;a)}(B_{1g})\mathbb{T}_{1,1}^{(b)}(E_u)}{22} - \frac{\sqrt{66}\mathbb{M}_3^{(1,1;a)}(B_{2g})\mathbb{T}_{1,2}^{(b)}(E_u)}{22}$$

$$\boxed{\text{z1190}} \quad \mathbb{G}_{2,2}^{(1,1;c)}(E_u) = \frac{\sqrt{110}\mathbb{M}_3^{(1,1;a)}(A_{2g})\mathbb{T}_{1,1}^{(b)}(E_u)}{22} - \frac{\sqrt{66}\mathbb{M}_3^{(1,1;a)}(B_{1g})\mathbb{T}_{1,2}^{(b)}(E_u)}{22} - \frac{\sqrt{66}\mathbb{M}_3^{(1,1;a)}(B_{2g})\mathbb{T}_{1,1}^{(b)}(E_u)}{22}$$

• 'U'-'U' bond-cluster

\* bra:  $\langle \frac{3}{2}, \frac{3}{2}; d |, \langle \frac{3}{2}, \frac{1}{2}; d |, \langle \frac{3}{2}, -\frac{1}{2}; d |, \langle \frac{3}{2}, -\frac{3}{2}; d |, \langle \frac{5}{2}, \frac{5}{2}; d |, \langle \frac{5}{2}, \frac{3}{2}; d |, \langle \frac{5}{2}, \frac{1}{2}; d |, \langle \frac{5}{2}, -\frac{1}{2}; d |, \langle \frac{5}{2}, -\frac{3}{2}; d |, \langle \frac{5}{2}, -\frac{5}{2}; d |$

\* ket:  $|\frac{5}{2}, \frac{5}{2}; f\rangle, |\frac{5}{2}, \frac{3}{2}; f\rangle, |\frac{5}{2}, \frac{1}{2}; f\rangle, |\frac{5}{2}, -\frac{1}{2}; f\rangle, |\frac{5}{2}, -\frac{3}{2}; f\rangle, |\frac{5}{2}, -\frac{5}{2}; f\rangle, |\frac{7}{2}, \frac{7}{2}; f\rangle, |\frac{7}{2}, \frac{5}{2}; f\rangle, |\frac{7}{2}, \frac{3}{2}; f\rangle, |\frac{7}{2}, \frac{1}{2}; f\rangle, |\frac{7}{2}, -\frac{1}{2}; f\rangle, |\frac{7}{2}, -\frac{3}{2}; f\rangle, |\frac{7}{2}, -\frac{5}{2}; f\rangle, |\frac{7}{2}, -\frac{7}{2}; f\rangle$

\* wyckoff: **4b04c**

$$\boxed{\text{z41}} \quad \mathbb{Q}_0^{(c)}(A_{1g}) = \frac{\sqrt{2}\mathbb{T}_{1,1}^{(a)}(E_u)\mathbb{T}_{1,1}^{(b)}(E_u)}{2} + \frac{\sqrt{2}\mathbb{T}_{1,2}^{(a)}(E_u)\mathbb{T}_{1,2}^{(b)}(E_u)}{2}$$

$$\boxed{\text{z42}} \quad \mathbb{Q}_2^{(c)}(A_{1g}, a) = -\frac{\sqrt{2}\mathbb{M}_{2,1}^{(a)}(E_u)\mathbb{T}_{1,1}^{(b)}(E_u)}{2} - \frac{\sqrt{2}\mathbb{M}_{2,2}^{(a)}(E_u)\mathbb{T}_{1,2}^{(b)}(E_u)}{2}$$

$$\boxed{\text{z43}} \quad \mathbb{Q}_2^{(c)}(A_{1g}, b) = -\frac{\sqrt{3}\mathbb{T}_{3,1}^{(a)}(E_u, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{4} - \frac{\sqrt{5}\mathbb{T}_{3,1}^{(a)}(E_u, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{4} - \frac{\sqrt{3}\mathbb{T}_{3,2}^{(a)}(E_u, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{4} - \frac{\sqrt{5}\mathbb{T}_{3,2}^{(a)}(E_u, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{4}$$

$$\boxed{\text{z44}} \quad \mathbb{Q}_4^{(c)}(A_{1g}, 1a) = \frac{\sqrt{2}\mathbb{M}_{4,1}^{(a)}(E_u, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{2} + \frac{\sqrt{2}\mathbb{M}_{4,2}^{(a)}(E_u, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{2}$$

$$\boxed{\text{z45}} \quad \mathbb{Q}_4^{(c)}(A_{1g}, 1b) = \frac{\sqrt{770}\mathbb{T}_{5,1}^{(a)}(E_u, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{44} + \frac{3\sqrt{22}\mathbb{T}_{5,1}^{(a)}(E_u, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{44} + \frac{\sqrt{770}\mathbb{T}_{5,2}^{(a)}(E_u, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{44} + \frac{3\sqrt{22}\mathbb{T}_{5,2}^{(a)}(E_u, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{44}$$

$$\boxed{\text{z46}} \quad \mathbb{Q}_4^{(c)}(A_{1g}, 1c) = \frac{\sqrt{5}\mathbb{T}_{3,1}^{(a)}(E_u, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{4} - \frac{\sqrt{3}\mathbb{T}_{3,1}^{(a)}(E_u, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{4} + \frac{\sqrt{5}\mathbb{T}_{3,2}^{(a)}(E_u, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{4} - \frac{\sqrt{3}\mathbb{T}_{3,2}^{(a)}(E_u, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{4}$$

$$\boxed{\text{z47}} \quad \mathbb{Q}_4^{(c)}(A_{1g}, 2a) = \frac{\sqrt{2}\mathbb{M}_{4,1}^{(a)}(E_u, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{2} + \frac{\sqrt{2}\mathbb{M}_{4,2}^{(a)}(E_u, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{2}$$

$$\boxed{\text{z48}} \quad \mathbb{Q}_4^{(c)}(A_{1g}, 2b) = -\frac{3\sqrt{7590}\mathbb{T}_{5,1}^{(a)}(E_u, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{2024} + \frac{5\sqrt{10626}\mathbb{T}_{5,1}^{(a)}(E_u, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{2024} + \frac{\sqrt{3542}\mathbb{T}_{5,1}^{(a)}(E_u, 3)\mathbb{T}_{1,1}^{(b)}(E_u)}{92} \\ - \frac{3\sqrt{7590}\mathbb{T}_{5,2}^{(a)}(E_u, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{2024} + \frac{5\sqrt{10626}\mathbb{T}_{5,2}^{(a)}(E_u, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{2024} + \frac{\sqrt{3542}\mathbb{T}_{5,2}^{(a)}(E_u, 3)\mathbb{T}_{1,2}^{(b)}(E_u)}{92}$$

$$\boxed{\text{z49}} \quad \mathbb{Q}_6^{(c)}(A_{1g}, 1) = \frac{3\sqrt{322}\mathbb{T}_{5,1}^{(a)}(E_u, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{184} - \frac{7\sqrt{230}\mathbb{T}_{5,1}^{(a)}(E_u, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{184} + \frac{\sqrt{690}\mathbb{T}_{5,1}^{(a)}(E_u, 3)\mathbb{T}_{1,1}^{(b)}(E_u)}{92} \\ + \frac{3\sqrt{322}\mathbb{T}_{5,2}^{(a)}(E_u, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{184} - \frac{7\sqrt{230}\mathbb{T}_{5,2}^{(a)}(E_u, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{184} + \frac{\sqrt{690}\mathbb{T}_{5,2}^{(a)}(E_u, 3)\mathbb{T}_{1,2}^{(b)}(E_u)}{92}$$

$$\boxed{\text{z50}} \quad \mathbb{Q}_2^{(1,-1;c)}(A_{1g}, a) = -\frac{\sqrt{2}\mathbb{M}_{2,1}^{(1,-1;a)}(E_u)\mathbb{T}_{1,1}^{(b)}(E_u)}{2} - \frac{\sqrt{2}\mathbb{M}_{2,2}^{(1,-1;a)}(E_u)\mathbb{T}_{1,2}^{(b)}(E_u)}{2}$$

$$\boxed{\text{z51}} \quad \mathbb{Q}_2^{(1,-1;c)}(A_{1g}, b) = -\frac{\sqrt{3}\mathbb{T}_{3,1}^{(1,-1;a)}(E_u, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{4} - \frac{\sqrt{5}\mathbb{T}_{3,1}^{(1,-1;a)}(E_u, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{4} - \frac{\sqrt{3}\mathbb{T}_{3,2}^{(1,-1;a)}(E_u, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{4} - \frac{\sqrt{5}\mathbb{T}_{3,2}^{(1,-1;a)}(E_u, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{4}$$

$$\boxed{\text{z52}} \quad \mathbb{Q}_4^{(1,-1;c)}(A_{1g}, 1a) = \frac{\sqrt{2}\mathbb{M}_{4,1}^{(1,-1;a)}(E_u, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{2} + \frac{\sqrt{2}\mathbb{M}_{4,2}^{(1,-1;a)}(E_u, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{2}$$

$$\boxed{\text{z53}} \quad \mathbb{Q}_4^{(1,-1;c)}(A_{1g}, 1b) = \frac{\sqrt{770}\mathbb{T}_{5,1}^{(1,-1;a)}(E_u, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{44} + \frac{3\sqrt{22}\mathbb{T}_{5,1}^{(1,-1;a)}(E_u, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{44} + \frac{\sqrt{770}\mathbb{T}_{5,2}^{(1,-1;a)}(E_u, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{44} + \frac{3\sqrt{22}\mathbb{T}_{5,2}^{(1,-1;a)}(E_u, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{44}$$

$$\boxed{\text{z54}} \quad \mathbb{Q}_4^{(1,-1;c)}(A_{1g}, 1c) = \frac{\sqrt{5}\mathbb{T}_{3,1}^{(1,-1;a)}(E_u, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{4} - \frac{\sqrt{3}\mathbb{T}_{3,1}^{(1,-1;a)}(E_u, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{4} + \frac{\sqrt{5}\mathbb{T}_{3,2}^{(1,-1;a)}(E_u, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{4} - \frac{\sqrt{3}\mathbb{T}_{3,2}^{(1,-1;a)}(E_u, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{4}$$

$$\boxed{\text{z55}} \quad \mathbb{Q}_4^{(1,-1;c)}(A_{1g}, 2a) = \frac{\sqrt{2}\mathbb{M}_{4,1}^{(1,-1;a)}(E_u, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{2} + \frac{\sqrt{2}\mathbb{M}_{4,2}^{(1,-1;a)}(E_u, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{2}$$

$$\boxed{\text{z56}} \quad \mathbb{Q}_4^{(1,-1;c)}(A_{1g}, 2b) = -\frac{3\sqrt{7590}\mathbb{T}_{5,1}^{(1,-1;a)}(E_u, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{2024} + \frac{5\sqrt{10626}\mathbb{T}_{5,1}^{(1,-1;a)}(E_u, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{2024} + \frac{\sqrt{3542}\mathbb{T}_{5,1}^{(1,-1;a)}(E_u, 3)\mathbb{T}_{1,1}^{(b)}(E_u)}{92} \\ - \frac{3\sqrt{7590}\mathbb{T}_{5,2}^{(1,-1;a)}(E_u, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{2024} + \frac{5\sqrt{10626}\mathbb{T}_{5,2}^{(1,-1;a)}(E_u, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{2024} + \frac{\sqrt{3542}\mathbb{T}_{5,2}^{(1,-1;a)}(E_u, 3)\mathbb{T}_{1,2}^{(b)}(E_u)}{92}$$

$$\boxed{\text{z57}} \quad \mathbb{Q}_6^{(1,-1;c)}(A_{1g}, 1a) = -\frac{\sqrt{2}\mathbb{M}_{6,1}^{(1,-1;a)}(E_u, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{2} - \frac{\sqrt{2}\mathbb{M}_{6,2}^{(1,-1;a)}(E_u, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{2}$$

$$\boxed{\text{z58}} \quad \mathbb{Q}_6^{(1,-1;c)}(A_{1g}, 1b) = \frac{3\sqrt{322}\mathbb{T}_{5,1}^{(1,-1;a)}(E_u, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{184} - \frac{7\sqrt{230}\mathbb{T}_{5,1}^{(1,-1;a)}(E_u, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{184} + \frac{\sqrt{690}\mathbb{T}_{5,1}^{(1,-1;a)}(E_u, 3)\mathbb{T}_{1,1}^{(b)}(E_u)}{92} \\ + \frac{3\sqrt{322}\mathbb{T}_{5,2}^{(1,-1;a)}(E_u, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{184} - \frac{7\sqrt{230}\mathbb{T}_{5,2}^{(1,-1;a)}(E_u, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{184} + \frac{\sqrt{690}\mathbb{T}_{5,2}^{(1,-1;a)}(E_u, 3)\mathbb{T}_{1,2}^{(b)}(E_u)}{92}$$

$$\boxed{\text{z59}} \quad \mathbb{Q}_6^{(1,-1;c)}(A_{1g}, 2) = -\frac{3\sqrt{143}\mathbb{M}_{6,1}^{(1,-1;a)}(E_u, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{52} - \frac{\sqrt{65}\mathbb{M}_{6,1}^{(1,-1;a)}(E_u, 3)\mathbb{T}_{1,1}^{(b)}(E_u)}{52} - \frac{3\sqrt{143}\mathbb{M}_{6,2}^{(1,-1;a)}(E_u, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{52} - \frac{\sqrt{65}\mathbb{M}_{6,2}^{(1,-1;a)}(E_u, 3)\mathbb{T}_{1,2}^{(b)}(E_u)}{52}$$

$$\begin{aligned}
\boxed{\text{z60}} \quad \mathbb{Q}_0^{(1,0;c)}(A_{1g}) &= \frac{\sqrt{2}\mathbb{T}_{1,1}^{(1,0;a)}(E_u)\mathbb{T}_{1,1}^{(b)}(E_u)}{2} + \frac{\sqrt{2}\mathbb{T}_{1,2}^{(1,0;a)}(E_u)\mathbb{T}_{1,2}^{(b)}(E_u)}{2} \\
\boxed{\text{z61}} \quad \mathbb{Q}_2^{(1,0;c)}(A_{1g}, a) &= -\frac{\sqrt{2}\mathbb{M}_{2,1}^{(1,0;a)}(E_u)\mathbb{T}_{1,1}^{(b)}(E_u)}{2} - \frac{\sqrt{2}\mathbb{M}_{2,2}^{(1,0;a)}(E_u)\mathbb{T}_{1,2}^{(b)}(E_u)}{2} \\
\boxed{\text{z62}} \quad \mathbb{Q}_2^{(1,0;c)}(A_{1g}, b) &= -\frac{\sqrt{3}\mathbb{T}_{3,1}^{(1,0;a)}(E_u, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{4} - \frac{\sqrt{5}\mathbb{T}_{3,1}^{(1,0;a)}(E_u, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{4} - \frac{\sqrt{3}\mathbb{T}_{3,2}^{(1,0;a)}(E_u, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{4} - \frac{\sqrt{5}\mathbb{T}_{3,2}^{(1,0;a)}(E_u, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{4} \\
\boxed{\text{z63}} \quad \mathbb{Q}_4^{(1,0;c)}(A_{1g}, 1a) &= \frac{\sqrt{2}\mathbb{M}_{4,1}^{(1,0;a)}(E_u, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{2} + \frac{\sqrt{2}\mathbb{M}_{4,2}^{(1,0;a)}(E_u, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{2} \\
\boxed{\text{z64}} \quad \mathbb{Q}_4^{(1,0;c)}(A_{1g}, 1b) &= \frac{\sqrt{770}\mathbb{T}_{5,1}^{(1,0;a)}(E_u, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{44} + \frac{3\sqrt{22}\mathbb{T}_{5,1}^{(1,0;a)}(E_u, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{44} + \frac{\sqrt{770}\mathbb{T}_{5,2}^{(1,0;a)}(E_u, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{44} + \frac{3\sqrt{22}\mathbb{T}_{5,2}^{(1,0;a)}(E_u, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{44} \\
\boxed{\text{z65}} \quad \mathbb{Q}_4^{(1,0;c)}(A_{1g}, 1c) &= \frac{\sqrt{5}\mathbb{T}_{3,1}^{(1,0;a)}(E_u, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{4} - \frac{\sqrt{3}\mathbb{T}_{3,1}^{(1,0;a)}(E_u, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{4} + \frac{\sqrt{5}\mathbb{T}_{3,2}^{(1,0;a)}(E_u, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{4} - \frac{\sqrt{3}\mathbb{T}_{3,2}^{(1,0;a)}(E_u, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{4} \\
\boxed{\text{z66}} \quad \mathbb{Q}_4^{(1,0;c)}(A_{1g}, 2a) &= \frac{\sqrt{2}\mathbb{M}_{4,1}^{(1,0;a)}(E_u, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{2} + \frac{\sqrt{2}\mathbb{M}_{4,2}^{(1,0;a)}(E_u, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{2} \\
\boxed{\text{z67}} \quad \mathbb{Q}_4^{(1,0;c)}(A_{1g}, 2b) &= -\frac{3\sqrt{7590}\mathbb{T}_{5,1}^{(1,0;a)}(E_u, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{2024} + \frac{5\sqrt{10626}\mathbb{T}_{5,1}^{(1,0;a)}(E_u, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{2024} + \frac{\sqrt{3542}\mathbb{T}_{5,1}^{(1,0;a)}(E_u, 3)\mathbb{T}_{1,1}^{(b)}(E_u)}{92} \\
&\quad - \frac{3\sqrt{7590}\mathbb{T}_{5,2}^{(1,0;a)}(E_u, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{2024} + \frac{5\sqrt{10626}\mathbb{T}_{5,2}^{(1,0;a)}(E_u, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{2024} + \frac{\sqrt{3542}\mathbb{T}_{5,2}^{(1,0;a)}(E_u, 3)\mathbb{T}_{1,2}^{(b)}(E_u)}{92} \\
\boxed{\text{z68}} \quad \mathbb{Q}_6^{(1,0;c)}(A_{1g}, 1) &= \frac{3\sqrt{322}\mathbb{T}_{5,1}^{(1,0;a)}(E_u, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{184} - \frac{7\sqrt{230}\mathbb{T}_{5,1}^{(1,0;a)}(E_u, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{184} + \frac{\sqrt{690}\mathbb{T}_{5,1}^{(1,0;a)}(E_u, 3)\mathbb{T}_{1,1}^{(b)}(E_u)}{92} \\
&\quad + \frac{3\sqrt{322}\mathbb{T}_{5,2}^{(1,0;a)}(E_u, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{184} - \frac{7\sqrt{230}\mathbb{T}_{5,2}^{(1,0;a)}(E_u, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{184} + \frac{\sqrt{690}\mathbb{T}_{5,2}^{(1,0;a)}(E_u, 3)\mathbb{T}_{1,2}^{(b)}(E_u)}{92} \\
\boxed{\text{z69}} \quad \mathbb{Q}_0^{(1,1;c)}(A_{1g}) &= \frac{\sqrt{2}\mathbb{T}_{1,1}^{(1,1;a)}(E_u)\mathbb{T}_{1,1}^{(b)}(E_u)}{2} + \frac{\sqrt{2}\mathbb{T}_{1,2}^{(1,1;a)}(E_u)\mathbb{T}_{1,2}^{(b)}(E_u)}{2} \\
\boxed{\text{z70}} \quad \mathbb{Q}_2^{(1,1;c)}(A_{1g}, a) &= -\frac{\sqrt{2}\mathbb{M}_{2,1}^{(1,1;a)}(E_u)\mathbb{T}_{1,1}^{(b)}(E_u)}{2} - \frac{\sqrt{2}\mathbb{M}_{2,2}^{(1,1;a)}(E_u)\mathbb{T}_{1,2}^{(b)}(E_u)}{2} \\
\boxed{\text{z71}} \quad \mathbb{Q}_2^{(1,1;c)}(A_{1g}, b) &= -\frac{\sqrt{3}\mathbb{T}_{3,1}^{(1,1;a)}(E_u, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{4} - \frac{\sqrt{5}\mathbb{T}_{3,1}^{(1,1;a)}(E_u, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{4} - \frac{\sqrt{3}\mathbb{T}_{3,2}^{(1,1;a)}(E_u, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{4} - \frac{\sqrt{5}\mathbb{T}_{3,2}^{(1,1;a)}(E_u, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{4}
\end{aligned}$$

$$\boxed{\text{z72}} \quad \mathbb{Q}_4^{(1,1;c)}(A_{1g}, 1a) = \frac{\sqrt{2}\mathbb{M}_{4,1}^{(1,1;a)}(E_u, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{2} + \frac{\sqrt{2}\mathbb{M}_{4,2}^{(1,1;a)}(E_u, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{2}$$

$$\boxed{\text{z73}} \quad \mathbb{Q}_4^{(1,1;c)}(A_{1g}, 1b) = \frac{\sqrt{5}\mathbb{T}_{3,1}^{(1,1;a)}(E_u, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{4} - \frac{\sqrt{3}\mathbb{T}_{3,1}^{(1,1;a)}(E_u, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{4} + \frac{\sqrt{5}\mathbb{T}_{3,2}^{(1,1;a)}(E_u, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{4} - \frac{\sqrt{3}\mathbb{T}_{3,2}^{(1,1;a)}(E_u, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{4}$$

$$\boxed{\text{z74}} \quad \mathbb{Q}_4^{(1,1;c)}(A_{1g}, 2) = \frac{\sqrt{2}\mathbb{M}_{4,1}^{(1,1;a)}(E_u, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{2} + \frac{\sqrt{2}\mathbb{M}_{4,2}^{(1,1;a)}(E_u, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{2}$$

$$\boxed{\text{z75}} \quad \mathbb{Q}_5^{(c)}(A_{1u}, a) = \mathbb{Q}_5^{(a)}(A_{1u})\mathbb{Q}_0^{(b)}(A_{1g})$$

$$\boxed{\text{z127}} \quad \mathbb{Q}_5^{(c)}(A_{1u}, b) = \mathbb{Q}_5^{(a)}(B_{1u})\mathbb{Q}_2^{(b)}(B_{1g})$$

$$\boxed{\text{z128}} \quad \mathbb{Q}_5^{(c)}(A_{1u}, c) = \mathbb{Q}_3^{(a)}(B_{1u})\mathbb{Q}_2^{(b)}(B_{1g})$$

$$\boxed{\text{z129}} \quad \mathbb{Q}_5^{(c)}(A_{1u}, d) = -\mathbb{G}_4^{(a)}(B_{1u})\mathbb{Q}_2^{(b)}(B_{1g})$$

$$\boxed{\text{z130}} \quad \mathbb{Q}_5^{(1,-1;c)}(A_{1u}, a) = \mathbb{Q}_5^{(1,-1;a)}(A_{1u})\mathbb{Q}_0^{(b)}(A_{1g})$$

$$\boxed{\text{z131}} \quad \mathbb{Q}_5^{(1,-1;c)}(A_{1u}, b) = \mathbb{Q}_5^{(1,-1;a)}(B_{1u})\mathbb{Q}_2^{(b)}(B_{1g})$$

$$\boxed{\text{z132}} \quad \mathbb{Q}_5^{(1,-1;c)}(A_{1u}, c) = \mathbb{Q}_3^{(1,-1;a)}(B_{1u})\mathbb{Q}_2^{(b)}(B_{1g})$$

$$\boxed{\text{z133}} \quad \mathbb{Q}_5^{(1,-1;c)}(A_{1u}, d) = -\mathbb{G}_4^{(1,-1;a)}(B_{1u})\mathbb{Q}_2^{(b)}(B_{1g})$$

$$\boxed{\text{z134}} \quad \mathbb{Q}_5^{(1,-1;c)}(A_{1u}, e) = \frac{\sqrt{11}\mathbb{G}_6^{(1,-1;a)}(B_{1u}, 1)\mathbb{Q}_2^{(b)}(B_{1g})}{4} + \frac{\sqrt{5}\mathbb{G}_6^{(1,-1;a)}(B_{1u}, 2)\mathbb{Q}_2^{(b)}(B_{1g})}{4}$$

$$\boxed{\text{z135}} \quad \mathbb{Q}_7^{(1,-1;c)}(A_{1u}) = -\frac{\sqrt{5}\mathbb{G}_6^{(1,-1;a)}(B_{1u}, 1)\mathbb{Q}_2^{(b)}(B_{1g})}{4} + \frac{\sqrt{11}\mathbb{G}_6^{(1,-1;a)}(B_{1u}, 2)\mathbb{Q}_2^{(b)}(B_{1g})}{4}$$

$$\boxed{\text{z136}} \quad \mathbb{Q}_5^{(1,0;c)}(A_{1u}, a) = \mathbb{Q}_5^{(1,0;a)}(A_{1u})\mathbb{Q}_0^{(b)}(A_{1g})$$

$$\boxed{\text{z137}} \quad \mathbb{Q}_5^{(1,0;c)}(A_{1u}, b) = \mathbb{Q}_5^{(1,0;a)}(B_{1u})\mathbb{Q}_2^{(b)}(B_{1g})$$

$$\boxed{\text{z138}} \quad \mathbb{Q}_5^{(1,0;c)}(A_{1u}, c) = \mathbb{Q}_3^{(1,0;a)}(B_{1u})\mathbb{Q}_2^{(b)}(B_{1g})$$

$$\boxed{\text{z139}} \quad \mathbb{Q}_5^{(1,0;c)}(A_{1u}, d) = -\mathbb{G}_4^{(1,0;a)}(B_{1u})\mathbb{Q}_2^{(b)}(B_{1g})$$

$$\begin{aligned}
\text{z140} \quad \mathbb{Q}_5^{(1,1;c)}(A_{1u}, a) &= \mathbb{Q}_3^{(1,1;a)}(B_{1u})\mathbb{Q}_2^{(b)}(B_{1g}) \\
\text{z141} \quad \mathbb{Q}_5^{(1,1;c)}(A_{1u}, b) &= -\mathbb{G}_4^{(1,1;a)}(B_{1u})\mathbb{Q}_2^{(b)}(B_{1g}) \\
\text{z142} \quad \mathbb{Q}_4^{(c)}(A_{2g}, a) &= \frac{\mathbb{M}_{4,1}^{(a)}(E_u, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{4} - \frac{\sqrt{7}\mathbb{M}_{4,1}^{(a)}(E_u, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{4} - \frac{\mathbb{M}_{4,2}^{(a)}(E_u, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{4} + \frac{\sqrt{7}\mathbb{M}_{4,2}^{(a)}(E_u, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{4} \\
\text{z143} \quad \mathbb{Q}_4^{(c)}(A_{2g}, b) &= -\frac{\sqrt{1610}\mathbb{T}_{5,1}^{(a)}(E_u, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{92} - \frac{3\sqrt{46}\mathbb{T}_{5,1}^{(a)}(E_u, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{92} + \frac{\sqrt{138}\mathbb{T}_{5,1}^{(a)}(E_u, 3)\mathbb{T}_{1,2}^{(b)}(E_u)}{23} \\
&\quad + \frac{\sqrt{1610}\mathbb{T}_{5,2}^{(a)}(E_u, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{92} + \frac{3\sqrt{46}\mathbb{T}_{5,2}^{(a)}(E_u, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{92} - \frac{\sqrt{138}\mathbb{T}_{5,2}^{(a)}(E_u, 3)\mathbb{T}_{1,1}^{(b)}(E_u)}{23} \\
\text{z144} \quad \mathbb{Q}_4^{(c)}(A_{2g}, c) &= \frac{\sqrt{5}\mathbb{T}_{3,1}^{(a)}(E_u, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{4} - \frac{\sqrt{3}\mathbb{T}_{3,1}^{(a)}(E_u, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{4} - \frac{\sqrt{5}\mathbb{T}_{3,2}^{(a)}(E_u, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{4} + \frac{\sqrt{3}\mathbb{T}_{3,2}^{(a)}(E_u, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{4} \\
\text{z145} \quad \mathbb{Q}_6^{(c)}(A_{2g}) &= -\frac{9\sqrt{322}\mathbb{T}_{5,1}^{(a)}(E_u, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{368} + \frac{13\sqrt{230}\mathbb{T}_{5,1}^{(a)}(E_u, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{368} - \frac{\sqrt{690}\mathbb{T}_{5,1}^{(a)}(E_u, 3)\mathbb{T}_{1,2}^{(b)}(E_u)}{184} \\
&\quad + \frac{9\sqrt{322}\mathbb{T}_{5,2}^{(a)}(E_u, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{368} - \frac{13\sqrt{230}\mathbb{T}_{5,2}^{(a)}(E_u, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{368} + \frac{\sqrt{690}\mathbb{T}_{5,2}^{(a)}(E_u, 3)\mathbb{T}_{1,1}^{(b)}(E_u)}{184} \\
\text{z146} \quad \mathbb{Q}_4^{(1,-1;c)}(A_{2g}, a) &= \frac{\mathbb{M}_{4,1}^{(1,-1;a)}(E_u, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{4} - \frac{\sqrt{7}\mathbb{M}_{4,1}^{(1,-1;a)}(E_u, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{4} - \frac{\mathbb{M}_{4,2}^{(1,-1;a)}(E_u, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{4} + \frac{\sqrt{7}\mathbb{M}_{4,2}^{(1,-1;a)}(E_u, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{4} \\
\text{z147} \quad \mathbb{Q}_4^{(1,-1;c)}(A_{2g}, b) &= -\frac{\sqrt{1610}\mathbb{T}_{5,1}^{(1,-1;a)}(E_u, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{92} - \frac{3\sqrt{46}\mathbb{T}_{5,1}^{(1,-1;a)}(E_u, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{92} + \frac{\sqrt{138}\mathbb{T}_{5,1}^{(1,-1;a)}(E_u, 3)\mathbb{T}_{1,2}^{(b)}(E_u)}{23} \\
&\quad + \frac{\sqrt{1610}\mathbb{T}_{5,2}^{(1,-1;a)}(E_u, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{92} + \frac{3\sqrt{46}\mathbb{T}_{5,2}^{(1,-1;a)}(E_u, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{92} - \frac{\sqrt{138}\mathbb{T}_{5,2}^{(1,-1;a)}(E_u, 3)\mathbb{T}_{1,1}^{(b)}(E_u)}{23} \\
\text{z148} \quad \mathbb{Q}_4^{(1,-1;c)}(A_{2g}, c) &= \frac{\sqrt{5}\mathbb{T}_{3,1}^{(1,-1;a)}(E_u, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{4} - \frac{\sqrt{3}\mathbb{T}_{3,1}^{(1,-1;a)}(E_u, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{4} - \frac{\sqrt{5}\mathbb{T}_{3,2}^{(1,-1;a)}(E_u, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{4} + \frac{\sqrt{3}\mathbb{T}_{3,2}^{(1,-1;a)}(E_u, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{4} \\
\text{z149} \quad \mathbb{Q}_6^{(1,-1;c)}(A_{2g}, a) &= \frac{\sqrt{26}\mathbb{M}_{6,1}^{(1,-1;a)}(E_u, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{52} - \frac{\sqrt{429}\mathbb{M}_{6,1}^{(1,-1;a)}(E_u, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{104} + \frac{5\sqrt{195}\mathbb{M}_{6,1}^{(1,-1;a)}(E_u, 3)\mathbb{T}_{1,2}^{(b)}(E_u)}{104} \\
&\quad - \frac{\sqrt{26}\mathbb{M}_{6,2}^{(1,-1;a)}(E_u, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{52} + \frac{\sqrt{429}\mathbb{M}_{6,2}^{(1,-1;a)}(E_u, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{104} - \frac{5\sqrt{195}\mathbb{M}_{6,2}^{(1,-1;a)}(E_u, 3)\mathbb{T}_{1,1}^{(b)}(E_u)}{104} \\
\text{z150} \quad \mathbb{Q}_6^{(1,-1;c)}(A_{2g}, b) &= -\frac{9\sqrt{322}\mathbb{T}_{5,1}^{(1,-1;a)}(E_u, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{368} + \frac{13\sqrt{230}\mathbb{T}_{5,1}^{(1,-1;a)}(E_u, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{368} - \frac{\sqrt{690}\mathbb{T}_{5,1}^{(1,-1;a)}(E_u, 3)\mathbb{T}_{1,2}^{(b)}(E_u)}{184} \\
&\quad + \frac{9\sqrt{322}\mathbb{T}_{5,2}^{(1,-1;a)}(E_u, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{368} - \frac{13\sqrt{230}\mathbb{T}_{5,2}^{(1,-1;a)}(E_u, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{368} + \frac{\sqrt{690}\mathbb{T}_{5,2}^{(1,-1;a)}(E_u, 3)\mathbb{T}_{1,1}^{(b)}(E_u)}{184}
\end{aligned}$$

$$\begin{aligned}
\boxed{\text{z151}} \quad \mathbb{Q}_4^{(1,0;c)}(A_{2g}, a) &= \frac{\mathbb{M}_{4,1}^{(1,0;a)}(E_u, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{4} - \frac{\sqrt{7}\mathbb{M}_{4,1}^{(1,0;a)}(E_u, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{4} - \frac{\mathbb{M}_{4,2}^{(1,0;a)}(E_u, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{4} + \frac{\sqrt{7}\mathbb{M}_{4,2}^{(1,0;a)}(E_u, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{4} \\
\boxed{\text{z152}} \quad \mathbb{Q}_4^{(1,0;c)}(A_{2g}, b) &= -\frac{\sqrt{1610}\mathbb{T}_{5,1}^{(1,0;a)}(E_u, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{92} - \frac{3\sqrt{46}\mathbb{T}_{5,1}^{(1,0;a)}(E_u, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{92} + \frac{\sqrt{138}\mathbb{T}_{5,1}^{(1,0;a)}(E_u, 3)\mathbb{T}_{1,2}^{(b)}(E_u)}{23} \\
&+ \frac{\sqrt{1610}\mathbb{T}_{5,2}^{(1,0;a)}(E_u, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{92} + \frac{3\sqrt{46}\mathbb{T}_{5,2}^{(1,0;a)}(E_u, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{92} - \frac{\sqrt{138}\mathbb{T}_{5,2}^{(1,0;a)}(E_u, 3)\mathbb{T}_{1,1}^{(b)}(E_u)}{23} \\
\boxed{\text{z153}} \quad \mathbb{Q}_4^{(1,0;c)}(A_{2g}, c) &= \frac{\sqrt{5}\mathbb{T}_{3,1}^{(1,0;a)}(E_u, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{4} - \frac{\sqrt{3}\mathbb{T}_{3,1}^{(1,0;a)}(E_u, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{4} - \frac{\sqrt{5}\mathbb{T}_{3,2}^{(1,0;a)}(E_u, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{4} + \frac{\sqrt{3}\mathbb{T}_{3,2}^{(1,0;a)}(E_u, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{4} \\
\boxed{\text{z154}} \quad \mathbb{Q}_6^{(1,0;c)}(A_{2g}) &= -\frac{9\sqrt{322}\mathbb{T}_{5,1}^{(1,0;a)}(E_u, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{368} + \frac{13\sqrt{230}\mathbb{T}_{5,1}^{(1,0;a)}(E_u, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{368} - \frac{\sqrt{690}\mathbb{T}_{5,1}^{(1,0;a)}(E_u, 3)\mathbb{T}_{1,2}^{(b)}(E_u)}{184} \\
&+ \frac{9\sqrt{322}\mathbb{T}_{5,2}^{(1,0;a)}(E_u, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{368} - \frac{13\sqrt{230}\mathbb{T}_{5,2}^{(1,0;a)}(E_u, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{368} + \frac{\sqrt{690}\mathbb{T}_{5,2}^{(1,0;a)}(E_u, 3)\mathbb{T}_{1,1}^{(b)}(E_u)}{184} \\
\boxed{\text{z155}} \quad \mathbb{Q}_4^{(1,1;c)}(A_{2g}, a) &= \frac{\mathbb{M}_{4,1}^{(1,1;a)}(E_u, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{4} - \frac{\sqrt{7}\mathbb{M}_{4,1}^{(1,1;a)}(E_u, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{4} - \frac{\mathbb{M}_{4,2}^{(1,1;a)}(E_u, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{4} + \frac{\sqrt{7}\mathbb{M}_{4,2}^{(1,1;a)}(E_u, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{4} \\
\boxed{\text{z156}} \quad \mathbb{Q}_4^{(1,1;c)}(A_{2g}, b) &= \frac{\sqrt{5}\mathbb{T}_{3,1}^{(1,1;a)}(E_u, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{4} - \frac{\sqrt{3}\mathbb{T}_{3,1}^{(1,1;a)}(E_u, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{4} - \frac{\sqrt{5}\mathbb{T}_{3,2}^{(1,1;a)}(E_u, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{4} + \frac{\sqrt{3}\mathbb{T}_{3,2}^{(1,1;a)}(E_u, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{4} \\
\boxed{\text{z157}} \quad \mathbb{Q}_1^{(c)}(A_{2u}, a) &= \mathbb{Q}_1^{(a)}(A_{2u})\mathbb{Q}_0^{(b)}(A_{1g}) \\
\boxed{\text{z158}} \quad \mathbb{Q}_1^{(c)}(A_{2u}, b) &= \mathbb{Q}_3^{(a)}(B_{2u})\mathbb{Q}_2^{(b)}(B_{1g}) \\
\boxed{\text{z159}} \quad \mathbb{Q}_1^{(c)}(A_{2u}, c) &= -\mathbb{G}_2^{(a)}(B_{2u})\mathbb{Q}_2^{(b)}(B_{1g}) \\
\boxed{\text{z160}} \quad \mathbb{Q}_3^{(c)}(A_{2u}, a) &= \mathbb{Q}_5^{(a)}(B_{2u})\mathbb{Q}_2^{(b)}(B_{1g}) \\
\boxed{\text{z161}} \quad \mathbb{Q}_3^{(c)}(A_{2u}, b) &= \mathbb{Q}_3^{(a)}(A_{2u})\mathbb{Q}_0^{(b)}(A_{1g}) \\
\boxed{\text{z216}} \quad \mathbb{Q}_3^{(c)}(A_{2u}, c) &= -\mathbb{G}_4^{(a)}(B_{2u})\mathbb{Q}_2^{(b)}(B_{1g}) \\
\boxed{\text{z217}} \quad \mathbb{Q}_5^{(c)}(A_{2u}, 1) &= \mathbb{Q}_5^{(a)}(A_{2u}, 1)\mathbb{Q}_0^{(b)}(A_{1g}) \\
\boxed{\text{z218}} \quad \mathbb{Q}_5^{(c)}(A_{2u}, 2) &= \mathbb{Q}_5^{(a)}(A_{2u}, 2)\mathbb{Q}_0^{(b)}(A_{1g})
\end{aligned}$$

$$\begin{aligned}
\boxed{\text{z219}} \quad \mathbb{Q}_1^{(1,-1;c)}(A_{2u}, a) &= \mathbb{Q}_3^{(1,-1;a)}(B_{2u})\mathbb{Q}_2^{(b)}(B_{1g}) \\
\boxed{\text{z220}} \quad \mathbb{Q}_1^{(1,-1;c)}(A_{2u}, b) &= -\mathbb{G}_2^{(1,-1;a)}(B_{2u})\mathbb{Q}_2^{(b)}(B_{1g}) \\
\boxed{\text{z221}} \quad \mathbb{Q}_3^{(1,-1;c)}(A_{2u}, a) &= \mathbb{Q}_5^{(1,-1;a)}(B_{2u})\mathbb{Q}_2^{(b)}(B_{1g}) \\
\boxed{\text{z222}} \quad \mathbb{Q}_3^{(1,-1;c)}(A_{2u}, b) &= \mathbb{Q}_3^{(1,-1;a)}(A_{2u})\mathbb{Q}_0^{(b)}(A_{1g}) \\
\boxed{\text{z223}} \quad \mathbb{Q}_3^{(1,-1;c)}(A_{2u}, c) &= -\mathbb{G}_4^{(1,-1;a)}(B_{2u})\mathbb{Q}_2^{(b)}(B_{1g}) \\
\boxed{\text{z224}} \quad \mathbb{Q}_5^{(1,-1;c)}(A_{2u}, 1a) &= \mathbb{Q}_5^{(1,-1;a)}(A_{2u}, 1)\mathbb{Q}_0^{(b)}(A_{1g}) \\
\boxed{\text{z225}} \quad \mathbb{Q}_5^{(1,-1;c)}(A_{2u}, 1b) &= -\mathbb{G}_6^{(1,-1;a)}(B_{2u}, 2)\mathbb{Q}_2^{(b)}(B_{1g}) \\
\boxed{\text{z226}} \quad \mathbb{Q}_5^{(1,-1;c)}(A_{2u}, 2a) &= \mathbb{Q}_5^{(1,-1;a)}(A_{2u}, 2)\mathbb{Q}_0^{(b)}(A_{1g}) \\
\boxed{\text{z227}} \quad \mathbb{Q}_5^{(1,-1;c)}(A_{2u}, 2b) &= -\mathbb{G}_6^{(1,-1;a)}(B_{2u}, 1)\mathbb{Q}_2^{(b)}(B_{1g}) \\
\boxed{\text{z228}} \quad \mathbb{Q}_1^{(1,0;c)}(A_{2u}, a) &= \mathbb{Q}_1^{(1,0;a)}(A_{2u})\mathbb{Q}_0^{(b)}(A_{1g}) \\
\boxed{\text{z229}} \quad \mathbb{Q}_1^{(1,0;c)}(A_{2u}, b) &= \mathbb{Q}_3^{(1,0;a)}(B_{2u})\mathbb{Q}_2^{(b)}(B_{1g}) \\
\boxed{\text{z230}} \quad \mathbb{Q}_1^{(1,0;c)}(A_{2u}, c) &= -\mathbb{G}_2^{(1,0;a)}(B_{2u})\mathbb{Q}_2^{(b)}(B_{1g}) \\
\boxed{\text{z231}} \quad \mathbb{Q}_3^{(1,0;c)}(A_{2u}, a) &= \mathbb{Q}_5^{(1,0;a)}(B_{2u})\mathbb{Q}_2^{(b)}(B_{1g}) \\
\boxed{\text{z232}} \quad \mathbb{Q}_3^{(1,0;c)}(A_{2u}, b) &= \mathbb{Q}_3^{(1,0;a)}(A_{2u})\mathbb{Q}_0^{(b)}(A_{1g}) \\
\boxed{\text{z233}} \quad \mathbb{Q}_3^{(1,0;c)}(A_{2u}, c) &= -\mathbb{G}_4^{(1,0;a)}(B_{2u})\mathbb{Q}_2^{(b)}(B_{1g}) \\
\boxed{\text{z234}} \quad \mathbb{Q}_5^{(1,0;c)}(A_{2u}, 1) &= \mathbb{Q}_5^{(1,0;a)}(A_{2u}, 1)\mathbb{Q}_0^{(b)}(A_{1g}) \\
\boxed{\text{z235}} \quad \mathbb{Q}_5^{(1,0;c)}(A_{2u}, 2) &= \mathbb{Q}_5^{(1,0;a)}(A_{2u}, 2)\mathbb{Q}_0^{(b)}(A_{1g}) \\
\boxed{\text{z236}} \quad \mathbb{Q}_1^{(1,1;c)}(A_{2u}, a) &= \mathbb{Q}_1^{(1,1;a)}(A_{2u})\mathbb{Q}_0^{(b)}(A_{1g}) \\
\boxed{\text{z237}} \quad \mathbb{Q}_1^{(1,1;c)}(A_{2u}, b) &= \mathbb{Q}_3^{(1,1;a)}(B_{2u})\mathbb{Q}_2^{(b)}(B_{1g})
\end{aligned}$$



$$\begin{aligned}
\text{z238} \quad \mathbb{Q}_1^{(1,1;c)}(A_{2u}, c) &= -\mathbb{G}_2^{(1,1;a)}(B_{2u})\mathbb{Q}_2^{(b)}(B_{1g}) \\
\text{z239} \quad \mathbb{Q}_3^{(1,1;c)}(A_{2u}, a) &= \mathbb{Q}_3^{(1,1;a)}(A_{2u})\mathbb{Q}_0^{(b)}(A_{1g}) \\
\text{z240} \quad \mathbb{Q}_3^{(1,1;c)}(A_{2u}, b) &= -\mathbb{G}_4^{(1,1;a)}(B_{2u})\mathbb{Q}_2^{(b)}(B_{1g}) \\
\text{z241} \quad \mathbb{Q}_2^{(c)}(B_{1g}, a) &= -\frac{\sqrt{2}\mathbb{M}_{2,1}^{(a)}(Eu)\mathbb{T}_{1,1}^{(b)}(Eu)}{2} + \frac{\sqrt{2}\mathbb{M}_{2,2}^{(a)}(Eu)\mathbb{T}_{1,2}^{(b)}(Eu)}{2} \\
\text{z242} \quad \mathbb{Q}_2^{(c)}(B_{1g}, b) &= \frac{\sqrt{2}\mathbb{T}_{1,1}^{(a)}(Eu)\mathbb{T}_{1,1}^{(b)}(Eu)}{2} - \frac{\sqrt{2}\mathbb{T}_{1,2}^{(a)}(Eu)\mathbb{T}_{1,2}^{(b)}(Eu)}{2} \\
\text{z243} \quad \mathbb{Q}_2^{(c)}(B_{1g}, c) &= \frac{3\sqrt{3}\mathbb{T}_{3,1}^{(a)}(Eu, 1)\mathbb{T}_{1,1}^{(b)}(Eu)}{8} - \frac{\sqrt{5}\mathbb{T}_{3,1}^{(a)}(Eu, 2)\mathbb{T}_{1,1}^{(b)}(Eu)}{8} - \frac{3\sqrt{3}\mathbb{T}_{3,2}^{(a)}(Eu, 1)\mathbb{T}_{1,2}^{(b)}(Eu)}{8} + \frac{\sqrt{5}\mathbb{T}_{3,2}^{(a)}(Eu, 2)\mathbb{T}_{1,2}^{(b)}(Eu)}{8} \\
\text{z244} \quad \mathbb{Q}_4^{(c)}(B_{1g}, a) &= -\frac{\sqrt{7}\mathbb{M}_{4,1}^{(a)}(Eu, 1)\mathbb{T}_{1,1}^{(b)}(Eu)}{4} + \frac{\mathbb{M}_{4,1}^{(a)}(Eu, 2)\mathbb{T}_{1,1}^{(b)}(Eu)}{4} + \frac{\sqrt{7}\mathbb{M}_{4,2}^{(a)}(Eu, 1)\mathbb{T}_{1,2}^{(b)}(Eu)}{4} - \frac{\mathbb{M}_{4,2}^{(a)}(Eu, 2)\mathbb{T}_{1,2}^{(b)}(Eu)}{4} \\
\text{z245} \quad \mathbb{Q}_4^{(c)}(B_{1g}, b) &= \frac{5\sqrt{170}\mathbb{T}_{5,1}^{(a)}(Eu, 1)\mathbb{T}_{1,1}^{(b)}(Eu)}{136} - \frac{3\sqrt{238}\mathbb{T}_{5,1}^{(a)}(Eu, 2)\mathbb{T}_{1,1}^{(b)}(Eu)}{136} + \frac{\sqrt{714}\mathbb{T}_{5,1}^{(a)}(Eu, 3)\mathbb{T}_{1,1}^{(b)}(Eu)}{68} \\
&\quad - \frac{5\sqrt{170}\mathbb{T}_{5,2}^{(a)}(Eu, 1)\mathbb{T}_{1,2}^{(b)}(Eu)}{136} + \frac{3\sqrt{238}\mathbb{T}_{5,2}^{(a)}(Eu, 2)\mathbb{T}_{1,2}^{(b)}(Eu)}{136} - \frac{\sqrt{714}\mathbb{T}_{5,2}^{(a)}(Eu, 3)\mathbb{T}_{1,2}^{(b)}(Eu)}{68} \\
\text{z246} \quad \mathbb{Q}_4^{(c)}(B_{1g}, c) &= \frac{\sqrt{5}\mathbb{T}_{3,1}^{(a)}(Eu, 1)\mathbb{T}_{1,1}^{(b)}(Eu)}{8} + \frac{3\sqrt{3}\mathbb{T}_{3,1}^{(a)}(Eu, 2)\mathbb{T}_{1,1}^{(b)}(Eu)}{8} - \frac{\sqrt{5}\mathbb{T}_{3,2}^{(a)}(Eu, 1)\mathbb{T}_{1,2}^{(b)}(Eu)}{8} - \frac{3\sqrt{3}\mathbb{T}_{3,2}^{(a)}(Eu, 2)\mathbb{T}_{1,2}^{(b)}(Eu)}{8} \\
\text{z247} \quad \mathbb{Q}_6^{(c)}(B_{1g}, 1) &= \frac{5\sqrt{167790}\mathbb{T}_{5,1}^{(a)}(Eu, 1)\mathbb{T}_{1,1}^{(b)}(Eu)}{6392} - \frac{21\sqrt{4794}\mathbb{T}_{5,1}^{(a)}(Eu, 2)\mathbb{T}_{1,1}^{(b)}(Eu)}{6392} - \frac{\sqrt{1598}\mathbb{T}_{5,1}^{(a)}(Eu, 3)\mathbb{T}_{1,1}^{(b)}(Eu)}{68} \\
&\quad - \frac{5\sqrt{167790}\mathbb{T}_{5,2}^{(a)}(Eu, 1)\mathbb{T}_{1,2}^{(b)}(Eu)}{6392} + \frac{21\sqrt{4794}\mathbb{T}_{5,2}^{(a)}(Eu, 2)\mathbb{T}_{1,2}^{(b)}(Eu)}{6392} + \frac{\sqrt{1598}\mathbb{T}_{5,2}^{(a)}(Eu, 3)\mathbb{T}_{1,2}^{(b)}(Eu)}{68} \\
\text{z248} \quad \mathbb{Q}_6^{(c)}(B_{1g}, 2) &= \frac{3\sqrt{658}\mathbb{T}_{5,1}^{(a)}(Eu, 1)\mathbb{T}_{1,1}^{(b)}(Eu)}{188} + \frac{5\sqrt{470}\mathbb{T}_{5,1}^{(a)}(Eu, 2)\mathbb{T}_{1,1}^{(b)}(Eu)}{188} - \frac{3\sqrt{658}\mathbb{T}_{5,2}^{(a)}(Eu, 1)\mathbb{T}_{1,2}^{(b)}(Eu)}{188} - \frac{5\sqrt{470}\mathbb{T}_{5,2}^{(a)}(Eu, 2)\mathbb{T}_{1,2}^{(b)}(Eu)}{188} \\
\text{z249} \quad \mathbb{Q}_2^{(1,-1;c)}(B_{1g}, a) &= -\frac{\sqrt{2}\mathbb{M}_{2,1}^{(1,-1;a)}(Eu)\mathbb{T}_{1,1}^{(b)}(Eu)}{2} + \frac{\sqrt{2}\mathbb{M}_{2,2}^{(1,-1;a)}(Eu)\mathbb{T}_{1,2}^{(b)}(Eu)}{2} \\
\text{z250} \quad \mathbb{Q}_2^{(1,-1;c)}(B_{1g}, b) &= \frac{3\sqrt{3}\mathbb{T}_{3,1}^{(1,-1;a)}(Eu, 1)\mathbb{T}_{1,1}^{(b)}(Eu)}{8} - \frac{\sqrt{5}\mathbb{T}_{3,1}^{(1,-1;a)}(Eu, 2)\mathbb{T}_{1,1}^{(b)}(Eu)}{8} - \frac{3\sqrt{3}\mathbb{T}_{3,2}^{(1,-1;a)}(Eu, 1)\mathbb{T}_{1,2}^{(b)}(Eu)}{8} + \frac{\sqrt{5}\mathbb{T}_{3,2}^{(1,-1;a)}(Eu, 2)\mathbb{T}_{1,2}^{(b)}(Eu)}{8}
\end{aligned}$$

$$\begin{aligned}
\text{z307} \quad \mathbb{Q}_4^{(1,-1;c)}(B_{1g}, a) &= -\frac{\sqrt{7}\mathbb{M}_{4,1}^{(1,-1;a)}(E_u, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{4} + \frac{\mathbb{M}_{4,1}^{(1,-1;a)}(E_u, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{4} + \frac{\sqrt{7}\mathbb{M}_{4,2}^{(1,-1;a)}(E_u, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{4} - \frac{\mathbb{M}_{4,2}^{(1,-1;a)}(E_u, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{4} \\
\text{z308} \quad \mathbb{Q}_4^{(1,-1;c)}(B_{1g}, b) &= \frac{5\sqrt{170}\mathbb{T}_{5,1}^{(1,-1;a)}(E_u, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{136} - \frac{3\sqrt{238}\mathbb{T}_{5,1}^{(1,-1;a)}(E_u, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{136} + \frac{\sqrt{714}\mathbb{T}_{5,1}^{(1,-1;a)}(E_u, 3)\mathbb{T}_{1,1}^{(b)}(E_u)}{68} \\
&\quad - \frac{5\sqrt{170}\mathbb{T}_{5,2}^{(1,-1;a)}(E_u, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{136} + \frac{3\sqrt{238}\mathbb{T}_{5,2}^{(1,-1;a)}(E_u, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{136} - \frac{\sqrt{714}\mathbb{T}_{5,2}^{(1,-1;a)}(E_u, 3)\mathbb{T}_{1,2}^{(b)}(E_u)}{68} \\
\text{z309} \quad \mathbb{Q}_4^{(1,-1;c)}(B_{1g}, c) &= \frac{\sqrt{5}\mathbb{T}_{3,1}^{(1,-1;a)}(E_u, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{8} + \frac{3\sqrt{3}\mathbb{T}_{3,1}^{(1,-1;a)}(E_u, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{8} - \frac{\sqrt{5}\mathbb{T}_{3,2}^{(1,-1;a)}(E_u, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{8} - \frac{3\sqrt{3}\mathbb{T}_{3,2}^{(1,-1;a)}(E_u, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{8} \\
\text{z310} \quad \mathbb{Q}_6^{(1,-1;c)}(B_{1g}, 1a) &= \frac{3\sqrt{35}\mathbb{M}_{6,1}^{(1,-1;a)}(E_u, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{28} - \frac{\sqrt{77}\mathbb{M}_{6,1}^{(1,-1;a)}(E_u, 3)\mathbb{T}_{1,1}^{(b)}(E_u)}{28} - \frac{3\sqrt{35}\mathbb{M}_{6,2}^{(1,-1;a)}(E_u, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{28} + \frac{\sqrt{77}\mathbb{M}_{6,2}^{(1,-1;a)}(E_u, 3)\mathbb{T}_{1,2}^{(b)}(E_u)}{28} \\
\text{z311} \quad \mathbb{Q}_6^{(1,-1;c)}(B_{1g}, 1b) &= \frac{5\sqrt{167790}\mathbb{T}_{5,1}^{(1,-1;a)}(E_u, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{6392} - \frac{21\sqrt{4794}\mathbb{T}_{5,1}^{(1,-1;a)}(E_u, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{6392} - \frac{\sqrt{1598}\mathbb{T}_{5,1}^{(1,-1;a)}(E_u, 3)\mathbb{T}_{1,1}^{(b)}(E_u)}{68} \\
&\quad - \frac{5\sqrt{167790}\mathbb{T}_{5,2}^{(1,-1;a)}(E_u, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{6392} + \frac{21\sqrt{4794}\mathbb{T}_{5,2}^{(1,-1;a)}(E_u, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{6392} + \frac{\sqrt{1598}\mathbb{T}_{5,2}^{(1,-1;a)}(E_u, 3)\mathbb{T}_{1,2}^{(b)}(E_u)}{68} \\
\text{z312} \quad \mathbb{Q}_6^{(1,-1;c)}(B_{1g}, 2a) &= \frac{\sqrt{266}\mathbb{M}_{6,1}^{(1,-1;a)}(E_u, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{38} - \frac{\sqrt{4389}\mathbb{M}_{6,1}^{(1,-1;a)}(E_u, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{266} - \frac{3\sqrt{1995}\mathbb{M}_{6,1}^{(1,-1;a)}(E_u, 3)\mathbb{T}_{1,1}^{(b)}(E_u)}{266} \\
&\quad - \frac{\sqrt{266}\mathbb{M}_{6,2}^{(1,-1;a)}(E_u, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{38} + \frac{\sqrt{4389}\mathbb{M}_{6,2}^{(1,-1;a)}(E_u, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{266} + \frac{3\sqrt{1995}\mathbb{M}_{6,2}^{(1,-1;a)}(E_u, 3)\mathbb{T}_{1,2}^{(b)}(E_u)}{266} \\
\text{z313} \quad \mathbb{Q}_6^{(1,-1;c)}(B_{1g}, 2b) &= \frac{3\sqrt{658}\mathbb{T}_{5,1}^{(1,-1;a)}(E_u, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{188} + \frac{5\sqrt{470}\mathbb{T}_{5,1}^{(1,-1;a)}(E_u, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{188} - \frac{3\sqrt{658}\mathbb{T}_{5,2}^{(1,-1;a)}(E_u, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{188} - \frac{5\sqrt{470}\mathbb{T}_{5,2}^{(1,-1;a)}(E_u, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{188} \\
\text{z314} \quad \mathbb{Q}_2^{(1,0;c)}(B_{1g}, a) &= -\frac{\sqrt{2}\mathbb{M}_{2,1}^{(1,0;a)}(E_u)\mathbb{T}_{1,1}^{(b)}(E_u)}{2} + \frac{\sqrt{2}\mathbb{M}_{2,2}^{(1,0;a)}(E_u)\mathbb{T}_{1,2}^{(b)}(E_u)}{2} \\
\text{z315} \quad \mathbb{Q}_2^{(1,0;c)}(B_{1g}, b) &= \frac{\sqrt{2}\mathbb{T}_{1,1}^{(1,0;a)}(E_u)\mathbb{T}_{1,1}^{(b)}(E_u)}{2} - \frac{\sqrt{2}\mathbb{T}_{1,2}^{(1,0;a)}(E_u)\mathbb{T}_{1,2}^{(b)}(E_u)}{2} \\
\text{z316} \quad \mathbb{Q}_2^{(1,0;c)}(B_{1g}, c) &= \frac{3\sqrt{3}\mathbb{T}_{3,1}^{(1,0;a)}(E_u, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{8} - \frac{\sqrt{5}\mathbb{T}_{3,1}^{(1,0;a)}(E_u, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{8} - \frac{3\sqrt{3}\mathbb{T}_{3,2}^{(1,0;a)}(E_u, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{8} + \frac{\sqrt{5}\mathbb{T}_{3,2}^{(1,0;a)}(E_u, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{8} \\
\text{z317} \quad \mathbb{Q}_4^{(1,0;c)}(B_{1g}, a) &= -\frac{\sqrt{7}\mathbb{M}_{4,1}^{(1,0;a)}(E_u, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{4} + \frac{\mathbb{M}_{4,1}^{(1,0;a)}(E_u, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{4} + \frac{\sqrt{7}\mathbb{M}_{4,2}^{(1,0;a)}(E_u, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{4} - \frac{\mathbb{M}_{4,2}^{(1,0;a)}(E_u, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{4}
\end{aligned}$$

$$\begin{aligned}
\text{z318} \quad \mathbb{Q}_4^{(1,0;c)}(B_{1g}, b) &= \frac{5\sqrt{170}\mathbb{T}_{5,1}^{(1,0;a)}(E_u, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{136} - \frac{3\sqrt{238}\mathbb{T}_{5,1}^{(1,0;a)}(E_u, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{136} + \frac{\sqrt{714}\mathbb{T}_{5,1}^{(1,0;a)}(E_u, 3)\mathbb{T}_{1,1}^{(b)}(E_u)}{68} \\
&\quad - \frac{5\sqrt{170}\mathbb{T}_{5,2}^{(1,0;a)}(E_u, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{136} + \frac{3\sqrt{238}\mathbb{T}_{5,2}^{(1,0;a)}(E_u, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{136} - \frac{\sqrt{714}\mathbb{T}_{5,2}^{(1,0;a)}(E_u, 3)\mathbb{T}_{1,2}^{(b)}(E_u)}{68} \\
\text{z319} \quad \mathbb{Q}_4^{(1,0;c)}(B_{1g}, c) &= \frac{\sqrt{5}\mathbb{T}_{3,1}^{(1,0;a)}(E_u, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{8} + \frac{3\sqrt{3}\mathbb{T}_{3,1}^{(1,0;a)}(E_u, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{8} - \frac{\sqrt{5}\mathbb{T}_{3,2}^{(1,0;a)}(E_u, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{8} - \frac{3\sqrt{3}\mathbb{T}_{3,2}^{(1,0;a)}(E_u, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{8} \\
\text{z320} \quad \mathbb{Q}_6^{(1,0;c)}(B_{1g}, 1) &= \frac{5\sqrt{167790}\mathbb{T}_{5,1}^{(1,0;a)}(E_u, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{6392} - \frac{21\sqrt{4794}\mathbb{T}_{5,1}^{(1,0;a)}(E_u, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{6392} - \frac{\sqrt{1598}\mathbb{T}_{5,1}^{(1,0;a)}(E_u, 3)\mathbb{T}_{1,1}^{(b)}(E_u)}{68} \\
&\quad - \frac{5\sqrt{167790}\mathbb{T}_{5,2}^{(1,0;a)}(E_u, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{6392} + \frac{21\sqrt{4794}\mathbb{T}_{5,2}^{(1,0;a)}(E_u, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{6392} + \frac{\sqrt{1598}\mathbb{T}_{5,2}^{(1,0;a)}(E_u, 3)\mathbb{T}_{1,2}^{(b)}(E_u)}{68} \\
\text{z321} \quad \mathbb{Q}_6^{(1,0;c)}(B_{1g}, 2) &= \frac{3\sqrt{658}\mathbb{T}_{5,1}^{(1,0;a)}(E_u, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{188} + \frac{5\sqrt{470}\mathbb{T}_{5,1}^{(1,0;a)}(E_u, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{188} - \frac{3\sqrt{658}\mathbb{T}_{5,2}^{(1,0;a)}(E_u, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{188} - \frac{5\sqrt{470}\mathbb{T}_{5,2}^{(1,0;a)}(E_u, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{188} \\
\text{z322} \quad \mathbb{Q}_2^{(1,1;c)}(B_{1g}, a) &= -\frac{\sqrt{2}\mathbb{M}_{2,1}^{(1,1;a)}(E_u)\mathbb{T}_{1,1}^{(b)}(E_u)}{2} + \frac{\sqrt{2}\mathbb{M}_{2,2}^{(1,1;a)}(E_u)\mathbb{T}_{1,2}^{(b)}(E_u)}{2} \\
\text{z323} \quad \mathbb{Q}_2^{(1,1;c)}(B_{1g}, b) &= \frac{\sqrt{2}\mathbb{T}_{1,1}^{(1,1;a)}(E_u)\mathbb{T}_{1,1}^{(b)}(E_u)}{2} - \frac{\sqrt{2}\mathbb{T}_{1,2}^{(1,1;a)}(E_u)\mathbb{T}_{1,2}^{(b)}(E_u)}{2} \\
\text{z324} \quad \mathbb{Q}_2^{(1,1;c)}(B_{1g}, c) &= \frac{3\sqrt{3}\mathbb{T}_{3,1}^{(1,1;a)}(E_u, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{8} - \frac{\sqrt{5}\mathbb{T}_{3,1}^{(1,1;a)}(E_u, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{8} - \frac{3\sqrt{3}\mathbb{T}_{3,2}^{(1,1;a)}(E_u, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{8} + \frac{\sqrt{5}\mathbb{T}_{3,2}^{(1,1;a)}(E_u, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{8} \\
\text{z325} \quad \mathbb{Q}_4^{(1,1;c)}(B_{1g}, a) &= -\frac{\sqrt{7}\mathbb{M}_{4,1}^{(1,1;a)}(E_u, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{4} + \frac{\mathbb{M}_{4,1}^{(1,1;a)}(E_u, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{4} + \frac{\sqrt{7}\mathbb{M}_{4,2}^{(1,1;a)}(E_u, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{4} - \frac{\mathbb{M}_{4,2}^{(1,1;a)}(E_u, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{4} \\
\text{z326} \quad \mathbb{Q}_4^{(1,1;c)}(B_{1g}, b) &= \frac{\sqrt{5}\mathbb{T}_{3,1}^{(1,1;a)}(E_u, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{8} + \frac{3\sqrt{3}\mathbb{T}_{3,1}^{(1,1;a)}(E_u, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{8} - \frac{\sqrt{5}\mathbb{T}_{3,2}^{(1,1;a)}(E_u, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{8} - \frac{3\sqrt{3}\mathbb{T}_{3,2}^{(1,1;a)}(E_u, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{8} \\
\text{z327} \quad \mathbb{Q}_3^{(c)}(B_{1u}, a) &= \mathbb{Q}_5^{(a)}(A_{1u})\mathbb{Q}_2^{(b)}(B_{1g}) \\
\text{z328} \quad \mathbb{Q}_3^{(c)}(B_{1u}, b) &= \mathbb{Q}_3^{(a)}(B_{1u})\mathbb{Q}_0^{(b)}(A_{1g}) \\
\text{z329} \quad \mathbb{Q}_3^{(c)}(B_{1u}, c) &= \mathbb{G}_2^{(a)}(A_{1u})\mathbb{Q}_2^{(b)}(B_{1g}) \\
\text{z330} \quad \mathbb{Q}_3^{(c)}(B_{1u}, d) &= -\mathbb{G}_4^{(a)}(A_{1u}, 2)\mathbb{Q}_2^{(b)}(B_{1g})
\end{aligned}$$

$$\begin{aligned}
\boxed{\text{z331}} \quad \mathbb{Q}_5^{(c)}(B_{1u}, a) &= \mathbb{Q}_5^{(a)}(B_{1u})\mathbb{Q}_0^{(b)}(A_{1g}) \\
\boxed{\text{z332}} \quad \mathbb{Q}_5^{(c)}(B_{1u}, b) &= -\mathbb{G}_4^{(a)}(A_{1u}, 1)\mathbb{Q}_2^{(b)}(B_{1g}) \\
\boxed{\text{z333}} \quad \mathbb{Q}_3^{(1, -1; c)}(B_{1u}, a) &= \mathbb{Q}_5^{(1, -1; a)}(A_{1u})\mathbb{Q}_2^{(b)}(B_{1g}) \\
\boxed{\text{z334}} \quad \mathbb{Q}_3^{(1, -1; c)}(B_{1u}, b) &= \mathbb{Q}_3^{(1, -1; a)}(B_{1u})\mathbb{Q}_0^{(b)}(A_{1g}) \\
\boxed{\text{z335}} \quad \mathbb{Q}_3^{(1, -1; c)}(B_{1u}, c) &= \mathbb{G}_2^{(1, -1; a)}(A_{1u})\mathbb{Q}_2^{(b)}(B_{1g}) \\
\boxed{\text{z336}} \quad \mathbb{Q}_3^{(1, -1; c)}(B_{1u}, d) &= -\mathbb{G}_4^{(1, -1; a)}(A_{1u}, 2)\mathbb{Q}_2^{(b)}(B_{1g}) \\
\boxed{\text{z337}} \quad \mathbb{Q}_5^{(1, -1; c)}(B_{1u}, a) &= \mathbb{Q}_5^{(1, -1; a)}(B_{1u})\mathbb{Q}_0^{(b)}(A_{1g}) \\
\boxed{\text{z338}} \quad \mathbb{Q}_5^{(1, -1; c)}(B_{1u}, b) &= -\mathbb{G}_4^{(1, -1; a)}(A_{1u}, 1)\mathbb{Q}_2^{(b)}(B_{1g}) \\
\boxed{\text{z339}} \quad \mathbb{Q}_5^{(1, -1; c)}(B_{1u}, c) &= \frac{\sqrt{14}\mathbb{G}_6^{(1, -1; a)}(A_{1u}, 1)\mathbb{Q}_2^{(b)}(B_{1g})}{4} + \frac{\sqrt{2}\mathbb{G}_6^{(1, -1; a)}(A_{1u}, 2)\mathbb{Q}_2^{(b)}(B_{1g})}{4} \\
\boxed{\text{z340}} \quad \mathbb{Q}_7^{(1, -1; c)}(B_{1u}, 1) &= -\frac{\sqrt{2}\mathbb{G}_6^{(1, -1; a)}(A_{1u}, 1)\mathbb{Q}_2^{(b)}(B_{1g})}{4} + \frac{\sqrt{14}\mathbb{G}_6^{(1, -1; a)}(A_{1u}, 2)\mathbb{Q}_2^{(b)}(B_{1g})}{4} \\
\boxed{\text{z341}} \quad \mathbb{Q}_3^{(1, 0; c)}(B_{1u}, a) &= \mathbb{Q}_5^{(1, 0; a)}(A_{1u})\mathbb{Q}_2^{(b)}(B_{1g}) \\
\boxed{\text{z465}} \quad \mathbb{Q}_3^{(1, 0; c)}(B_{1u}, b) &= \mathbb{Q}_3^{(1, 0; a)}(B_{1u})\mathbb{Q}_0^{(b)}(A_{1g}) \\
\boxed{\text{z466}} \quad \mathbb{Q}_3^{(1, 0; c)}(B_{1u}, c) &= \mathbb{G}_2^{(1, 0; a)}(A_{1u})\mathbb{Q}_2^{(b)}(B_{1g}) \\
\boxed{\text{z467}} \quad \mathbb{Q}_3^{(1, 0; c)}(B_{1u}, d) &= -\mathbb{G}_4^{(1, 0; a)}(A_{1u}, 2)\mathbb{Q}_2^{(b)}(B_{1g}) \\
\boxed{\text{z468}} \quad \mathbb{Q}_5^{(1, 0; c)}(B_{1u}, a) &= \mathbb{Q}_5^{(1, 0; a)}(B_{1u})\mathbb{Q}_0^{(b)}(A_{1g}) \\
\boxed{\text{z469}} \quad \mathbb{Q}_5^{(1, 0; c)}(B_{1u}, b) &= -\mathbb{G}_4^{(1, 0; a)}(A_{1u}, 1)\mathbb{Q}_2^{(b)}(B_{1g}) \\
\boxed{\text{z470}} \quad \mathbb{Q}_3^{(1, 1; c)}(B_{1u}, a) &= \mathbb{Q}_3^{(1, 1; a)}(B_{1u})\mathbb{Q}_0^{(b)}(A_{1g}) \\
\boxed{\text{z471}} \quad \mathbb{Q}_3^{(1, 1; c)}(B_{1u}, b) &= \mathbb{G}_2^{(1, 1; a)}(A_{1u})\mathbb{Q}_2^{(b)}(B_{1g})
\end{aligned}$$

$$\boxed{\text{z472}} \quad \mathbb{Q}_3^{(1,1;c)}(B_{1u}, c) = -\mathbb{G}_4^{(1,1;a)}(A_{1u}, 2)\mathbb{Q}_2^{(b)}(B_{1g})$$

$$\boxed{\text{z473}} \quad \mathbb{Q}_5^{(1,1;c)}(B_{1u}) = -\mathbb{G}_4^{(1,1;a)}(A_{1u}, 1)\mathbb{Q}_2^{(b)}(B_{1g})$$

$$\boxed{\text{z474}} \quad \mathbb{Q}_2^{(c)}(B_{2g}, a) = -\frac{\sqrt{2}\mathbb{M}_{2,1}^{(a)}(E_u)\mathbb{T}_{1,2}^{(b)}(E_u)}{2} - \frac{\sqrt{2}\mathbb{M}_{2,2}^{(a)}(E_u)\mathbb{T}_{1,1}^{(b)}(E_u)}{2}$$

$$\boxed{\text{z475}} \quad \mathbb{Q}_2^{(c)}(B_{2g}, b) = \frac{\sqrt{2}\mathbb{T}_{1,1}^{(a)}(E_u)\mathbb{T}_{1,2}^{(b)}(E_u)}{2} + \frac{\sqrt{2}\mathbb{T}_{1,2}^{(a)}(E_u)\mathbb{T}_{1,1}^{(b)}(E_u)}{2}$$

$$\boxed{\text{z476}} \quad \mathbb{Q}_2^{(c)}(B_{2g}, c) = -\frac{\sqrt{3}\mathbb{T}_{3,1}^{(a)}(E_u, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{4} + \frac{\sqrt{5}\mathbb{T}_{3,1}^{(a)}(E_u, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{4} - \frac{\sqrt{3}\mathbb{T}_{3,2}^{(a)}(E_u, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{4} + \frac{\sqrt{5}\mathbb{T}_{3,2}^{(a)}(E_u, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{4}$$

$$\boxed{\text{z477}} \quad \mathbb{Q}_4^{(c)}(B_{2g}, a) = \frac{\sqrt{7}\mathbb{M}_{4,1}^{(a)}(E_u, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{8} + \frac{5\mathbb{M}_{4,1}^{(a)}(E_u, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{8} + \frac{\sqrt{7}\mathbb{M}_{4,2}^{(a)}(E_u, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{8} + \frac{5\mathbb{M}_{4,2}^{(a)}(E_u, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{8}$$

$$\boxed{\text{z478}} \quad \mathbb{Q}_4^{(c)}(B_{2g}, b) = \frac{\sqrt{170}\mathbb{T}_{5,1}^{(a)}(E_u, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{68} - \frac{3\sqrt{238}\mathbb{T}_{5,1}^{(a)}(E_u, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{68} + \frac{\sqrt{170}\mathbb{T}_{5,2}^{(a)}(E_u, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{68} - \frac{3\sqrt{238}\mathbb{T}_{5,2}^{(a)}(E_u, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{68}$$

$$\boxed{\text{z479}} \quad \mathbb{Q}_4^{(c)}(B_{2g}, c) = -\frac{\sqrt{5}\mathbb{T}_{3,1}^{(a)}(E_u, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{4} - \frac{\sqrt{3}\mathbb{T}_{3,1}^{(a)}(E_u, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{4} - \frac{\sqrt{5}\mathbb{T}_{3,2}^{(a)}(E_u, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{4} - \frac{\sqrt{3}\mathbb{T}_{3,2}^{(a)}(E_u, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{4}$$

$$\boxed{\text{z480}} \quad \mathbb{Q}_6^{(c)}(B_{2g}, 1) = \frac{3\sqrt{7}\mathbb{T}_{5,1}^{(a)}(E_u, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{16} + \frac{\sqrt{5}\mathbb{T}_{5,1}^{(a)}(E_u, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{16} - \frac{\sqrt{15}\mathbb{T}_{5,1}^{(a)}(E_u, 3)\mathbb{T}_{1,2}^{(b)}(E_u)}{8} + \frac{3\sqrt{7}\mathbb{T}_{5,2}^{(a)}(E_u, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{16} + \frac{\sqrt{5}\mathbb{T}_{5,2}^{(a)}(E_u, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{16} - \frac{\sqrt{15}\mathbb{T}_{5,2}^{(a)}(E_u, 3)\mathbb{T}_{1,1}^{(b)}(E_u)}{8}$$

$$\boxed{\text{z481}} \quad \mathbb{Q}_6^{(c)}(B_{2g}, 2) = \frac{3\sqrt{1785}\mathbb{T}_{5,1}^{(a)}(E_u, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{272} + \frac{5\sqrt{51}\mathbb{T}_{5,1}^{(a)}(E_u, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{272} + \frac{\sqrt{17}\mathbb{T}_{5,1}^{(a)}(E_u, 3)\mathbb{T}_{1,2}^{(b)}(E_u)}{8} \\ + \frac{3\sqrt{1785}\mathbb{T}_{5,2}^{(a)}(E_u, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{272} + \frac{5\sqrt{51}\mathbb{T}_{5,2}^{(a)}(E_u, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{272} + \frac{\sqrt{17}\mathbb{T}_{5,2}^{(a)}(E_u, 3)\mathbb{T}_{1,1}^{(b)}(E_u)}{8}$$

$$\boxed{\text{z482}} \quad \mathbb{Q}_2^{(1,-1;c)}(B_{2g}, a) = -\frac{\sqrt{2}\mathbb{M}_{2,1}^{(1,-1;a)}(E_u)\mathbb{T}_{1,2}^{(b)}(E_u)}{2} - \frac{\sqrt{2}\mathbb{M}_{2,2}^{(1,-1;a)}(E_u)\mathbb{T}_{1,1}^{(b)}(E_u)}{2}$$

$$\boxed{\text{z483}} \quad \mathbb{Q}_2^{(1,-1;c)}(B_{2g}, b) = -\frac{\sqrt{3}\mathbb{T}_{3,1}^{(1,-1;a)}(E_u, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{4} + \frac{\sqrt{5}\mathbb{T}_{3,1}^{(1,-1;a)}(E_u, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{4} - \frac{\sqrt{3}\mathbb{T}_{3,2}^{(1,-1;a)}(E_u, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{4} + \frac{\sqrt{5}\mathbb{T}_{3,2}^{(1,-1;a)}(E_u, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{4}$$

$$\boxed{\text{z484}} \quad \mathbb{Q}_4^{(1,-1;c)}(B_{2g}, a) = \frac{\sqrt{7}\mathbb{M}_{4,1}^{(1,-1;a)}(E_u, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{8} + \frac{5\mathbb{M}_{4,1}^{(1,-1;a)}(E_u, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{8} + \frac{\sqrt{7}\mathbb{M}_{4,2}^{(1,-1;a)}(E_u, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{8} + \frac{5\mathbb{M}_{4,2}^{(1,-1;a)}(E_u, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{8}$$

$$\begin{aligned}
\text{z485} \quad \mathbb{Q}_4^{(1,-1;c)}(B_{2g}, b) &= \frac{\sqrt{170}\mathbb{T}_{5,1}^{(1,-1;a)}(Eu, 1)\mathbb{T}_{1,2}^{(b)}(Eu)}{68} - \frac{3\sqrt{238}\mathbb{T}_{5,1}^{(1,-1;a)}(Eu, 2)\mathbb{T}_{1,2}^{(b)}(Eu)}{68} + \frac{\sqrt{170}\mathbb{T}_{5,2}^{(1,-1;a)}(Eu, 1)\mathbb{T}_{1,1}^{(b)}(Eu)}{68} - \frac{3\sqrt{238}\mathbb{T}_{5,2}^{(1,-1;a)}(Eu, 2)\mathbb{T}_{1,1}^{(b)}(Eu)}{68} \\
\text{z486} \quad \mathbb{Q}_4^{(1,-1;c)}(B_{2g}, c) &= -\frac{\sqrt{5}\mathbb{T}_{3,1}^{(1,-1;a)}(Eu, 1)\mathbb{T}_{1,2}^{(b)}(Eu)}{4} - \frac{\sqrt{3}\mathbb{T}_{3,1}^{(1,-1;a)}(Eu, 2)\mathbb{T}_{1,2}^{(b)}(Eu)}{4} - \frac{\sqrt{5}\mathbb{T}_{3,2}^{(1,-1;a)}(Eu, 1)\mathbb{T}_{1,1}^{(b)}(Eu)}{4} - \frac{\sqrt{3}\mathbb{T}_{3,2}^{(1,-1;a)}(Eu, 2)\mathbb{T}_{1,1}^{(b)}(Eu)}{4} \\
\text{z487} \quad \mathbb{Q}_6^{(1,-1;c)}(B_{2g}, 1a) &= \frac{\sqrt{11}\mathbb{M}_{6,1}^{(1,-1;a)}(Eu, 1)\mathbb{T}_{1,2}^{(b)}(Eu)}{8} - \frac{\sqrt{6}\mathbb{M}_{6,1}^{(1,-1;a)}(Eu, 2)\mathbb{T}_{1,2}^{(b)}(Eu)}{32} - \frac{\sqrt{330}\mathbb{M}_{6,1}^{(1,-1;a)}(Eu, 3)\mathbb{T}_{1,2}^{(b)}(Eu)}{32} \\
&+ \frac{\sqrt{11}\mathbb{M}_{6,2}^{(1,-1;a)}(Eu, 1)\mathbb{T}_{1,1}^{(b)}(Eu)}{8} - \frac{\sqrt{6}\mathbb{M}_{6,2}^{(1,-1;a)}(Eu, 2)\mathbb{T}_{1,1}^{(b)}(Eu)}{32} - \frac{\sqrt{330}\mathbb{M}_{6,2}^{(1,-1;a)}(Eu, 3)\mathbb{T}_{1,1}^{(b)}(Eu)}{32} \\
\text{z488} \quad \mathbb{Q}_6^{(1,-1;c)}(B_{2g}, 1b) &= \frac{3\sqrt{7}\mathbb{T}_{5,1}^{(1,-1;a)}(Eu, 1)\mathbb{T}_{1,2}^{(b)}(Eu)}{16} + \frac{\sqrt{5}\mathbb{T}_{5,1}^{(1,-1;a)}(Eu, 2)\mathbb{T}_{1,2}^{(b)}(Eu)}{16} - \frac{\sqrt{15}\mathbb{T}_{5,1}^{(1,-1;a)}(Eu, 3)\mathbb{T}_{1,2}^{(b)}(Eu)}{8} \\
&+ \frac{3\sqrt{7}\mathbb{T}_{5,2}^{(1,-1;a)}(Eu, 1)\mathbb{T}_{1,1}^{(b)}(Eu)}{16} + \frac{\sqrt{5}\mathbb{T}_{5,2}^{(1,-1;a)}(Eu, 2)\mathbb{T}_{1,1}^{(b)}(Eu)}{16} - \frac{\sqrt{15}\mathbb{T}_{5,2}^{(1,-1;a)}(Eu, 3)\mathbb{T}_{1,1}^{(b)}(Eu)}{8} \\
\text{z489} \quad \mathbb{Q}_6^{(1,-1;c)}(B_{2g}, 2a) &= -\frac{5\sqrt{285}\mathbb{M}_{6,1}^{(1,-1;a)}(Eu, 1)\mathbb{T}_{1,2}^{(b)}(Eu)}{152} - \frac{3\sqrt{2090}\mathbb{M}_{6,1}^{(1,-1;a)}(Eu, 2)\mathbb{T}_{1,2}^{(b)}(Eu)}{608} - \frac{37\sqrt{38}\mathbb{M}_{6,1}^{(1,-1;a)}(Eu, 3)\mathbb{T}_{1,2}^{(b)}(Eu)}{608} \\
&- \frac{5\sqrt{285}\mathbb{M}_{6,2}^{(1,-1;a)}(Eu, 1)\mathbb{T}_{1,1}^{(b)}(Eu)}{152} - \frac{3\sqrt{2090}\mathbb{M}_{6,2}^{(1,-1;a)}(Eu, 2)\mathbb{T}_{1,1}^{(b)}(Eu)}{608} - \frac{37\sqrt{38}\mathbb{M}_{6,2}^{(1,-1;a)}(Eu, 3)\mathbb{T}_{1,1}^{(b)}(Eu)}{608} \\
\text{z490} \quad \mathbb{Q}_6^{(1,-1;c)}(B_{2g}, 2b) &= \frac{3\sqrt{1785}\mathbb{T}_{5,1}^{(1,-1;a)}(Eu, 1)\mathbb{T}_{1,2}^{(b)}(Eu)}{272} + \frac{5\sqrt{51}\mathbb{T}_{5,1}^{(1,-1;a)}(Eu, 2)\mathbb{T}_{1,2}^{(b)}(Eu)}{272} + \frac{\sqrt{17}\mathbb{T}_{5,1}^{(1,-1;a)}(Eu, 3)\mathbb{T}_{1,2}^{(b)}(Eu)}{8} \\
&+ \frac{3\sqrt{1785}\mathbb{T}_{5,2}^{(1,-1;a)}(Eu, 1)\mathbb{T}_{1,1}^{(b)}(Eu)}{272} + \frac{5\sqrt{51}\mathbb{T}_{5,2}^{(1,-1;a)}(Eu, 2)\mathbb{T}_{1,1}^{(b)}(Eu)}{272} + \frac{\sqrt{17}\mathbb{T}_{5,2}^{(1,-1;a)}(Eu, 3)\mathbb{T}_{1,1}^{(b)}(Eu)}{8} \\
\text{z491} \quad \mathbb{Q}_2^{(1,0;c)}(B_{2g}, a) &= -\frac{\sqrt{2}\mathbb{M}_{2,1}^{(1,0;a)}(Eu)\mathbb{T}_{1,2}^{(b)}(Eu)}{2} - \frac{\sqrt{2}\mathbb{M}_{2,2}^{(1,0;a)}(Eu)\mathbb{T}_{1,1}^{(b)}(Eu)}{2} \\
\text{z492} \quad \mathbb{Q}_2^{(1,0;c)}(B_{2g}, b) &= \frac{\sqrt{2}\mathbb{T}_{1,1}^{(1,0;a)}(Eu)\mathbb{T}_{1,2}^{(b)}(Eu)}{2} + \frac{\sqrt{2}\mathbb{T}_{1,2}^{(1,0;a)}(Eu)\mathbb{T}_{1,1}^{(b)}(Eu)}{2} \\
\text{z493} \quad \mathbb{Q}_2^{(1,0;c)}(B_{2g}, c) &= -\frac{\sqrt{3}\mathbb{T}_{3,1}^{(1,0;a)}(Eu, 1)\mathbb{T}_{1,2}^{(b)}(Eu)}{4} + \frac{\sqrt{5}\mathbb{T}_{3,1}^{(1,0;a)}(Eu, 2)\mathbb{T}_{1,2}^{(b)}(Eu)}{4} - \frac{\sqrt{3}\mathbb{T}_{3,2}^{(1,0;a)}(Eu, 1)\mathbb{T}_{1,1}^{(b)}(Eu)}{4} + \frac{\sqrt{5}\mathbb{T}_{3,2}^{(1,0;a)}(Eu, 2)\mathbb{T}_{1,1}^{(b)}(Eu)}{4} \\
\text{z494} \quad \mathbb{Q}_4^{(1,0;c)}(B_{2g}, a) &= \frac{\sqrt{7}\mathbb{M}_{4,1}^{(1,0;a)}(Eu, 1)\mathbb{T}_{1,2}^{(b)}(Eu)}{8} + \frac{5\mathbb{M}_{4,1}^{(1,0;a)}(Eu, 2)\mathbb{T}_{1,2}^{(b)}(Eu)}{8} + \frac{\sqrt{7}\mathbb{M}_{4,2}^{(1,0;a)}(Eu, 1)\mathbb{T}_{1,1}^{(b)}(Eu)}{8} + \frac{5\mathbb{M}_{4,2}^{(1,0;a)}(Eu, 2)\mathbb{T}_{1,1}^{(b)}(Eu)}{8} \\
\text{z495} \quad \mathbb{Q}_4^{(1,0;c)}(B_{2g}, b) &= \frac{\sqrt{170}\mathbb{T}_{5,1}^{(1,0;a)}(Eu, 1)\mathbb{T}_{1,2}^{(b)}(Eu)}{68} - \frac{3\sqrt{238}\mathbb{T}_{5,1}^{(1,0;a)}(Eu, 2)\mathbb{T}_{1,2}^{(b)}(Eu)}{68} + \frac{\sqrt{170}\mathbb{T}_{5,2}^{(1,0;a)}(Eu, 1)\mathbb{T}_{1,1}^{(b)}(Eu)}{68} - \frac{3\sqrt{238}\mathbb{T}_{5,2}^{(1,0;a)}(Eu, 2)\mathbb{T}_{1,1}^{(b)}(Eu)}{68}
\end{aligned}$$

$$\begin{aligned}
\boxed{\text{z496}} \quad \mathbb{Q}_4^{(1,0;c)}(B_{2g}, c) &= -\frac{\sqrt{5}\mathbb{T}_{3,1}^{(1,0;a)}(Eu, 1)\mathbb{T}_{1,2}^{(b)}(Eu)}{4} - \frac{\sqrt{3}\mathbb{T}_{3,1}^{(1,0;a)}(Eu, 2)\mathbb{T}_{1,2}^{(b)}(Eu)}{4} - \frac{\sqrt{5}\mathbb{T}_{3,2}^{(1,0;a)}(Eu, 1)\mathbb{T}_{1,1}^{(b)}(Eu)}{4} - \frac{\sqrt{3}\mathbb{T}_{3,2}^{(1,0;a)}(Eu, 2)\mathbb{T}_{1,1}^{(b)}(Eu)}{4} \\
\boxed{\text{z497}} \quad \mathbb{Q}_6^{(1,0;c)}(B_{2g}, 1) &= \frac{3\sqrt{7}\mathbb{T}_{5,1}^{(1,0;a)}(Eu, 1)\mathbb{T}_{1,2}^{(b)}(Eu)}{16} + \frac{\sqrt{5}\mathbb{T}_{5,1}^{(1,0;a)}(Eu, 2)\mathbb{T}_{1,2}^{(b)}(Eu)}{16} - \frac{\sqrt{15}\mathbb{T}_{5,1}^{(1,0;a)}(Eu, 3)\mathbb{T}_{1,2}^{(b)}(Eu)}{8} \\
&\quad + \frac{3\sqrt{7}\mathbb{T}_{5,2}^{(1,0;a)}(Eu, 1)\mathbb{T}_{1,1}^{(b)}(Eu)}{16} + \frac{\sqrt{5}\mathbb{T}_{5,2}^{(1,0;a)}(Eu, 2)\mathbb{T}_{1,1}^{(b)}(Eu)}{16} - \frac{\sqrt{15}\mathbb{T}_{5,2}^{(1,0;a)}(Eu, 3)\mathbb{T}_{1,1}^{(b)}(Eu)}{8} \\
\boxed{\text{z498}} \quad \mathbb{Q}_6^{(1,0;c)}(B_{2g}, 2) &= \frac{3\sqrt{1785}\mathbb{T}_{5,1}^{(1,0;a)}(Eu, 1)\mathbb{T}_{1,2}^{(b)}(Eu)}{272} + \frac{5\sqrt{51}\mathbb{T}_{5,1}^{(1,0;a)}(Eu, 2)\mathbb{T}_{1,2}^{(b)}(Eu)}{272} + \frac{\sqrt{17}\mathbb{T}_{5,1}^{(1,0;a)}(Eu, 3)\mathbb{T}_{1,2}^{(b)}(Eu)}{8} \\
&\quad + \frac{3\sqrt{1785}\mathbb{T}_{5,2}^{(1,0;a)}(Eu, 1)\mathbb{T}_{1,1}^{(b)}(Eu)}{272} + \frac{5\sqrt{51}\mathbb{T}_{5,2}^{(1,0;a)}(Eu, 2)\mathbb{T}_{1,1}^{(b)}(Eu)}{272} + \frac{\sqrt{17}\mathbb{T}_{5,2}^{(1,0;a)}(Eu, 3)\mathbb{T}_{1,1}^{(b)}(Eu)}{8} \\
\boxed{\text{z499}} \quad \mathbb{Q}_2^{(1,1;c)}(B_{2g}, a) &= -\frac{\sqrt{2}\mathbb{M}_{2,1}^{(1,1;a)}(Eu)\mathbb{T}_{1,2}^{(b)}(Eu)}{2} - \frac{\sqrt{2}\mathbb{M}_{2,2}^{(1,1;a)}(Eu)\mathbb{T}_{1,1}^{(b)}(Eu)}{2} \\
\boxed{\text{z500}} \quad \mathbb{Q}_2^{(1,1;c)}(B_{2g}, b) &= \frac{\sqrt{2}\mathbb{T}_{1,1}^{(1,1;a)}(Eu)\mathbb{T}_{1,2}^{(b)}(Eu)}{2} + \frac{\sqrt{2}\mathbb{T}_{1,2}^{(1,1;a)}(Eu)\mathbb{T}_{1,1}^{(b)}(Eu)}{2} \\
\boxed{\text{z501}} \quad \mathbb{Q}_2^{(1,1;c)}(B_{2g}, c) &= -\frac{\sqrt{3}\mathbb{T}_{3,1}^{(1,1;a)}(Eu, 1)\mathbb{T}_{1,2}^{(b)}(Eu)}{4} + \frac{\sqrt{5}\mathbb{T}_{3,1}^{(1,1;a)}(Eu, 2)\mathbb{T}_{1,2}^{(b)}(Eu)}{4} - \frac{\sqrt{3}\mathbb{T}_{3,2}^{(1,1;a)}(Eu, 1)\mathbb{T}_{1,1}^{(b)}(Eu)}{4} + \frac{\sqrt{5}\mathbb{T}_{3,2}^{(1,1;a)}(Eu, 2)\mathbb{T}_{1,1}^{(b)}(Eu)}{4} \\
\boxed{\text{z502}} \quad \mathbb{Q}_4^{(1,1;c)}(B_{2g}, a) &= \frac{\sqrt{7}\mathbb{M}_{4,1}^{(1,1;a)}(Eu, 1)\mathbb{T}_{1,2}^{(b)}(Eu)}{8} + \frac{5\mathbb{M}_{4,1}^{(1,1;a)}(Eu, 2)\mathbb{T}_{1,2}^{(b)}(Eu)}{8} + \frac{\sqrt{7}\mathbb{M}_{4,2}^{(1,1;a)}(Eu, 1)\mathbb{T}_{1,1}^{(b)}(Eu)}{8} + \frac{5\mathbb{M}_{4,2}^{(1,1;a)}(Eu, 2)\mathbb{T}_{1,1}^{(b)}(Eu)}{8} \\
\boxed{\text{z503}} \quad \mathbb{Q}_4^{(1,1;c)}(B_{2g}, b) &= -\frac{\sqrt{5}\mathbb{T}_{3,1}^{(1,1;a)}(Eu, 1)\mathbb{T}_{1,2}^{(b)}(Eu)}{4} - \frac{\sqrt{3}\mathbb{T}_{3,1}^{(1,1;a)}(Eu, 2)\mathbb{T}_{1,2}^{(b)}(Eu)}{4} - \frac{\sqrt{5}\mathbb{T}_{3,2}^{(1,1;a)}(Eu, 1)\mathbb{T}_{1,1}^{(b)}(Eu)}{4} - \frac{\sqrt{3}\mathbb{T}_{3,2}^{(1,1;a)}(Eu, 2)\mathbb{T}_{1,1}^{(b)}(Eu)}{4} \\
\boxed{\text{z504}} \quad \mathbb{Q}_3^{(c)}(B_{2u}, a) &= \frac{\sqrt{85}\mathbb{Q}_5^{(a)}(A_{2u}, 1)\mathbb{Q}_2^{(b)}(B_{1g})}{34} + \frac{3\sqrt{119}\mathbb{Q}_5^{(a)}(A_{2u}, 2)\mathbb{Q}_2^{(b)}(B_{1g})}{34} \\
\boxed{\text{z505}} \quad \mathbb{Q}_3^{(c)}(B_{2u}, b) &= \mathbb{Q}_1^{(a)}(A_{2u})\mathbb{Q}_2^{(b)}(B_{1g}) \\
\boxed{\text{z506}} \quad \mathbb{Q}_3^{(c)}(B_{2u}, c) &= \mathbb{Q}_3^{(a)}(B_{2u})\mathbb{Q}_0^{(b)}(A_{1g}) \\
\boxed{\text{z507}} \quad \mathbb{Q}_3^{(c)}(B_{2u}, d) &= -\mathbb{Q}_3^{(a)}(A_{2u})\mathbb{Q}_2^{(b)}(B_{1g}) \\
\boxed{\text{z508}} \quad \mathbb{Q}_3^{(c)}(B_{2u}, e) &= -\mathbb{G}_4^{(a)}(A_{2u})\mathbb{Q}_2^{(b)}(B_{1g})
\end{aligned}$$

$$\begin{aligned}
\boxed{\text{z509}} \quad \mathbb{Q}_5^{(c)}(B_{2u}, a) &= \mathbb{Q}_5^{(a)}(B_{2u})\mathbb{Q}_0^{(b)}(A_{1g}) \\
\boxed{\text{z510}} \quad \mathbb{Q}_5^{(c)}(B_{2u}, b) &= -\frac{3\sqrt{119}\mathbb{Q}_5^{(a)}(A_{2u}, 1)\mathbb{Q}_2^{(b)}(B_{1g})}{34} + \frac{\sqrt{85}\mathbb{Q}_5^{(a)}(A_{2u}, 2)\mathbb{Q}_2^{(b)}(B_{1g})}{34} \\
\boxed{\text{z511}} \quad \mathbb{Q}_3^{(1, -1; c)}(B_{2u}, a) &= \frac{\sqrt{85}\mathbb{Q}_5^{(1, -1; a)}(A_{2u}, 1)\mathbb{Q}_2^{(b)}(B_{1g})}{34} + \frac{3\sqrt{119}\mathbb{Q}_5^{(1, -1; a)}(A_{2u}, 2)\mathbb{Q}_2^{(b)}(B_{1g})}{34} \\
\boxed{\text{z512}} \quad \mathbb{Q}_3^{(1, -1; c)}(B_{2u}, b) &= \mathbb{Q}_3^{(1, -1; a)}(B_{2u})\mathbb{Q}_0^{(b)}(A_{1g}) \\
\boxed{\text{z513}} \quad \mathbb{Q}_3^{(1, -1; c)}(B_{2u}, c) &= -\mathbb{Q}_3^{(1, -1; a)}(A_{2u})\mathbb{Q}_2^{(b)}(B_{1g}) \\
\boxed{\text{z514}} \quad \mathbb{Q}_3^{(1, -1; c)}(B_{2u}, d) &= -\mathbb{G}_4^{(1, -1; a)}(A_{2u})\mathbb{Q}_2^{(b)}(B_{1g}) \\
\boxed{\text{z515}} \quad \mathbb{Q}_5^{(1, -1; c)}(B_{2u}, a) &= \mathbb{Q}_5^{(1, -1; a)}(B_{2u})\mathbb{Q}_0^{(b)}(A_{1g}) \\
\boxed{\text{z516}} \quad \mathbb{Q}_5^{(1, -1; c)}(B_{2u}, b) &= -\frac{3\sqrt{119}\mathbb{Q}_5^{(1, -1; a)}(A_{2u}, 1)\mathbb{Q}_2^{(b)}(B_{1g})}{34} + \frac{\sqrt{85}\mathbb{Q}_5^{(1, -1; a)}(A_{2u}, 2)\mathbb{Q}_2^{(b)}(B_{1g})}{34} \\
\boxed{\text{z517}} \quad \mathbb{Q}_5^{(1, -1; c)}(B_{2u}, c) &= -\mathbb{G}_6^{(1, -1; a)}(A_{2u})\mathbb{Q}_2^{(b)}(B_{1g}) \\
\boxed{\text{z518}} \quad \mathbb{Q}_3^{(1, 0; c)}(B_{2u}, a) &= \frac{\sqrt{85}\mathbb{Q}_5^{(1, 0; a)}(A_{2u}, 1)\mathbb{Q}_2^{(b)}(B_{1g})}{34} + \frac{3\sqrt{119}\mathbb{Q}_5^{(1, 0; a)}(A_{2u}, 2)\mathbb{Q}_2^{(b)}(B_{1g})}{34} \\
\boxed{\text{z519}} \quad \mathbb{Q}_3^{(1, 0; c)}(B_{2u}, b) &= \mathbb{Q}_1^{(1, 0; a)}(A_{2u})\mathbb{Q}_2^{(b)}(B_{1g}) \\
\boxed{\text{z520}} \quad \mathbb{Q}_3^{(1, 0; c)}(B_{2u}, c) &= \mathbb{Q}_3^{(1, 0; a)}(B_{2u})\mathbb{Q}_0^{(b)}(A_{1g}) \\
\boxed{\text{z521}} \quad \mathbb{Q}_3^{(1, 0; c)}(B_{2u}, d) &= -\mathbb{Q}_3^{(1, 0; a)}(A_{2u})\mathbb{Q}_2^{(b)}(B_{1g}) \\
\boxed{\text{z522}} \quad \mathbb{Q}_3^{(1, 0; c)}(B_{2u}, e) &= -\mathbb{G}_4^{(1, 0; a)}(A_{2u})\mathbb{Q}_2^{(b)}(B_{1g}) \\
\boxed{\text{z523}} \quad \mathbb{Q}_5^{(1, 0; c)}(B_{2u}, a) &= \mathbb{Q}_5^{(1, 0; a)}(B_{2u})\mathbb{Q}_0^{(b)}(A_{1g}) \\
\boxed{\text{z524}} \quad \mathbb{Q}_5^{(1, 0; c)}(B_{2u}, b) &= -\frac{3\sqrt{119}\mathbb{Q}_5^{(1, 0; a)}(A_{2u}, 1)\mathbb{Q}_2^{(b)}(B_{1g})}{34} + \frac{\sqrt{85}\mathbb{Q}_5^{(1, 0; a)}(A_{2u}, 2)\mathbb{Q}_2^{(b)}(B_{1g})}{34} \\
\boxed{\text{z525}} \quad \mathbb{Q}_3^{(1, 1; c)}(B_{2u}, a) &= \mathbb{Q}_1^{(1, 1; a)}(A_{2u})\mathbb{Q}_2^{(b)}(B_{1g})
\end{aligned}$$



$$\boxed{\text{z526}} \quad \mathbb{Q}_3^{(1,1;c)}(B_{2u}, b) = \mathbb{Q}_3^{(1,1;a)}(B_{2u})\mathbb{Q}_0^{(b)}(A_{1g})$$

$$\boxed{\text{z527}} \quad \mathbb{Q}_3^{(1,1;c)}(B_{2u}, c) = -\mathbb{Q}_3^{(1,1;a)}(A_{2u})\mathbb{Q}_2^{(b)}(B_{1g})$$

$$\boxed{\text{z528}} \quad \mathbb{Q}_3^{(1,1;c)}(B_{2u}, d) = -\mathbb{G}_4^{(1,1;a)}(A_{2u})\mathbb{Q}_2^{(b)}(B_{1g})$$

$$\boxed{\text{z529}} \quad \mathbb{Q}_{2,1}^{(c)}(E_g, a) = \frac{\sqrt{30}\mathbb{M}_2^{(a)}(A_{1u})\mathbb{T}_{1,1}^{(b)}(E_u)}{10} + \frac{\sqrt{10}\mathbb{M}_2^{(a)}(B_{1u})\mathbb{T}_{1,1}^{(b)}(E_u)}{10} + \frac{\sqrt{10}\mathbb{M}_2^{(a)}(B_{2u})\mathbb{T}_{1,2}^{(b)}(E_u)}{10}$$

$$\boxed{\text{z530}} \quad \mathbb{Q}_{2,2}^{(c)}(E_g, a) = -\frac{\sqrt{30}\mathbb{M}_2^{(a)}(A_{1u})\mathbb{T}_{1,2}^{(b)}(E_u)}{10} + \frac{\sqrt{10}\mathbb{M}_2^{(a)}(B_{1u})\mathbb{T}_{1,2}^{(b)}(E_u)}{10} - \frac{\sqrt{10}\mathbb{M}_2^{(a)}(B_{2u})\mathbb{T}_{1,1}^{(b)}(E_u)}{10}$$

$$\boxed{\text{z531}} \quad \mathbb{Q}_{2,1}^{(c)}(E_g, b) = \frac{\sqrt{2}\mathbb{T}_1^{(a)}(A_{2u})\mathbb{T}_{1,2}^{(b)}(E_u)}{2}$$

$$\boxed{\text{z532}} \quad \mathbb{Q}_{2,2}^{(c)}(E_g, b) = \frac{\sqrt{2}\mathbb{T}_1^{(a)}(A_{2u})\mathbb{T}_{1,1}^{(b)}(E_u)}{2}$$

$$\boxed{\text{z533}} \quad \mathbb{Q}_{2,1}^{(c)}(E_g, c) = -\frac{\sqrt{78}\mathbb{T}_3^{(a)}(A_{2u})\mathbb{T}_{1,2}^{(b)}(E_u)}{26} + \frac{\sqrt{130}\mathbb{T}_3^{(a)}(B_{1u})\mathbb{T}_{1,1}^{(b)}(E_u)}{26} - \frac{\sqrt{130}\mathbb{T}_3^{(a)}(B_{2u})\mathbb{T}_{1,2}^{(b)}(E_u)}{26}$$

$$\boxed{\text{z534}} \quad \mathbb{Q}_{2,2}^{(c)}(E_g, c) = -\frac{\sqrt{78}\mathbb{T}_3^{(a)}(A_{2u})\mathbb{T}_{1,1}^{(b)}(E_u)}{26} + \frac{\sqrt{130}\mathbb{T}_3^{(a)}(B_{1u})\mathbb{T}_{1,2}^{(b)}(E_u)}{26} + \frac{\sqrt{130}\mathbb{T}_3^{(a)}(B_{2u})\mathbb{T}_{1,1}^{(b)}(E_u)}{26}$$

$$\boxed{\text{z535}} \quad \mathbb{Q}_{4,1}^{(c)}(E_g, 1a) = -\frac{\sqrt{15}\mathbb{M}_4^{(a)}(A_{1u}, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{9} - \frac{\sqrt{21}\mathbb{M}_4^{(a)}(A_{1u}, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{18} - \frac{\mathbb{M}_4^{(a)}(A_{2u})\mathbb{T}_{1,2}^{(b)}(E_u)}{12} + \frac{\sqrt{7}\mathbb{M}_4^{(a)}(B_{1u})\mathbb{T}_{1,1}^{(b)}(E_u)}{6} - \frac{\sqrt{7}\mathbb{M}_4^{(a)}(B_{2u})\mathbb{T}_{1,2}^{(b)}(E_u)}{12}$$

$$\boxed{\text{z536}} \quad \mathbb{Q}_{4,2}^{(c)}(E_g, 1a) = \frac{\sqrt{15}\mathbb{M}_4^{(a)}(A_{1u}, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{9} + \frac{\sqrt{21}\mathbb{M}_4^{(a)}(A_{1u}, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{18} - \frac{\mathbb{M}_4^{(a)}(A_{2u})\mathbb{T}_{1,1}^{(b)}(E_u)}{12} + \frac{\sqrt{7}\mathbb{M}_4^{(a)}(B_{1u})\mathbb{T}_{1,2}^{(b)}(E_u)}{6} + \frac{\sqrt{7}\mathbb{M}_4^{(a)}(B_{2u})\mathbb{T}_{1,1}^{(b)}(E_u)}{12}$$

$$\boxed{\text{z537}} \quad \mathbb{Q}_{4,1}^{(c)}(E_g, 1b) = -\frac{3\mathbb{T}_5^{(a)}(A_{1u})\mathbb{T}_{1,1}^{(b)}(E_u)}{16} + \frac{\sqrt{35}\mathbb{T}_5^{(a)}(A_{2u}, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{16} + \frac{3\mathbb{T}_5^{(a)}(A_{2u}, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{16} + \frac{3\sqrt{3}\mathbb{T}_5^{(a)}(B_{1u})\mathbb{T}_{1,1}^{(b)}(E_u)}{16} + \frac{\sqrt{3}\mathbb{T}_5^{(a)}(B_{2u})\mathbb{T}_{1,2}^{(b)}(E_u)}{4}$$

$$\boxed{\text{z538}} \quad \mathbb{Q}_{4,2}^{(c)}(E_g, 1b) = \frac{3\mathbb{T}_5^{(a)}(A_{1u})\mathbb{T}_{1,2}^{(b)}(E_u)}{16} + \frac{\sqrt{35}\mathbb{T}_5^{(a)}(A_{2u}, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{16} + \frac{3\mathbb{T}_5^{(a)}(A_{2u}, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{16} + \frac{3\sqrt{3}\mathbb{T}_5^{(a)}(B_{1u})\mathbb{T}_{1,2}^{(b)}(E_u)}{16} - \frac{\sqrt{3}\mathbb{T}_5^{(a)}(B_{2u})\mathbb{T}_{1,1}^{(b)}(E_u)}{4}$$

$$\boxed{\text{z539}} \quad \mathbb{Q}_{4,1}^{(c)}(E_g, 1c) = -\frac{7\sqrt{1430}\mathbb{T}_3^{(a)}(A_{2u})\mathbb{T}_{1,2}^{(b)}(E_u)}{572} - \frac{5\sqrt{858}\mathbb{T}_3^{(a)}(B_{1u})\mathbb{T}_{1,1}^{(b)}(E_u)}{286} - \frac{3\sqrt{858}\mathbb{T}_3^{(a)}(B_{2u})\mathbb{T}_{1,2}^{(b)}(E_u)}{572}$$

$$\begin{aligned}
\text{z540} \quad \mathbb{Q}_{4,2}^{(c)}(E_g, 1c) &= -\frac{7\sqrt{1430}\mathbb{T}_3^{(a)}(A_{2u})\mathbb{T}_{1,1}^{(b)}(E_u)}{572} - \frac{5\sqrt{858}\mathbb{T}_3^{(a)}(B_{1u})\mathbb{T}_{1,2}^{(b)}(E_u)}{286} + \frac{3\sqrt{858}\mathbb{T}_3^{(a)}(B_{2u})\mathbb{T}_{1,1}^{(b)}(E_u)}{572} \\
\text{z541} \quad \mathbb{Q}_{4,1}^{(c)}(E_g, 2a) &= \frac{\sqrt{21945}\mathbb{M}_4^{(a)}(A_{1u}, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{1881} - \frac{47\sqrt{627}\mathbb{M}_4^{(a)}(A_{1u}, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{3762} + \frac{\sqrt{1463}\mathbb{M}_4^{(a)}(A_{2u})\mathbb{T}_{1,2}^{(b)}(E_u)}{132} - \frac{25\sqrt{209}\mathbb{M}_4^{(a)}(B_{1u})\mathbb{T}_{1,1}^{(b)}(E_u)}{1254} - \frac{83\sqrt{209}\mathbb{M}_4^{(a)}(B_{2u})\mathbb{T}_{1,2}^{(b)}(E_u)}{2508} \\
\text{z542} \quad \mathbb{Q}_{4,2}^{(c)}(E_g, 2a) &= -\frac{\sqrt{21945}\mathbb{M}_4^{(a)}(A_{1u}, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{1881} + \frac{47\sqrt{627}\mathbb{M}_4^{(a)}(A_{1u}, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{3762} + \frac{\sqrt{1463}\mathbb{M}_4^{(a)}(A_{2u})\mathbb{T}_{1,1}^{(b)}(E_u)}{132} - \frac{25\sqrt{209}\mathbb{M}_4^{(a)}(B_{1u})\mathbb{T}_{1,2}^{(b)}(E_u)}{1254} + \frac{83\sqrt{209}\mathbb{M}_4^{(a)}(B_{2u})\mathbb{T}_{1,1}^{(b)}(E_u)}{2508} \\
\text{z543} \quad \mathbb{Q}_{4,1}^{(c)}(E_g, 2b) &= \frac{\sqrt{8463}\mathbb{T}_5^{(a)}(A_{1u})\mathbb{T}_{1,1}^{(b)}(E_u)}{208} + \frac{\sqrt{6045}\mathbb{T}_5^{(a)}(A_{2u}, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{496} - \frac{\sqrt{8463}\mathbb{T}_5^{(a)}(A_{2u}, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{208} + \frac{35\sqrt{2821}\mathbb{T}_5^{(a)}(B_{1u})\mathbb{T}_{1,1}^{(b)}(E_u)}{6448} + \frac{\sqrt{2821}\mathbb{T}_5^{(a)}(B_{2u})\mathbb{T}_{1,2}^{(b)}(E_u)}{1612} \\
\text{z544} \quad \mathbb{Q}_{4,2}^{(c)}(E_g, 2b) &= -\frac{\sqrt{8463}\mathbb{T}_5^{(a)}(A_{1u})\mathbb{T}_{1,2}^{(b)}(E_u)}{208} + \frac{\sqrt{6045}\mathbb{T}_5^{(a)}(A_{2u}, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{496} - \frac{\sqrt{8463}\mathbb{T}_5^{(a)}(A_{2u}, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{208} + \frac{35\sqrt{2821}\mathbb{T}_5^{(a)}(B_{1u})\mathbb{T}_{1,2}^{(b)}(E_u)}{6448} - \frac{\sqrt{2821}\mathbb{T}_5^{(a)}(B_{2u})\mathbb{T}_{1,1}^{(b)}(E_u)}{1612} \\
\text{z545} \quad \mathbb{Q}_{4,1}^{(c)}(E_g, 2c) &= -\frac{\sqrt{330}\mathbb{T}_3^{(a)}(A_{2u})\mathbb{T}_{1,2}^{(b)}(E_u)}{44} + \frac{\sqrt{22}\mathbb{T}_3^{(a)}(B_{1u})\mathbb{T}_{1,1}^{(b)}(E_u)}{22} + \frac{5\sqrt{22}\mathbb{T}_3^{(a)}(B_{2u})\mathbb{T}_{1,2}^{(b)}(E_u)}{44} \\
\text{z546} \quad \mathbb{Q}_{4,2}^{(c)}(E_g, 2c) &= -\frac{\sqrt{330}\mathbb{T}_3^{(a)}(A_{2u})\mathbb{T}_{1,1}^{(b)}(E_u)}{44} + \frac{\sqrt{22}\mathbb{T}_3^{(a)}(B_{1u})\mathbb{T}_{1,2}^{(b)}(E_u)}{22} - \frac{5\sqrt{22}\mathbb{T}_3^{(a)}(B_{2u})\mathbb{T}_{1,1}^{(b)}(E_u)}{44} \\
\text{z547} \quad \mathbb{Q}_{6,1}^{(c)}(E_g, 1) &= -\frac{\sqrt{439270}\mathbb{T}_5^{(a)}(A_{1u})\mathbb{T}_{1,1}^{(b)}(E_u)}{1417} + \frac{3\sqrt{614978}\mathbb{T}_5^{(a)}(A_{2u}, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{27032} - \frac{5\sqrt{439270}\mathbb{T}_5^{(a)}(A_{2u}, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{11336} + \frac{10\sqrt{1317810}\mathbb{T}_5^{(a)}(B_{1u})\mathbb{T}_{1,1}^{(b)}(E_u)}{43927} - \frac{53\sqrt{1317810}\mathbb{T}_5^{(a)}(B_{2u})\mathbb{T}_{1,2}^{(b)}(E_u)}{175708} \\
\text{z548} \quad \mathbb{Q}_{6,2}^{(c)}(E_g, 1) &= \frac{\sqrt{439270}\mathbb{T}_5^{(a)}(A_{1u})\mathbb{T}_{1,2}^{(b)}(E_u)}{1417} + \frac{3\sqrt{614978}\mathbb{T}_5^{(a)}(A_{2u}, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{27032} - \frac{5\sqrt{439270}\mathbb{T}_5^{(a)}(A_{2u}, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{11336} + \frac{10\sqrt{1317810}\mathbb{T}_5^{(a)}(B_{1u})\mathbb{T}_{1,2}^{(b)}(E_u)}{43927} + \frac{53\sqrt{1317810}\mathbb{T}_5^{(a)}(B_{2u})\mathbb{T}_{1,1}^{(b)}(E_u)}{175708} \\
\text{z549} \quad \mathbb{Q}_{6,1}^{(c)}(E_g, 2) &= -\frac{5\sqrt{109}\mathbb{T}_5^{(a)}(A_{1u})\mathbb{T}_{1,1}^{(b)}(E_u)}{872} + \frac{27\sqrt{3815}\mathbb{T}_5^{(a)}(A_{2u}, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{3488} - \frac{67\sqrt{109}\mathbb{T}_5^{(a)}(A_{2u}, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{3488} - \frac{23\sqrt{327}\mathbb{T}_5^{(a)}(B_{1u})\mathbb{T}_{1,1}^{(b)}(E_u)}{872} + \frac{\sqrt{327}\mathbb{T}_5^{(a)}(B_{2u})\mathbb{T}_{1,2}^{(b)}(E_u)}{1744} \\
\text{z550} \quad \mathbb{Q}_{6,2}^{(c)}(E_g, 2) &= \frac{5\sqrt{109}\mathbb{T}_5^{(a)}(A_{1u})\mathbb{T}_{1,2}^{(b)}(E_u)}{872} + \frac{27\sqrt{3815}\mathbb{T}_5^{(a)}(A_{2u}, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{3488} - \frac{67\sqrt{109}\mathbb{T}_5^{(a)}(A_{2u}, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{3488} - \frac{23\sqrt{327}\mathbb{T}_5^{(a)}(B_{1u})\mathbb{T}_{1,2}^{(b)}(E_u)}{872} - \frac{\sqrt{327}\mathbb{T}_5^{(a)}(B_{2u})\mathbb{T}_{1,1}^{(b)}(E_u)}{1744} \\
\text{z551} \quad \mathbb{Q}_{6,1}^{(c)}(E_g, 3) &= \frac{\sqrt{3}\mathbb{T}_5^{(a)}(A_{1u})\mathbb{T}_{1,1}^{(b)}(E_u)}{8} + \frac{\sqrt{105}\mathbb{T}_5^{(a)}(A_{2u}, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{32} + \frac{7\sqrt{3}\mathbb{T}_5^{(a)}(A_{2u}, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{32} + \frac{\mathbb{T}_5^{(a)}(B_{1u})\mathbb{T}_{1,1}^{(b)}(E_u)}{8} - \frac{7\mathbb{T}_5^{(a)}(B_{2u})\mathbb{T}_{1,2}^{(b)}(E_u)}{16} \\
\text{z552} \quad \mathbb{Q}_{6,2}^{(c)}(E_g, 3) &= -\frac{\sqrt{3}\mathbb{T}_5^{(a)}(A_{1u})\mathbb{T}_{1,2}^{(b)}(E_u)}{8} + \frac{\sqrt{105}\mathbb{T}_5^{(a)}(A_{2u}, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{32} + \frac{7\sqrt{3}\mathbb{T}_5^{(a)}(A_{2u}, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{32} + \frac{\mathbb{T}_5^{(a)}(B_{1u})\mathbb{T}_{1,2}^{(b)}(E_u)}{8} + \frac{7\mathbb{T}_5^{(a)}(B_{2u})\mathbb{T}_{1,1}^{(b)}(E_u)}{16} \\
\text{z553} \quad \mathbb{Q}_{2,1}^{(1,-1;c)}(E_g, a) &= \frac{\sqrt{30}\mathbb{M}_2^{(1,-1;a)}(A_{1u})\mathbb{T}_{1,1}^{(b)}(E_u)}{10} + \frac{\sqrt{10}\mathbb{M}_2^{(1,-1;a)}(B_{1u})\mathbb{T}_{1,1}^{(b)}(E_u)}{10} + \frac{\sqrt{10}\mathbb{M}_2^{(1,-1;a)}(B_{2u})\mathbb{T}_{1,2}^{(b)}(E_u)}{10}
\end{aligned}$$

$$\begin{aligned}
\boxed{\text{z554}} \quad \mathbb{Q}_{2,2}^{(1,-1;c)}(E_g, a) &= -\frac{\sqrt{30}\mathbb{M}_2^{(1,-1;a)}(A_{1u})\mathbb{T}_{1,2}^{(b)}(E_u)}{10} + \frac{\sqrt{10}\mathbb{M}_2^{(1,-1;a)}(B_{1u})\mathbb{T}_{1,2}^{(b)}(E_u)}{10} - \frac{\sqrt{10}\mathbb{M}_2^{(1,-1;a)}(B_{2u})\mathbb{T}_{1,1}^{(b)}(E_u)}{10} \\
\boxed{\text{z555}} \quad \mathbb{Q}_{2,1}^{(1,-1;c)}(E_g, b) &= -\frac{\sqrt{78}\mathbb{T}_3^{(1,-1;a)}(A_{2u})\mathbb{T}_{1,2}^{(b)}(E_u)}{26} + \frac{\sqrt{130}\mathbb{T}_3^{(1,-1;a)}(B_{1u})\mathbb{T}_{1,1}^{(b)}(E_u)}{26} - \frac{\sqrt{130}\mathbb{T}_3^{(1,-1;a)}(B_{2u})\mathbb{T}_{1,2}^{(b)}(E_u)}{26} \\
\boxed{\text{z556}} \quad \mathbb{Q}_{2,2}^{(1,-1;c)}(E_g, b) &= -\frac{\sqrt{78}\mathbb{T}_3^{(1,-1;a)}(A_{2u})\mathbb{T}_{1,1}^{(b)}(E_u)}{26} + \frac{\sqrt{130}\mathbb{T}_3^{(1,-1;a)}(B_{1u})\mathbb{T}_{1,2}^{(b)}(E_u)}{26} + \frac{\sqrt{130}\mathbb{T}_3^{(1,-1;a)}(B_{2u})\mathbb{T}_{1,1}^{(b)}(E_u)}{26} \\
\boxed{\text{z557}} \quad \mathbb{Q}_{4,1}^{(1,-1;c)}(E_g, 1a) &= -\frac{\sqrt{15}\mathbb{M}_4^{(1,-1;a)}(A_{1u}, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{9} - \frac{\sqrt{21}\mathbb{M}_4^{(1,-1;a)}(A_{1u}, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{18} - \frac{\mathbb{M}_4^{(1,-1;a)}(A_{2u})\mathbb{T}_{1,2}^{(b)}(E_u)}{12} + \frac{\sqrt{7}\mathbb{M}_4^{(1,-1;a)}(B_{1u})\mathbb{T}_{1,1}^{(b)}(E_u)}{6} - \frac{\sqrt{7}\mathbb{M}_4^{(1,-1;a)}(B_{2u})\mathbb{T}_{1,2}^{(b)}(E_u)}{12} \\
\boxed{\text{z558}} \quad \mathbb{Q}_{4,2}^{(1,-1;c)}(E_g, 1a) &= \frac{\sqrt{15}\mathbb{M}_4^{(1,-1;a)}(A_{1u}, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{9} + \frac{\sqrt{21}\mathbb{M}_4^{(1,-1;a)}(A_{1u}, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{18} - \frac{\mathbb{M}_4^{(1,-1;a)}(A_{2u})\mathbb{T}_{1,1}^{(b)}(E_u)}{12} + \frac{\sqrt{7}\mathbb{M}_4^{(1,-1;a)}(B_{1u})\mathbb{T}_{1,2}^{(b)}(E_u)}{6} + \frac{\sqrt{7}\mathbb{M}_4^{(1,-1;a)}(B_{2u})\mathbb{T}_{1,1}^{(b)}(E_u)}{12} \\
\boxed{\text{z559}} \quad \mathbb{Q}_{4,1}^{(1,-1;c)}(E_g, 1b) &= -\frac{3\mathbb{T}_5^{(1,-1;a)}(A_{1u})\mathbb{T}_{1,1}^{(b)}(E_u)}{16} + \frac{\sqrt{35}\mathbb{T}_5^{(1,-1;a)}(A_{2u}, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{16} + \frac{3\mathbb{T}_5^{(1,-1;a)}(A_{2u}, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{16} + \frac{3\sqrt{3}\mathbb{T}_5^{(1,-1;a)}(B_{1u})\mathbb{T}_{1,1}^{(b)}(E_u)}{16} + \frac{\sqrt{3}\mathbb{T}_5^{(1,-1;a)}(B_{2u})\mathbb{T}_{1,2}^{(b)}(E_u)}{4} \\
\boxed{\text{z560}} \quad \mathbb{Q}_{4,2}^{(1,-1;c)}(E_g, 1b) &= \frac{3\mathbb{T}_5^{(1,-1;a)}(A_{1u})\mathbb{T}_{1,2}^{(b)}(E_u)}{16} + \frac{\sqrt{35}\mathbb{T}_5^{(1,-1;a)}(A_{2u}, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{16} + \frac{3\mathbb{T}_5^{(1,-1;a)}(A_{2u}, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{16} + \frac{3\sqrt{3}\mathbb{T}_5^{(1,-1;a)}(B_{1u})\mathbb{T}_{1,2}^{(b)}(E_u)}{16} - \frac{\sqrt{3}\mathbb{T}_5^{(1,-1;a)}(B_{2u})\mathbb{T}_{1,1}^{(b)}(E_u)}{4} \\
\boxed{\text{z561}} \quad \mathbb{Q}_{4,1}^{(1,-1;c)}(E_g, 1c) &= -\frac{7\sqrt{1430}\mathbb{T}_3^{(1,-1;a)}(A_{2u})\mathbb{T}_{1,2}^{(b)}(E_u)}{572} - \frac{5\sqrt{858}\mathbb{T}_3^{(1,-1;a)}(B_{1u})\mathbb{T}_{1,1}^{(b)}(E_u)}{286} - \frac{3\sqrt{858}\mathbb{T}_3^{(1,-1;a)}(B_{2u})\mathbb{T}_{1,2}^{(b)}(E_u)}{572} \\
\boxed{\text{z562}} \quad \mathbb{Q}_{4,2}^{(1,-1;c)}(E_g, 1c) &= -\frac{7\sqrt{1430}\mathbb{T}_3^{(1,-1;a)}(A_{2u})\mathbb{T}_{1,1}^{(b)}(E_u)}{572} - \frac{5\sqrt{858}\mathbb{T}_3^{(1,-1;a)}(B_{1u})\mathbb{T}_{1,2}^{(b)}(E_u)}{286} + \frac{3\sqrt{858}\mathbb{T}_3^{(1,-1;a)}(B_{2u})\mathbb{T}_{1,1}^{(b)}(E_u)}{572} \\
\boxed{\text{z563}} \quad \mathbb{Q}_{4,1}^{(1,-1;c)}(E_g, 2a) &= \frac{\sqrt{21945}\mathbb{M}_4^{(1,-1;a)}(A_{1u}, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{1881} - \frac{47\sqrt{627}\mathbb{M}_4^{(1,-1;a)}(A_{1u}, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{3762} + \frac{\sqrt{1463}\mathbb{M}_4^{(1,-1;a)}(A_{2u})\mathbb{T}_{1,2}^{(b)}(E_u)}{132} \\
&\quad - \frac{25\sqrt{209}\mathbb{M}_4^{(1,-1;a)}(B_{1u})\mathbb{T}_{1,1}^{(b)}(E_u)}{1254} - \frac{83\sqrt{209}\mathbb{M}_4^{(1,-1;a)}(B_{2u})\mathbb{T}_{1,2}^{(b)}(E_u)}{2508} \\
\boxed{\text{z564}} \quad \mathbb{Q}_{4,2}^{(1,-1;c)}(E_g, 2a) &= -\frac{\sqrt{21945}\mathbb{M}_4^{(1,-1;a)}(A_{1u}, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{1881} + \frac{47\sqrt{627}\mathbb{M}_4^{(1,-1;a)}(A_{1u}, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{3762} + \frac{\sqrt{1463}\mathbb{M}_4^{(1,-1;a)}(A_{2u})\mathbb{T}_{1,1}^{(b)}(E_u)}{132} \\
&\quad - \frac{25\sqrt{209}\mathbb{M}_4^{(1,-1;a)}(B_{1u})\mathbb{T}_{1,2}^{(b)}(E_u)}{1254} + \frac{83\sqrt{209}\mathbb{M}_4^{(1,-1;a)}(B_{2u})\mathbb{T}_{1,1}^{(b)}(E_u)}{2508} \\
\boxed{\text{z565}} \quad \mathbb{Q}_{4,1}^{(1,-1;c)}(E_g, 2b) &= \frac{\sqrt{8463}\mathbb{T}_5^{(1,-1;a)}(A_{1u})\mathbb{T}_{1,1}^{(b)}(E_u)}{208} + \frac{\sqrt{6045}\mathbb{T}_5^{(1,-1;a)}(A_{2u}, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{496} - \frac{\sqrt{8463}\mathbb{T}_5^{(1,-1;a)}(A_{2u}, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{208} \\
&\quad + \frac{35\sqrt{2821}\mathbb{T}_5^{(1,-1;a)}(B_{1u})\mathbb{T}_{1,1}^{(b)}(E_u)}{6448} + \frac{\sqrt{2821}\mathbb{T}_5^{(1,-1;a)}(B_{2u})\mathbb{T}_{1,2}^{(b)}(E_u)}{1612}
\end{aligned}$$

$$\boxed{\text{z566}} \quad \mathbb{Q}_{4,2}^{(1,-1;c)}(E_g, 2b) = -\frac{\sqrt{8463}\mathbb{T}_5^{(1,-1;a)}(A_{1u})\mathbb{T}_{1,2}^{(b)}(E_u)}{208} + \frac{\sqrt{6045}\mathbb{T}_5^{(1,-1;a)}(A_{2u}, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{496} - \frac{\sqrt{8463}\mathbb{T}_5^{(1,-1;a)}(A_{2u}, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{208} \\ + \frac{35\sqrt{2821}\mathbb{T}_5^{(1,-1;a)}(B_{1u})\mathbb{T}_{1,2}^{(b)}(E_u)}{6448} - \frac{\sqrt{2821}\mathbb{T}_5^{(1,-1;a)}(B_{2u})\mathbb{T}_{1,1}^{(b)}(E_u)}{1612}$$

$$\boxed{\text{z567}} \quad \mathbb{Q}_{4,1}^{(1,-1;c)}(E_g, 2c) = -\frac{\sqrt{330}\mathbb{T}_3^{(1,-1;a)}(A_{2u})\mathbb{T}_{1,2}^{(b)}(E_u)}{44} + \frac{\sqrt{22}\mathbb{T}_3^{(1,-1;a)}(B_{1u})\mathbb{T}_{1,1}^{(b)}(E_u)}{22} + \frac{5\sqrt{22}\mathbb{T}_3^{(1,-1;a)}(B_{2u})\mathbb{T}_{1,2}^{(b)}(E_u)}{44}$$

$$\boxed{\text{z568}} \quad \mathbb{Q}_{4,2}^{(1,-1;c)}(E_g, 2c) = -\frac{\sqrt{330}\mathbb{T}_3^{(1,-1;a)}(A_{2u})\mathbb{T}_{1,1}^{(b)}(E_u)}{44} + \frac{\sqrt{22}\mathbb{T}_3^{(1,-1;a)}(B_{1u})\mathbb{T}_{1,2}^{(b)}(E_u)}{22} - \frac{5\sqrt{22}\mathbb{T}_3^{(1,-1;a)}(B_{2u})\mathbb{T}_{1,1}^{(b)}(E_u)}{44}$$

$$\boxed{\text{z569}} \quad \mathbb{Q}_{6,1}^{(1,-1;c)}(E_g, 1a) = \frac{\sqrt{203}\mathbb{M}_6^{(1,-1;a)}(A_{1u}, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{29} + \frac{\sqrt{29}\mathbb{M}_6^{(1,-1;a)}(A_{1u}, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{58} - \frac{\sqrt{58}\mathbb{M}_6^{(1,-1;a)}(A_{2u})\mathbb{T}_{1,2}^{(b)}(E_u)}{116} \\ - \frac{\sqrt{87}\mathbb{M}_6^{(1,-1;a)}(B_{1u}, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{58} - \frac{\sqrt{957}\mathbb{M}_6^{(1,-1;a)}(B_{2u}, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{232} + \frac{5\sqrt{435}\mathbb{M}_6^{(1,-1;a)}(B_{2u}, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{232}$$

$$\boxed{\text{z570}} \quad \mathbb{Q}_{6,2}^{(1,-1;c)}(E_g, 1a) = -\frac{\sqrt{203}\mathbb{M}_6^{(1,-1;a)}(A_{1u}, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{29} - \frac{\sqrt{29}\mathbb{M}_6^{(1,-1;a)}(A_{1u}, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{58} - \frac{\sqrt{58}\mathbb{M}_6^{(1,-1;a)}(A_{2u})\mathbb{T}_{1,1}^{(b)}(E_u)}{116} \\ - \frac{\sqrt{87}\mathbb{M}_6^{(1,-1;a)}(B_{1u}, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{58} + \frac{\sqrt{957}\mathbb{M}_6^{(1,-1;a)}(B_{2u}, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{232} - \frac{5\sqrt{435}\mathbb{M}_6^{(1,-1;a)}(B_{2u}, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{232}$$

$$\boxed{\text{z571}} \quad \mathbb{Q}_{6,1}^{(1,-1;c)}(E_g, 1b) = -\frac{\sqrt{439270}\mathbb{T}_5^{(1,-1;a)}(A_{1u})\mathbb{T}_{1,1}^{(b)}(E_u)}{1417} + \frac{3\sqrt{614978}\mathbb{T}_5^{(1,-1;a)}(A_{2u}, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{27032} - \frac{5\sqrt{439270}\mathbb{T}_5^{(1,-1;a)}(A_{2u}, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{11336} \\ + \frac{10\sqrt{1317810}\mathbb{T}_5^{(1,-1;a)}(B_{1u})\mathbb{T}_{1,1}^{(b)}(E_u)}{43927} - \frac{53\sqrt{1317810}\mathbb{T}_5^{(1,-1;a)}(B_{2u})\mathbb{T}_{1,2}^{(b)}(E_u)}{175708}$$

$$\boxed{\text{z572}} \quad \mathbb{Q}_{6,2}^{(1,-1;c)}(E_g, 1b) = \frac{\sqrt{439270}\mathbb{T}_5^{(1,-1;a)}(A_{1u})\mathbb{T}_{1,2}^{(b)}(E_u)}{1417} + \frac{3\sqrt{614978}\mathbb{T}_5^{(1,-1;a)}(A_{2u}, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{27032} - \frac{5\sqrt{439270}\mathbb{T}_5^{(1,-1;a)}(A_{2u}, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{11336} \\ + \frac{10\sqrt{1317810}\mathbb{T}_5^{(1,-1;a)}(B_{1u})\mathbb{T}_{1,2}^{(b)}(E_u)}{43927} + \frac{53\sqrt{1317810}\mathbb{T}_5^{(1,-1;a)}(B_{2u})\mathbb{T}_{1,1}^{(b)}(E_u)}{175708}$$

$$\boxed{\text{z573}} \quad \mathbb{Q}_{6,1}^{(1,-1;c)}(E_g, 2a) = -\frac{\sqrt{1659119}\mathbb{M}_6^{(1,-1;a)}(A_{1u}, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{21547} + \frac{85\sqrt{237017}\mathbb{M}_6^{(1,-1;a)}(A_{1u}, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{86188} + \frac{31\sqrt{474034}\mathbb{M}_6^{(1,-1;a)}(A_{2u})\mathbb{T}_{1,2}^{(b)}(E_u)}{172376} - \frac{\sqrt{323205}\mathbb{M}_6^{(1,-1;a)}(B_{1u}, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{1486} \\ + \frac{31\sqrt{711051}\mathbb{M}_6^{(1,-1;a)}(B_{1u}, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{86188} + \frac{51\sqrt{64641}\mathbb{M}_6^{(1,-1;a)}(B_{2u}, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{344752} + \frac{19\sqrt{3555255}\mathbb{M}_6^{(1,-1;a)}(B_{2u}, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{344752}$$

$$\boxed{\text{z574}} \quad \mathbb{Q}_{6,2}^{(1,-1;c)}(E_g, 2a) = \frac{\sqrt{1659119}\mathbb{M}_6^{(1,-1;a)}(A_{1u}, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{21547} - \frac{85\sqrt{237017}\mathbb{M}_6^{(1,-1;a)}(A_{1u}, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{86188} + \frac{31\sqrt{474034}\mathbb{M}_6^{(1,-1;a)}(A_{2u})\mathbb{T}_{1,1}^{(b)}(E_u)}{172376} - \frac{\sqrt{323205}\mathbb{M}_6^{(1,-1;a)}(B_{1u}, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{1486} \\ + \frac{31\sqrt{711051}\mathbb{M}_6^{(1,-1;a)}(B_{1u}, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{86188} - \frac{51\sqrt{64641}\mathbb{M}_6^{(1,-1;a)}(B_{2u}, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{344752} - \frac{19\sqrt{3555255}\mathbb{M}_6^{(1,-1;a)}(B_{2u}, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{344752}$$

$$\boxed{\text{z575}} \quad \mathbb{Q}_{6,1}^{(1,-1;c)}(E_g, 2b) = -\frac{5\sqrt{109}\mathbb{T}_5^{(1,-1;a)}(A_{1u})\mathbb{T}_{1,1}^{(b)}(E_u)}{872} + \frac{27\sqrt{3815}\mathbb{T}_5^{(1,-1;a)}(A_{2u}, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{3488} - \frac{67\sqrt{109}\mathbb{T}_5^{(1,-1;a)}(A_{2u}, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{3488} \\ - \frac{23\sqrt{327}\mathbb{T}_5^{(1,-1;a)}(B_{1u})\mathbb{T}_{1,1}^{(b)}(E_u)}{872} + \frac{\sqrt{327}\mathbb{T}_5^{(1,-1;a)}(B_{2u})\mathbb{T}_{1,2}^{(b)}(E_u)}{1744}$$

$$\boxed{\text{z576}} \quad \mathbb{Q}_{6,2}^{(1,-1;c)}(E_g, 2b) = \frac{5\sqrt{109}\mathbb{T}_5^{(1,-1;a)}(A_{1u})\mathbb{T}_{1,2}^{(b)}(E_u)}{872} + \frac{27\sqrt{3815}\mathbb{T}_5^{(1,-1;a)}(A_{2u}, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{3488} - \frac{67\sqrt{109}\mathbb{T}_5^{(1,-1;a)}(A_{2u}, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{3488} \\ - \frac{23\sqrt{327}\mathbb{T}_5^{(1,-1;a)}(B_{1u})\mathbb{T}_{1,2}^{(b)}(E_u)}{872} - \frac{\sqrt{327}\mathbb{T}_5^{(1,-1;a)}(B_{2u})\mathbb{T}_{1,1}^{(b)}(E_u)}{1744}$$

$$\boxed{\text{z577}} \quad \mathbb{Q}_{6,1}^{(1,-1;c)}(E_g, 3a) = -\frac{39\sqrt{598141005}\mathbb{M}_6^{(1,-1;a)}(A_{1u}, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{5696581} + \frac{343\sqrt{85448715}\mathbb{M}_6^{(1,-1;a)}(A_{1u}, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{22786324} - \frac{43\sqrt{170897430}\mathbb{M}_6^{(1,-1;a)}(A_{2u})\mathbb{T}_{1,2}^{(b)}(E_u)}{1111528} \\ + \frac{349\sqrt{517871}\mathbb{M}_6^{(1,-1;a)}(B_{1u}, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{1035742} + \frac{655\sqrt{28482905}\mathbb{M}_6^{(1,-1;a)}(B_{1u}, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{22786324} \\ + \frac{33\sqrt{2589355}\mathbb{M}_6^{(1,-1;a)}(B_{2u}, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{202096} + \frac{479\sqrt{5696581}\mathbb{M}_6^{(1,-1;a)}(B_{2u}, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{5361488}$$

$$\boxed{\text{z578}} \quad \mathbb{Q}_{6,2}^{(1,-1;c)}(E_g, 3a) = \frac{39\sqrt{598141005}\mathbb{M}_6^{(1,-1;a)}(A_{1u}, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{5696581} - \frac{343\sqrt{85448715}\mathbb{M}_6^{(1,-1;a)}(A_{1u}, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{22786324} - \frac{43\sqrt{170897430}\mathbb{M}_6^{(1,-1;a)}(A_{2u})\mathbb{T}_{1,1}^{(b)}(E_u)}{1111528} \\ + \frac{349\sqrt{517871}\mathbb{M}_6^{(1,-1;a)}(B_{1u}, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{1035742} + \frac{655\sqrt{28482905}\mathbb{M}_6^{(1,-1;a)}(B_{1u}, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{22786324} \\ - \frac{33\sqrt{2589355}\mathbb{M}_6^{(1,-1;a)}(B_{2u}, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{202096} - \frac{479\sqrt{5696581}\mathbb{M}_6^{(1,-1;a)}(B_{2u}, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{5361488}$$

$$\boxed{\text{z579}} \quad \mathbb{Q}_{6,1}^{(1,-1;c)}(E_g, 3b) = \frac{\sqrt{3}\mathbb{T}_5^{(1,-1;a)}(A_{1u})\mathbb{T}_{1,1}^{(b)}(E_u)}{8} + \frac{\sqrt{105}\mathbb{T}_5^{(1,-1;a)}(A_{2u}, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{32} + \frac{7\sqrt{3}\mathbb{T}_5^{(1,-1;a)}(A_{2u}, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{32} + \frac{\mathbb{T}_5^{(1,-1;a)}(B_{1u})\mathbb{T}_{1,1}^{(b)}(E_u)}{8} - \frac{7\mathbb{T}_5^{(1,-1;a)}(B_{2u})\mathbb{T}_{1,2}^{(b)}(E_u)}{16}$$

$$\boxed{\text{z580}} \quad \mathbb{Q}_{6,2}^{(1,-1;c)}(E_g, 3b) = -\frac{\sqrt{3}\mathbb{T}_5^{(1,-1;a)}(A_{1u})\mathbb{T}_{1,2}^{(b)}(E_u)}{8} + \frac{\sqrt{105}\mathbb{T}_5^{(1,-1;a)}(A_{2u}, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{32} + \frac{7\sqrt{3}\mathbb{T}_5^{(1,-1;a)}(A_{2u}, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{32} + \frac{\mathbb{T}_5^{(1,-1;a)}(B_{1u})\mathbb{T}_{1,2}^{(b)}(E_u)}{8} + \frac{7\mathbb{T}_5^{(1,-1;a)}(B_{2u})\mathbb{T}_{1,1}^{(b)}(E_u)}{16}$$

$$\boxed{\text{z581}} \quad \mathbb{Q}_{2,1}^{(1,0;c)}(E_g, a) = \frac{\sqrt{30}\mathbb{M}_2^{(1,0;a)}(A_{1u})\mathbb{T}_{1,1}^{(b)}(E_u)}{10} + \frac{\sqrt{10}\mathbb{M}_2^{(1,0;a)}(B_{1u})\mathbb{T}_{1,1}^{(b)}(E_u)}{10} + \frac{\sqrt{10}\mathbb{M}_2^{(1,0;a)}(B_{2u})\mathbb{T}_{1,2}^{(b)}(E_u)}{10}$$

$$\boxed{\text{z582}} \quad \mathbb{Q}_{2,2}^{(1,0;c)}(E_g, a) = -\frac{\sqrt{30}\mathbb{M}_2^{(1,0;a)}(A_{1u})\mathbb{T}_{1,2}^{(b)}(E_u)}{10} + \frac{\sqrt{10}\mathbb{M}_2^{(1,0;a)}(B_{1u})\mathbb{T}_{1,2}^{(b)}(E_u)}{10} - \frac{\sqrt{10}\mathbb{M}_2^{(1,0;a)}(B_{2u})\mathbb{T}_{1,1}^{(b)}(E_u)}{10}$$

$$\boxed{\text{z583}} \quad \mathbb{Q}_{2,1}^{(1,0;c)}(E_g, b) = \frac{\sqrt{2}\mathbb{T}_1^{(1,0;a)}(A_{2u})\mathbb{T}_{1,2}^{(b)}(E_u)}{2}$$

$$\begin{aligned}
\boxed{\text{z584}} \quad \mathbb{Q}_{2,2}^{(1,0;c)}(E_g, b) &= \frac{\sqrt{2}\mathbb{T}_1^{(1,0;a)}(A_{2u})\mathbb{T}_{1,1}^{(b)}(E_u)}{2} \\
\boxed{\text{z585}} \quad \mathbb{Q}_{2,1}^{(1,0;c)}(E_g, c) &= -\frac{\sqrt{78}\mathbb{T}_3^{(1,0;a)}(A_{2u})\mathbb{T}_{1,2}^{(b)}(E_u)}{26} + \frac{\sqrt{130}\mathbb{T}_3^{(1,0;a)}(B_{1u})\mathbb{T}_{1,1}^{(b)}(E_u)}{26} - \frac{\sqrt{130}\mathbb{T}_3^{(1,0;a)}(B_{2u})\mathbb{T}_{1,2}^{(b)}(E_u)}{26} \\
\boxed{\text{z586}} \quad \mathbb{Q}_{2,2}^{(1,0;c)}(E_g, c) &= -\frac{\sqrt{78}\mathbb{T}_3^{(1,0;a)}(A_{2u})\mathbb{T}_{1,1}^{(b)}(E_u)}{26} + \frac{\sqrt{130}\mathbb{T}_3^{(1,0;a)}(B_{1u})\mathbb{T}_{1,2}^{(b)}(E_u)}{26} + \frac{\sqrt{130}\mathbb{T}_3^{(1,0;a)}(B_{2u})\mathbb{T}_{1,1}^{(b)}(E_u)}{26} \\
\boxed{\text{z587}} \quad \mathbb{Q}_{4,1}^{(1,0;c)}(E_g, 1a) &= -\frac{\sqrt{15}\mathbb{M}_4^{(1,0;a)}(A_{1u}, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{9} - \frac{\sqrt{21}\mathbb{M}_4^{(1,0;a)}(A_{1u}, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{18} - \frac{\mathbb{M}_4^{(1,0;a)}(A_{2u})\mathbb{T}_{1,2}^{(b)}(E_u)}{12} + \frac{\sqrt{7}\mathbb{M}_4^{(1,0;a)}(B_{1u})\mathbb{T}_{1,1}^{(b)}(E_u)}{6} - \frac{\sqrt{7}\mathbb{M}_4^{(1,0;a)}(B_{2u})\mathbb{T}_{1,2}^{(b)}(E_u)}{12} \\
\boxed{\text{z588}} \quad \mathbb{Q}_{4,2}^{(1,0;c)}(E_g, 1a) &= \frac{\sqrt{15}\mathbb{M}_4^{(1,0;a)}(A_{1u}, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{9} + \frac{\sqrt{21}\mathbb{M}_4^{(1,0;a)}(A_{1u}, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{18} - \frac{\mathbb{M}_4^{(1,0;a)}(A_{2u})\mathbb{T}_{1,1}^{(b)}(E_u)}{12} + \frac{\sqrt{7}\mathbb{M}_4^{(1,0;a)}(B_{1u})\mathbb{T}_{1,2}^{(b)}(E_u)}{6} + \frac{\sqrt{7}\mathbb{M}_4^{(1,0;a)}(B_{2u})\mathbb{T}_{1,1}^{(b)}(E_u)}{12} \\
\boxed{\text{z589}} \quad \mathbb{Q}_{4,1}^{(1,0;c)}(E_g, 1b) &= -\frac{3\mathbb{T}_5^{(1,0;a)}(A_{1u})\mathbb{T}_{1,1}^{(b)}(E_u)}{16} + \frac{\sqrt{35}\mathbb{T}_5^{(1,0;a)}(A_{2u}, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{16} + \frac{3\mathbb{T}_5^{(1,0;a)}(A_{2u}, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{16} + \frac{3\sqrt{3}\mathbb{T}_5^{(1,0;a)}(B_{1u})\mathbb{T}_{1,1}^{(b)}(E_u)}{16} + \frac{\sqrt{3}\mathbb{T}_5^{(1,0;a)}(B_{2u})\mathbb{T}_{1,2}^{(b)}(E_u)}{4} \\
\boxed{\text{z590}} \quad \mathbb{Q}_{4,2}^{(1,0;c)}(E_g, 1b) &= \frac{3\mathbb{T}_5^{(1,0;a)}(A_{1u})\mathbb{T}_{1,2}^{(b)}(E_u)}{16} + \frac{\sqrt{35}\mathbb{T}_5^{(1,0;a)}(A_{2u}, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{16} + \frac{3\mathbb{T}_5^{(1,0;a)}(A_{2u}, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{16} + \frac{3\sqrt{3}\mathbb{T}_5^{(1,0;a)}(B_{1u})\mathbb{T}_{1,2}^{(b)}(E_u)}{16} - \frac{\sqrt{3}\mathbb{T}_5^{(1,0;a)}(B_{2u})\mathbb{T}_{1,1}^{(b)}(E_u)}{4} \\
\boxed{\text{z591}} \quad \mathbb{Q}_{4,1}^{(1,0;c)}(E_g, 1c) &= -\frac{7\sqrt{1430}\mathbb{T}_3^{(1,0;a)}(A_{2u})\mathbb{T}_{1,2}^{(b)}(E_u)}{572} - \frac{5\sqrt{858}\mathbb{T}_3^{(1,0;a)}(B_{1u})\mathbb{T}_{1,1}^{(b)}(E_u)}{286} - \frac{3\sqrt{858}\mathbb{T}_3^{(1,0;a)}(B_{2u})\mathbb{T}_{1,2}^{(b)}(E_u)}{572} \\
\boxed{\text{z592}} \quad \mathbb{Q}_{4,2}^{(1,0;c)}(E_g, 1c) &= -\frac{7\sqrt{1430}\mathbb{T}_3^{(1,0;a)}(A_{2u})\mathbb{T}_{1,1}^{(b)}(E_u)}{572} - \frac{5\sqrt{858}\mathbb{T}_3^{(1,0;a)}(B_{1u})\mathbb{T}_{1,2}^{(b)}(E_u)}{286} + \frac{3\sqrt{858}\mathbb{T}_3^{(1,0;a)}(B_{2u})\mathbb{T}_{1,1}^{(b)}(E_u)}{572} \\
\boxed{\text{z593}} \quad \mathbb{Q}_{4,1}^{(1,0;c)}(E_g, 2a) &= \frac{\sqrt{21945}\mathbb{M}_4^{(1,0;a)}(A_{1u}, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{1881} - \frac{47\sqrt{627}\mathbb{M}_4^{(1,0;a)}(A_{1u}, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{3762} \\
&\quad + \frac{\sqrt{1463}\mathbb{M}_4^{(1,0;a)}(A_{2u})\mathbb{T}_{1,2}^{(b)}(E_u)}{132} - \frac{25\sqrt{209}\mathbb{M}_4^{(1,0;a)}(B_{1u})\mathbb{T}_{1,1}^{(b)}(E_u)}{1254} - \frac{83\sqrt{209}\mathbb{M}_4^{(1,0;a)}(B_{2u})\mathbb{T}_{1,2}^{(b)}(E_u)}{2508} \\
\boxed{\text{z594}} \quad \mathbb{Q}_{4,2}^{(1,0;c)}(E_g, 2a) &= -\frac{\sqrt{21945}\mathbb{M}_4^{(1,0;a)}(A_{1u}, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{1881} + \frac{47\sqrt{627}\mathbb{M}_4^{(1,0;a)}(A_{1u}, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{3762} + \frac{\sqrt{1463}\mathbb{M}_4^{(1,0;a)}(A_{2u})\mathbb{T}_{1,1}^{(b)}(E_u)}{132} \\
&\quad - \frac{25\sqrt{209}\mathbb{M}_4^{(1,0;a)}(B_{1u})\mathbb{T}_{1,2}^{(b)}(E_u)}{1254} + \frac{83\sqrt{209}\mathbb{M}_4^{(1,0;a)}(B_{2u})\mathbb{T}_{1,1}^{(b)}(E_u)}{2508} \\
\boxed{\text{z595}} \quad \mathbb{Q}_{4,1}^{(1,0;c)}(E_g, 2b) &= \frac{\sqrt{8463}\mathbb{T}_5^{(1,0;a)}(A_{1u})\mathbb{T}_{1,1}^{(b)}(E_u)}{208} + \frac{\sqrt{6045}\mathbb{T}_5^{(1,0;a)}(A_{2u}, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{496} - \frac{\sqrt{8463}\mathbb{T}_5^{(1,0;a)}(A_{2u}, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{208} + \frac{35\sqrt{2821}\mathbb{T}_5^{(1,0;a)}(B_{1u})\mathbb{T}_{1,1}^{(b)}(E_u)}{6448} + \frac{\sqrt{2821}\mathbb{T}_5^{(1,0;a)}(B_{2u})\mathbb{T}_{1,2}^{(b)}(E_u)}{1612}
\end{aligned}$$

$$\begin{aligned}
\boxed{\text{z596}} \quad \mathbb{Q}_{4,2}^{(1,0;c)}(E_g, 2b) &= -\frac{\sqrt{8463}\mathbb{T}_5^{(1,0;a)}(A_{1u})\mathbb{T}_{1,2}^{(b)}(E_u)}{208} + \frac{\sqrt{6045}\mathbb{T}_5^{(1,0;a)}(A_{2u}, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{496} - \frac{\sqrt{8463}\mathbb{T}_5^{(1,0;a)}(A_{2u}, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{208} \\
&\quad + \frac{35\sqrt{2821}\mathbb{T}_5^{(1,0;a)}(B_{1u})\mathbb{T}_{1,2}^{(b)}(E_u)}{6448} - \frac{\sqrt{2821}\mathbb{T}_5^{(1,0;a)}(B_{2u})\mathbb{T}_{1,1}^{(b)}(E_u)}{1612} \\
\boxed{\text{z597}} \quad \mathbb{Q}_{4,1}^{(1,0;c)}(E_g, 2c) &= -\frac{\sqrt{330}\mathbb{T}_3^{(1,0;a)}(A_{2u})\mathbb{T}_{1,2}^{(b)}(E_u)}{44} + \frac{\sqrt{22}\mathbb{T}_3^{(1,0;a)}(B_{1u})\mathbb{T}_{1,1}^{(b)}(E_u)}{22} + \frac{5\sqrt{22}\mathbb{T}_3^{(1,0;a)}(B_{2u})\mathbb{T}_{1,2}^{(b)}(E_u)}{44} \\
\boxed{\text{z598}} \quad \mathbb{Q}_{4,2}^{(1,0;c)}(E_g, 2c) &= -\frac{\sqrt{330}\mathbb{T}_3^{(1,0;a)}(A_{2u})\mathbb{T}_{1,1}^{(b)}(E_u)}{44} + \frac{\sqrt{22}\mathbb{T}_3^{(1,0;a)}(B_{1u})\mathbb{T}_{1,2}^{(b)}(E_u)}{22} - \frac{5\sqrt{22}\mathbb{T}_3^{(1,0;a)}(B_{2u})\mathbb{T}_{1,1}^{(b)}(E_u)}{44} \\
\boxed{\text{z599}} \quad \mathbb{Q}_{6,1}^{(1,0;c)}(E_g, 1) &= -\frac{\sqrt{439270}\mathbb{T}_5^{(1,0;a)}(A_{1u})\mathbb{T}_{1,1}^{(b)}(E_u)}{1417} + \frac{3\sqrt{614978}\mathbb{T}_5^{(1,0;a)}(A_{2u}, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{27032} - \frac{5\sqrt{439270}\mathbb{T}_5^{(1,0;a)}(A_{2u}, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{11336} \\
&\quad + \frac{10\sqrt{1317810}\mathbb{T}_5^{(1,0;a)}(B_{1u})\mathbb{T}_{1,1}^{(b)}(E_u)}{43927} - \frac{53\sqrt{1317810}\mathbb{T}_5^{(1,0;a)}(B_{2u})\mathbb{T}_{1,2}^{(b)}(E_u)}{175708} \\
\boxed{\text{z600}} \quad \mathbb{Q}_{6,2}^{(1,0;c)}(E_g, 1) &= \frac{\sqrt{439270}\mathbb{T}_5^{(1,0;a)}(A_{1u})\mathbb{T}_{1,2}^{(b)}(E_u)}{1417} + \frac{3\sqrt{614978}\mathbb{T}_5^{(1,0;a)}(A_{2u}, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{27032} - \frac{5\sqrt{439270}\mathbb{T}_5^{(1,0;a)}(A_{2u}, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{11336} \\
&\quad + \frac{10\sqrt{1317810}\mathbb{T}_5^{(1,0;a)}(B_{1u})\mathbb{T}_{1,2}^{(b)}(E_u)}{43927} + \frac{53\sqrt{1317810}\mathbb{T}_5^{(1,0;a)}(B_{2u})\mathbb{T}_{1,1}^{(b)}(E_u)}{175708} \\
\boxed{\text{z601}} \quad \mathbb{Q}_{6,1}^{(1,0;c)}(E_g, 2) &= -\frac{5\sqrt{109}\mathbb{T}_5^{(1,0;a)}(A_{1u})\mathbb{T}_{1,1}^{(b)}(E_u)}{872} + \frac{27\sqrt{3815}\mathbb{T}_5^{(1,0;a)}(A_{2u}, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{3488} \\
&\quad - \frac{67\sqrt{109}\mathbb{T}_5^{(1,0;a)}(A_{2u}, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{3488} - \frac{23\sqrt{327}\mathbb{T}_5^{(1,0;a)}(B_{1u})\mathbb{T}_{1,1}^{(b)}(E_u)}{872} + \frac{\sqrt{327}\mathbb{T}_5^{(1,0;a)}(B_{2u})\mathbb{T}_{1,2}^{(b)}(E_u)}{1744} \\
\boxed{\text{z602}} \quad \mathbb{Q}_{6,2}^{(1,0;c)}(E_g, 2) &= \frac{5\sqrt{109}\mathbb{T}_5^{(1,0;a)}(A_{1u})\mathbb{T}_{1,2}^{(b)}(E_u)}{872} + \frac{27\sqrt{3815}\mathbb{T}_5^{(1,0;a)}(A_{2u}, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{3488} - \frac{67\sqrt{109}\mathbb{T}_5^{(1,0;a)}(A_{2u}, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{3488} \\
&\quad - \frac{23\sqrt{327}\mathbb{T}_5^{(1,0;a)}(B_{1u})\mathbb{T}_{1,2}^{(b)}(E_u)}{872} - \frac{\sqrt{327}\mathbb{T}_5^{(1,0;a)}(B_{2u})\mathbb{T}_{1,1}^{(b)}(E_u)}{1744} \\
\boxed{\text{z603}} \quad \mathbb{Q}_{6,1}^{(1,0;c)}(E_g, 3) &= \frac{\sqrt{3}\mathbb{T}_5^{(1,0;a)}(A_{1u})\mathbb{T}_{1,1}^{(b)}(E_u)}{8} + \frac{\sqrt{105}\mathbb{T}_5^{(1,0;a)}(A_{2u}, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{32} + \frac{7\sqrt{3}\mathbb{T}_5^{(1,0;a)}(A_{2u}, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{32} \\
&\quad + \frac{\mathbb{T}_5^{(1,0;a)}(B_{1u})\mathbb{T}_{1,1}^{(b)}(E_u)}{8} - \frac{7\mathbb{T}_5^{(1,0;a)}(B_{2u})\mathbb{T}_{1,2}^{(b)}(E_u)}{16} \\
\boxed{\text{z604}} \quad \mathbb{Q}_{6,2}^{(1,0;c)}(E_g, 3) &= -\frac{\sqrt{3}\mathbb{T}_5^{(1,0;a)}(A_{1u})\mathbb{T}_{1,2}^{(b)}(E_u)}{8} + \frac{\sqrt{105}\mathbb{T}_5^{(1,0;a)}(A_{2u}, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{32} + \frac{7\sqrt{3}\mathbb{T}_5^{(1,0;a)}(A_{2u}, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{32} \\
&\quad + \frac{\mathbb{T}_5^{(1,0;a)}(B_{1u})\mathbb{T}_{1,2}^{(b)}(E_u)}{8} + \frac{7\mathbb{T}_5^{(1,0;a)}(B_{2u})\mathbb{T}_{1,1}^{(b)}(E_u)}{16} \\
\boxed{\text{z722}} \quad \mathbb{Q}_{2,1}^{(1,1;c)}(E_g, a) &= \frac{\sqrt{30}\mathbb{M}_2^{(1,1;a)}(A_{1u})\mathbb{T}_{1,1}^{(b)}(E_u)}{10} + \frac{\sqrt{10}\mathbb{M}_2^{(1,1;a)}(B_{1u})\mathbb{T}_{1,1}^{(b)}(E_u)}{10} + \frac{\sqrt{10}\mathbb{M}_2^{(1,1;a)}(B_{2u})\mathbb{T}_{1,2}^{(b)}(E_u)}{10} \\
\boxed{\text{z723}} \quad \mathbb{Q}_{2,2}^{(1,1;c)}(E_g, a) &= -\frac{\sqrt{30}\mathbb{M}_2^{(1,1;a)}(A_{1u})\mathbb{T}_{1,2}^{(b)}(E_u)}{10} + \frac{\sqrt{10}\mathbb{M}_2^{(1,1;a)}(B_{1u})\mathbb{T}_{1,2}^{(b)}(E_u)}{10} - \frac{\sqrt{10}\mathbb{M}_2^{(1,1;a)}(B_{2u})\mathbb{T}_{1,1}^{(b)}(E_u)}{10}
\end{aligned}$$

$$\boxed{\text{z724}} \quad \mathbb{Q}_{2,1}^{(1,1;c)}(E_g, b) = \frac{\sqrt{2}\mathbb{T}_1^{(1,1;a)}(A_{2u})\mathbb{T}_{1,2}^{(b)}(E_u)}{2}$$

$$\boxed{\text{z725}} \quad \mathbb{Q}_{2,2}^{(1,1;c)}(E_g, b) = \frac{\sqrt{2}\mathbb{T}_1^{(1,1;a)}(A_{2u})\mathbb{T}_{1,1}^{(b)}(E_u)}{2}$$

$$\boxed{\text{z726}} \quad \mathbb{Q}_{2,1}^{(1,1;c)}(E_g, c) = -\frac{\sqrt{78}\mathbb{T}_3^{(1,1;a)}(A_{2u})\mathbb{T}_{1,2}^{(b)}(E_u)}{26} + \frac{\sqrt{130}\mathbb{T}_3^{(1,1;a)}(B_{1u})\mathbb{T}_{1,1}^{(b)}(E_u)}{26} - \frac{\sqrt{130}\mathbb{T}_3^{(1,1;a)}(B_{2u})\mathbb{T}_{1,2}^{(b)}(E_u)}{26}$$

$$\boxed{\text{z727}} \quad \mathbb{Q}_{2,2}^{(1,1;c)}(E_g, c) = -\frac{\sqrt{78}\mathbb{T}_3^{(1,1;a)}(A_{2u})\mathbb{T}_{1,1}^{(b)}(E_u)}{26} + \frac{\sqrt{130}\mathbb{T}_3^{(1,1;a)}(B_{1u})\mathbb{T}_{1,2}^{(b)}(E_u)}{26} + \frac{\sqrt{130}\mathbb{T}_3^{(1,1;a)}(B_{2u})\mathbb{T}_{1,1}^{(b)}(E_u)}{26}$$

$$\boxed{\text{z728}} \quad \mathbb{Q}_{4,1}^{(1,1;c)}(E_g, 1a) = -\frac{\sqrt{15}\mathbb{M}_4^{(1,1;a)}(A_{1u}, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{9} - \frac{\sqrt{21}\mathbb{M}_4^{(1,1;a)}(A_{1u}, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{18} - \frac{\mathbb{M}_4^{(1,1;a)}(A_{2u})\mathbb{T}_{1,2}^{(b)}(E_u)}{12} + \frac{\sqrt{7}\mathbb{M}_4^{(1,1;a)}(B_{1u})\mathbb{T}_{1,1}^{(b)}(E_u)}{6} - \frac{\sqrt{7}\mathbb{M}_4^{(1,1;a)}(B_{2u})\mathbb{T}_{1,2}^{(b)}(E_u)}{12}$$

$$\boxed{\text{z729}} \quad \mathbb{Q}_{4,2}^{(1,1;c)}(E_g, 1a) = \frac{\sqrt{15}\mathbb{M}_4^{(1,1;a)}(A_{1u}, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{9} + \frac{\sqrt{21}\mathbb{M}_4^{(1,1;a)}(A_{1u}, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{18} - \frac{\mathbb{M}_4^{(1,1;a)}(A_{2u})\mathbb{T}_{1,1}^{(b)}(E_u)}{12} + \frac{\sqrt{7}\mathbb{M}_4^{(1,1;a)}(B_{1u})\mathbb{T}_{1,2}^{(b)}(E_u)}{6} + \frac{\sqrt{7}\mathbb{M}_4^{(1,1;a)}(B_{2u})\mathbb{T}_{1,1}^{(b)}(E_u)}{12}$$

$$\boxed{\text{z730}} \quad \mathbb{Q}_{4,1}^{(1,1;c)}(E_g, 1b) = -\frac{7\sqrt{1430}\mathbb{T}_3^{(1,1;a)}(A_{2u})\mathbb{T}_{1,2}^{(b)}(E_u)}{572} - \frac{5\sqrt{858}\mathbb{T}_3^{(1,1;a)}(B_{1u})\mathbb{T}_{1,1}^{(b)}(E_u)}{286} - \frac{3\sqrt{858}\mathbb{T}_3^{(1,1;a)}(B_{2u})\mathbb{T}_{1,2}^{(b)}(E_u)}{572}$$

$$\boxed{\text{z731}} \quad \mathbb{Q}_{4,2}^{(1,1;c)}(E_g, 1b) = -\frac{7\sqrt{1430}\mathbb{T}_3^{(1,1;a)}(A_{2u})\mathbb{T}_{1,1}^{(b)}(E_u)}{572} - \frac{5\sqrt{858}\mathbb{T}_3^{(1,1;a)}(B_{1u})\mathbb{T}_{1,2}^{(b)}(E_u)}{286} + \frac{3\sqrt{858}\mathbb{T}_3^{(1,1;a)}(B_{2u})\mathbb{T}_{1,1}^{(b)}(E_u)}{572}$$

$$\boxed{\text{z732}} \quad \mathbb{Q}_{4,1}^{(1,1;c)}(E_g, 2a) = \frac{\sqrt{21945}\mathbb{M}_4^{(1,1;a)}(A_{1u}, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{1881} - \frac{47\sqrt{627}\mathbb{M}_4^{(1,1;a)}(A_{1u}, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{3762} \\ + \frac{\sqrt{1463}\mathbb{M}_4^{(1,1;a)}(A_{2u})\mathbb{T}_{1,2}^{(b)}(E_u)}{132} - \frac{25\sqrt{209}\mathbb{M}_4^{(1,1;a)}(B_{1u})\mathbb{T}_{1,1}^{(b)}(E_u)}{1254} - \frac{83\sqrt{209}\mathbb{M}_4^{(1,1;a)}(B_{2u})\mathbb{T}_{1,2}^{(b)}(E_u)}{2508}$$

$$\boxed{\text{z733}} \quad \mathbb{Q}_{4,2}^{(1,1;c)}(E_g, 2a) = -\frac{\sqrt{21945}\mathbb{M}_4^{(1,1;a)}(A_{1u}, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{1881} + \frac{47\sqrt{627}\mathbb{M}_4^{(1,1;a)}(A_{1u}, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{3762} + \frac{\sqrt{1463}\mathbb{M}_4^{(1,1;a)}(A_{2u})\mathbb{T}_{1,1}^{(b)}(E_u)}{132} \\ - \frac{25\sqrt{209}\mathbb{M}_4^{(1,1;a)}(B_{1u})\mathbb{T}_{1,2}^{(b)}(E_u)}{1254} + \frac{83\sqrt{209}\mathbb{M}_4^{(1,1;a)}(B_{2u})\mathbb{T}_{1,1}^{(b)}(E_u)}{2508}$$

$$\boxed{\text{z734}} \quad \mathbb{Q}_{4,1}^{(1,1;c)}(E_g, 2b) = -\frac{\sqrt{330}\mathbb{T}_3^{(1,1;a)}(A_{2u})\mathbb{T}_{1,2}^{(b)}(E_u)}{44} + \frac{\sqrt{22}\mathbb{T}_3^{(1,1;a)}(B_{1u})\mathbb{T}_{1,1}^{(b)}(E_u)}{22} + \frac{5\sqrt{22}\mathbb{T}_3^{(1,1;a)}(B_{2u})\mathbb{T}_{1,2}^{(b)}(E_u)}{44}$$

$$\boxed{\text{z735}} \quad \mathbb{Q}_{4,2}^{(1,1;c)}(E_g, 2b) = -\frac{\sqrt{330}\mathbb{T}_3^{(1,1;a)}(A_{2u})\mathbb{T}_{1,1}^{(b)}(E_u)}{44} + \frac{\sqrt{22}\mathbb{T}_3^{(1,1;a)}(B_{1u})\mathbb{T}_{1,2}^{(b)}(E_u)}{22} - \frac{5\sqrt{22}\mathbb{T}_3^{(1,1;a)}(B_{2u})\mathbb{T}_{1,1}^{(b)}(E_u)}{44}$$



$$\boxed{\text{z736}} \quad \mathbb{Q}_{1,1}^{(c)}(E_u, a) = \frac{\sqrt{2}\mathbb{Q}_{1,1}^{(a)}(E_u)\mathbb{Q}_0^{(b)}(A_{1g})}{2}$$

$$\boxed{\text{z737}} \quad \mathbb{Q}_{1,2}^{(c)}(E_u, a) = \frac{\sqrt{2}\mathbb{Q}_{1,2}^{(a)}(E_u)\mathbb{Q}_0^{(b)}(A_{1g})}{2}$$

$$\boxed{\text{z738}} \quad \mathbb{Q}_{1,1}^{(c)}(E_u, b) = \frac{\sqrt{2}\mathbb{Q}_{1,1}^{(a)}(E_u)\mathbb{Q}_2^{(b)}(B_{1g})}{2}$$

$$\boxed{\text{z739}} \quad \mathbb{Q}_{1,2}^{(c)}(E_u, b) = -\frac{\sqrt{2}\mathbb{Q}_{1,2}^{(a)}(E_u)\mathbb{Q}_2^{(b)}(B_{1g})}{2}$$

$$\boxed{\text{z740}} \quad \mathbb{Q}_{1,1}^{(c)}(E_u, c) = \frac{3\sqrt{3}\mathbb{Q}_{3,1}^{(a)}(E_u, 1)\mathbb{Q}_2^{(b)}(B_{1g})}{8} - \frac{\sqrt{5}\mathbb{Q}_{3,1}^{(a)}(E_u, 2)\mathbb{Q}_2^{(b)}(B_{1g})}{8}$$

$$\boxed{\text{z741}} \quad \mathbb{Q}_{1,2}^{(c)}(E_u, c) = -\frac{3\sqrt{3}\mathbb{Q}_{3,2}^{(a)}(E_u, 1)\mathbb{Q}_2^{(b)}(B_{1g})}{8} + \frac{\sqrt{5}\mathbb{Q}_{3,2}^{(a)}(E_u, 2)\mathbb{Q}_2^{(b)}(B_{1g})}{8}$$

$$\boxed{\text{z742}} \quad \mathbb{Q}_{1,1}^{(c)}(E_u, d) = \frac{\sqrt{2}\mathbb{G}_{2,1}^{(a)}(E_u)\mathbb{Q}_2^{(b)}(B_{1g})}{2}$$

$$\boxed{\text{z743}} \quad \mathbb{Q}_{1,2}^{(c)}(E_u, d) = -\frac{\sqrt{2}\mathbb{G}_{2,2}^{(a)}(E_u)\mathbb{Q}_2^{(b)}(B_{1g})}{2}$$

$$\boxed{\text{z744}} \quad \mathbb{Q}_{3,1}^{(c)}(E_u, 1a) = \frac{\sqrt{2010}\mathbb{Q}_{5,1}^{(a)}(E_u, 1)\mathbb{Q}_2^{(b)}(B_{1g})}{67} - \frac{\sqrt{938}\mathbb{Q}_{5,1}^{(a)}(E_u, 3)\mathbb{Q}_2^{(b)}(B_{1g})}{134}$$

$$\boxed{\text{z745}} \quad \mathbb{Q}_{3,2}^{(c)}(E_u, 1a) = -\frac{\sqrt{2010}\mathbb{Q}_{5,2}^{(a)}(E_u, 1)\mathbb{Q}_2^{(b)}(B_{1g})}{67} + \frac{\sqrt{938}\mathbb{Q}_{5,2}^{(a)}(E_u, 3)\mathbb{Q}_2^{(b)}(B_{1g})}{134}$$

$$\boxed{\text{z746}} \quad \mathbb{Q}_{3,1}^{(c)}(E_u, 1b) = \frac{\sqrt{2}\mathbb{Q}_{3,1}^{(a)}(E_u, 1)\mathbb{Q}_0^{(b)}(A_{1g})}{2}$$

$$\boxed{\text{z747}} \quad \mathbb{Q}_{3,2}^{(c)}(E_u, 1b) = \frac{\sqrt{2}\mathbb{Q}_{3,2}^{(a)}(E_u, 1)\mathbb{Q}_0^{(b)}(A_{1g})}{2}$$

$$\boxed{\text{z748}} \quad \mathbb{Q}_{3,1}^{(c)}(E_u, 1c) = \frac{\sqrt{5}\mathbb{Q}_{3,1}^{(a)}(E_u, 1)\mathbb{Q}_2^{(b)}(B_{1g})}{8} + \frac{3\sqrt{3}\mathbb{Q}_{3,1}^{(a)}(E_u, 2)\mathbb{Q}_2^{(b)}(B_{1g})}{8}$$

$$\boxed{\text{z749}} \quad \mathbb{Q}_{3,2}^{(c)}(E_u, 1c) = -\frac{\sqrt{5}\mathbb{Q}_{3,2}^{(a)}(E_u, 1)\mathbb{Q}_2^{(b)}(B_{1g})}{8} - \frac{3\sqrt{3}\mathbb{Q}_{3,2}^{(a)}(E_u, 2)\mathbb{Q}_2^{(b)}(B_{1g})}{8}$$

$$\begin{aligned}
\boxed{\text{z750}} \quad \mathbb{Q}_{3,1}^{(c)}(Eu, 1d) &= \frac{\sqrt{2}\mathbb{G}_{4,1}^{(a)}(Eu, 2)\mathbb{Q}_2^{(b)}(B_{1g})}{2} \\
\boxed{\text{z751}} \quad \mathbb{Q}_{3,2}^{(c)}(Eu, 1d) &= -\frac{\sqrt{2}\mathbb{G}_{4,2}^{(a)}(Eu, 2)\mathbb{Q}_2^{(b)}(B_{1g})}{2} \\
\boxed{\text{z752}} \quad \mathbb{Q}_{3,1}^{(c)}(Eu, 2a) &= \frac{17\sqrt{2345}\mathbb{Q}_{5,1}^{(a)}(Eu, 1)\mathbb{Q}_2^{(b)}(B_{1g})}{4288} - \frac{3\sqrt{67}\mathbb{Q}_{5,1}^{(a)}(Eu, 2)\mathbb{Q}_2^{(b)}(B_{1g})}{64} + \frac{85\sqrt{201}\mathbb{Q}_{5,1}^{(a)}(Eu, 3)\mathbb{Q}_2^{(b)}(B_{1g})}{2144} \\
\boxed{\text{z753}} \quad \mathbb{Q}_{3,2}^{(c)}(Eu, 2a) &= -\frac{17\sqrt{2345}\mathbb{Q}_{5,2}^{(a)}(Eu, 1)\mathbb{Q}_2^{(b)}(B_{1g})}{4288} + \frac{3\sqrt{67}\mathbb{Q}_{5,2}^{(a)}(Eu, 2)\mathbb{Q}_2^{(b)}(B_{1g})}{64} - \frac{85\sqrt{201}\mathbb{Q}_{5,2}^{(a)}(Eu, 3)\mathbb{Q}_2^{(b)}(B_{1g})}{2144} \\
\boxed{\text{z754}} \quad \mathbb{Q}_{3,1}^{(c)}(Eu, 2b) &= \frac{\sqrt{2}\mathbb{Q}_{3,1}^{(a)}(Eu, 2)\mathbb{Q}_0^{(b)}(A_{1g})}{2} \\
\boxed{\text{z755}} \quad \mathbb{Q}_{3,2}^{(c)}(Eu, 2b) &= \frac{\sqrt{2}\mathbb{Q}_{3,2}^{(a)}(Eu, 2)\mathbb{Q}_0^{(b)}(A_{1g})}{2} \\
\boxed{\text{z756}} \quad \mathbb{Q}_{3,1}^{(c)}(Eu, 2c) &= \frac{\sqrt{2}\mathbb{G}_{4,1}^{(a)}(Eu, 1)\mathbb{Q}_2^{(b)}(B_{1g})}{2} \\
\boxed{\text{z818}} \quad \mathbb{Q}_{3,2}^{(c)}(Eu, 2c) &= -\frac{\sqrt{2}\mathbb{G}_{4,2}^{(a)}(Eu, 1)\mathbb{Q}_2^{(b)}(B_{1g})}{2} \\
\boxed{\text{z819}} \quad \mathbb{Q}_{5,1}^{(c)}(Eu, 1a) &= \frac{\sqrt{2}\mathbb{Q}_{5,1}^{(a)}(Eu, 1)\mathbb{Q}_0^{(b)}(A_{1g})}{2} \\
\boxed{\text{z820}} \quad \mathbb{Q}_{5,2}^{(c)}(Eu, 1a) &= \frac{\sqrt{2}\mathbb{Q}_{5,2}^{(a)}(Eu, 1)\mathbb{Q}_0^{(b)}(A_{1g})}{2} \\
\boxed{\text{z821}} \quad \mathbb{Q}_{5,1}^{(c)}(Eu, 1b) &= \frac{3\sqrt{7}\mathbb{Q}_{5,1}^{(a)}(Eu, 1)\mathbb{Q}_2^{(b)}(B_{1g})}{64} + \frac{17\sqrt{5}\mathbb{Q}_{5,1}^{(a)}(Eu, 2)\mathbb{Q}_2^{(b)}(B_{1g})}{64} + \frac{3\sqrt{15}\mathbb{Q}_{5,1}^{(a)}(Eu, 3)\mathbb{Q}_2^{(b)}(B_{1g})}{32} \\
\boxed{\text{z822}} \quad \mathbb{Q}_{5,2}^{(c)}(Eu, 1b) &= -\frac{3\sqrt{7}\mathbb{Q}_{5,2}^{(a)}(Eu, 1)\mathbb{Q}_2^{(b)}(B_{1g})}{64} - \frac{17\sqrt{5}\mathbb{Q}_{5,2}^{(a)}(Eu, 2)\mathbb{Q}_2^{(b)}(B_{1g})}{64} - \frac{3\sqrt{15}\mathbb{Q}_{5,2}^{(a)}(Eu, 3)\mathbb{Q}_2^{(b)}(B_{1g})}{32} \\
\boxed{\text{z823}} \quad \mathbb{Q}_{5,1}^{(c)}(Eu, 2) &= \frac{\sqrt{2}\mathbb{Q}_{5,1}^{(a)}(Eu, 2)\mathbb{Q}_0^{(b)}(A_{1g})}{2} \\
\boxed{\text{z824}} \quad \mathbb{Q}_{5,2}^{(c)}(Eu, 2) &= \frac{\sqrt{2}\mathbb{Q}_{5,2}^{(a)}(Eu, 2)\mathbb{Q}_0^{(b)}(A_{1g})}{2}
\end{aligned}$$

$$\begin{aligned}
\boxed{\text{z825}} \quad \mathbb{Q}_{5,1}^{(c)}(Eu, 3) &= \frac{\sqrt{2}\mathbb{Q}_{5,1}^{(a)}(Eu, 3)\mathbb{Q}_0^{(b)}(A_{1g})}{2} \\
\boxed{\text{z826}} \quad \mathbb{Q}_{5,2}^{(c)}(Eu, 3) &= \frac{\sqrt{2}\mathbb{Q}_{5,2}^{(a)}(Eu, 3)\mathbb{Q}_0^{(b)}(A_{1g})}{2} \\
\boxed{\text{z827}} \quad \mathbb{Q}_{1,1}^{(1,-1;c)}(Eu, a) &= \frac{3\sqrt{3}\mathbb{Q}_{3,1}^{(1,-1;a)}(Eu, 1)\mathbb{Q}_2^{(b)}(B_{1g})}{8} - \frac{\sqrt{5}\mathbb{Q}_{3,1}^{(1,-1;a)}(Eu, 2)\mathbb{Q}_2^{(b)}(B_{1g})}{8} \\
\boxed{\text{z828}} \quad \mathbb{Q}_{1,2}^{(1,-1;c)}(Eu, a) &= -\frac{3\sqrt{3}\mathbb{Q}_{3,2}^{(1,-1;a)}(Eu, 1)\mathbb{Q}_2^{(b)}(B_{1g})}{8} + \frac{\sqrt{5}\mathbb{Q}_{3,2}^{(1,-1;a)}(Eu, 2)\mathbb{Q}_2^{(b)}(B_{1g})}{8} \\
\boxed{\text{z829}} \quad \mathbb{Q}_{1,1}^{(1,-1;c)}(Eu, b) &= \frac{\sqrt{2}\mathbb{G}_{2,1}^{(1,-1;a)}(Eu)\mathbb{Q}_2^{(b)}(B_{1g})}{2} \\
\boxed{\text{z830}} \quad \mathbb{Q}_{1,2}^{(1,-1;c)}(Eu, b) &= -\frac{\sqrt{2}\mathbb{G}_{2,2}^{(1,-1;a)}(Eu)\mathbb{Q}_2^{(b)}(B_{1g})}{2} \\
\boxed{\text{z831}} \quad \mathbb{Q}_{3,1}^{(1,-1;c)}(Eu, 1a) &= \frac{\sqrt{2010}\mathbb{Q}_{5,1}^{(1,-1;a)}(Eu, 1)\mathbb{Q}_2^{(b)}(B_{1g})}{67} - \frac{\sqrt{938}\mathbb{Q}_{5,1}^{(1,-1;a)}(Eu, 3)\mathbb{Q}_2^{(b)}(B_{1g})}{134} \\
\boxed{\text{z832}} \quad \mathbb{Q}_{3,2}^{(1,-1;c)}(Eu, 1a) &= -\frac{\sqrt{2010}\mathbb{Q}_{5,2}^{(1,-1;a)}(Eu, 1)\mathbb{Q}_2^{(b)}(B_{1g})}{67} + \frac{\sqrt{938}\mathbb{Q}_{5,2}^{(1,-1;a)}(Eu, 3)\mathbb{Q}_2^{(b)}(B_{1g})}{134} \\
\boxed{\text{z833}} \quad \mathbb{Q}_{3,1}^{(1,-1;c)}(Eu, 1b) &= \frac{\sqrt{2}\mathbb{Q}_{3,1}^{(1,-1;a)}(Eu, 1)\mathbb{Q}_0^{(b)}(A_{1g})}{2} \\
\boxed{\text{z834}} \quad \mathbb{Q}_{3,2}^{(1,-1;c)}(Eu, 1b) &= \frac{\sqrt{2}\mathbb{Q}_{3,2}^{(1,-1;a)}(Eu, 1)\mathbb{Q}_0^{(b)}(A_{1g})}{2} \\
\boxed{\text{z835}} \quad \mathbb{Q}_{3,1}^{(1,-1;c)}(Eu, 1c) &= \frac{\sqrt{5}\mathbb{Q}_{3,1}^{(1,-1;a)}(Eu, 1)\mathbb{Q}_2^{(b)}(B_{1g})}{8} + \frac{3\sqrt{3}\mathbb{Q}_{3,1}^{(1,-1;a)}(Eu, 2)\mathbb{Q}_2^{(b)}(B_{1g})}{8} \\
\boxed{\text{z836}} \quad \mathbb{Q}_{3,2}^{(1,-1;c)}(Eu, 1c) &= -\frac{\sqrt{5}\mathbb{Q}_{3,2}^{(1,-1;a)}(Eu, 1)\mathbb{Q}_2^{(b)}(B_{1g})}{8} - \frac{3\sqrt{3}\mathbb{Q}_{3,2}^{(1,-1;a)}(Eu, 2)\mathbb{Q}_2^{(b)}(B_{1g})}{8} \\
\boxed{\text{z837}} \quad \mathbb{Q}_{3,1}^{(1,-1;c)}(Eu, 1d) &= \frac{\sqrt{2}\mathbb{G}_{4,1}^{(1,-1;a)}(Eu, 2)\mathbb{Q}_2^{(b)}(B_{1g})}{2} \\
\boxed{\text{z838}} \quad \mathbb{Q}_{3,2}^{(1,-1;c)}(Eu, 1d) &= -\frac{\sqrt{2}\mathbb{G}_{4,2}^{(1,-1;a)}(Eu, 2)\mathbb{Q}_2^{(b)}(B_{1g})}{2}
\end{aligned}$$

$$\begin{aligned}
\boxed{\text{z839}} \quad \mathbb{Q}_{3,1}^{(1,-1;c)}(E_u, 2a) &= \frac{17\sqrt{2345}\mathbb{Q}_{5,1}^{(1,-1;a)}(E_u, 1)\mathbb{Q}_2^{(b)}(B_{1g})}{4288} - \frac{3\sqrt{67}\mathbb{Q}_{5,1}^{(1,-1;a)}(E_u, 2)\mathbb{Q}_2^{(b)}(B_{1g})}{64} + \frac{85\sqrt{201}\mathbb{Q}_{5,1}^{(1,-1;a)}(E_u, 3)\mathbb{Q}_2^{(b)}(B_{1g})}{2144} \\
\boxed{\text{z840}} \quad \mathbb{Q}_{3,2}^{(1,-1;c)}(E_u, 2a) &= -\frac{17\sqrt{2345}\mathbb{Q}_{5,2}^{(1,-1;a)}(E_u, 1)\mathbb{Q}_2^{(b)}(B_{1g})}{4288} + \frac{3\sqrt{67}\mathbb{Q}_{5,2}^{(1,-1;a)}(E_u, 2)\mathbb{Q}_2^{(b)}(B_{1g})}{64} - \frac{85\sqrt{201}\mathbb{Q}_{5,2}^{(1,-1;a)}(E_u, 3)\mathbb{Q}_2^{(b)}(B_{1g})}{2144} \\
\boxed{\text{z841}} \quad \mathbb{Q}_{3,1}^{(1,-1;c)}(E_u, 2b) &= \frac{\sqrt{2}\mathbb{Q}_{3,1}^{(1,-1;a)}(E_u, 2)\mathbb{Q}_0^{(b)}(A_{1g})}{2} \\
\boxed{\text{z842}} \quad \mathbb{Q}_{3,2}^{(1,-1;c)}(E_u, 2b) &= \frac{\sqrt{2}\mathbb{Q}_{3,2}^{(1,-1;a)}(E_u, 2)\mathbb{Q}_0^{(b)}(A_{1g})}{2} \\
\boxed{\text{z843}} \quad \mathbb{Q}_{3,1}^{(1,-1;c)}(E_u, 2c) &= \frac{\sqrt{2}\mathbb{G}_{4,1}^{(1,-1;a)}(E_u, 1)\mathbb{Q}_2^{(b)}(B_{1g})}{2} \\
\boxed{\text{z844}} \quad \mathbb{Q}_{3,2}^{(1,-1;c)}(E_u, 2c) &= -\frac{\sqrt{2}\mathbb{G}_{4,2}^{(1,-1;a)}(E_u, 1)\mathbb{Q}_2^{(b)}(B_{1g})}{2} \\
\boxed{\text{z845}} \quad \mathbb{Q}_{5,1}^{(1,-1;c)}(E_u, 1a) &= \frac{\sqrt{2}\mathbb{Q}_{5,1}^{(1,-1;a)}(E_u, 1)\mathbb{Q}_0^{(b)}(A_{1g})}{2} \\
\boxed{\text{z846}} \quad \mathbb{Q}_{5,2}^{(1,-1;c)}(E_u, 1a) &= \frac{\sqrt{2}\mathbb{Q}_{5,2}^{(1,-1;a)}(E_u, 1)\mathbb{Q}_0^{(b)}(A_{1g})}{2} \\
\boxed{\text{z847}} \quad \mathbb{Q}_{5,1}^{(1,-1;c)}(E_u, 1b) &= \frac{3\sqrt{7}\mathbb{Q}_{5,1}^{(1,-1;a)}(E_u, 1)\mathbb{Q}_2^{(b)}(B_{1g})}{64} + \frac{17\sqrt{5}\mathbb{Q}_{5,1}^{(1,-1;a)}(E_u, 2)\mathbb{Q}_2^{(b)}(B_{1g})}{64} + \frac{3\sqrt{15}\mathbb{Q}_{5,1}^{(1,-1;a)}(E_u, 3)\mathbb{Q}_2^{(b)}(B_{1g})}{32} \\
\boxed{\text{z848}} \quad \mathbb{Q}_{5,2}^{(1,-1;c)}(E_u, 1b) &= -\frac{3\sqrt{7}\mathbb{Q}_{5,2}^{(1,-1;a)}(E_u, 1)\mathbb{Q}_2^{(b)}(B_{1g})}{64} - \frac{17\sqrt{5}\mathbb{Q}_{5,2}^{(1,-1;a)}(E_u, 2)\mathbb{Q}_2^{(b)}(B_{1g})}{64} - \frac{3\sqrt{15}\mathbb{Q}_{5,2}^{(1,-1;a)}(E_u, 3)\mathbb{Q}_2^{(b)}(B_{1g})}{32} \\
\boxed{\text{z849}} \quad \mathbb{Q}_{5,1}^{(1,-1;c)}(E_u, 1c) &= \frac{\sqrt{2}\mathbb{G}_{6,1}^{(1,-1;a)}(E_u, 3)\mathbb{Q}_2^{(b)}(B_{1g})}{2} \\
\boxed{\text{z850}} \quad \mathbb{Q}_{5,2}^{(1,-1;c)}(E_u, 1c) &= -\frac{\sqrt{2}\mathbb{G}_{6,2}^{(1,-1;a)}(E_u, 3)\mathbb{Q}_2^{(b)}(B_{1g})}{2} \\
\boxed{\text{z851}} \quad \mathbb{Q}_{5,1}^{(1,-1;c)}(E_u, 2a) &= \frac{\sqrt{2}\mathbb{Q}_{5,1}^{(1,-1;a)}(E_u, 2)\mathbb{Q}_0^{(b)}(A_{1g})}{2} \\
\boxed{\text{z852}} \quad \mathbb{Q}_{5,2}^{(1,-1;c)}(E_u, 2a) &= \frac{\sqrt{2}\mathbb{Q}_{5,2}^{(1,-1;a)}(E_u, 2)\mathbb{Q}_0^{(b)}(A_{1g})}{2}
\end{aligned}$$

$$\begin{aligned}
\text{z913} \quad \mathbb{Q}_{5,1}^{(1,-1;c)}(E_u, 2b) &= \frac{4\sqrt{321}\mathbb{G}_{6,1}^{(1,-1;a)}(E_u, 1)\mathbb{Q}_2^{(b)}(B_{1g})}{107} + \frac{\sqrt{2354}\mathbb{G}_{6,1}^{(1,-1;a)}(E_u, 2)\mathbb{Q}_2^{(b)}(B_{1g})}{214} \\
\text{z914} \quad \mathbb{Q}_{5,2}^{(1,-1;c)}(E_u, 2b) &= -\frac{4\sqrt{321}\mathbb{G}_{6,2}^{(1,-1;a)}(E_u, 1)\mathbb{Q}_2^{(b)}(B_{1g})}{107} - \frac{\sqrt{2354}\mathbb{G}_{6,2}^{(1,-1;a)}(E_u, 2)\mathbb{Q}_2^{(b)}(B_{1g})}{214} \\
\text{z915} \quad \mathbb{Q}_{5,1}^{(1,-1;c)}(E_u, 3a) &= \frac{\sqrt{2}\mathbb{Q}_{5,1}^{(1,-1;a)}(E_u, 3)\mathbb{Q}_0^{(b)}(A_{1g})}{2} \\
\text{z916} \quad \mathbb{Q}_{5,2}^{(1,-1;c)}(E_u, 3a) &= \frac{\sqrt{2}\mathbb{Q}_{5,2}^{(1,-1;a)}(E_u, 3)\mathbb{Q}_0^{(b)}(A_{1g})}{2} \\
\text{z917} \quad \mathbb{Q}_{5,1}^{(1,-1;c)}(E_u, 3b) &= \frac{\sqrt{2354}\mathbb{G}_{6,1}^{(1,-1;a)}(E_u, 1)\mathbb{Q}_2^{(b)}(B_{1g})}{214} - \frac{4\sqrt{321}\mathbb{G}_{6,1}^{(1,-1;a)}(E_u, 2)\mathbb{Q}_2^{(b)}(B_{1g})}{107} \\
\text{z918} \quad \mathbb{Q}_{5,2}^{(1,-1;c)}(E_u, 3b) &= -\frac{\sqrt{2354}\mathbb{G}_{6,2}^{(1,-1;a)}(E_u, 1)\mathbb{Q}_2^{(b)}(B_{1g})}{214} + \frac{4\sqrt{321}\mathbb{G}_{6,2}^{(1,-1;a)}(E_u, 2)\mathbb{Q}_2^{(b)}(B_{1g})}{107} \\
\text{z919} \quad \mathbb{Q}_{1,1}^{(1,0;c)}(E_u, a) &= \frac{\sqrt{2}\mathbb{Q}_{1,1}^{(1,0;a)}(E_u)\mathbb{Q}_0^{(b)}(A_{1g})}{2} \\
\text{z920} \quad \mathbb{Q}_{1,2}^{(1,0;c)}(E_u, a) &= \frac{\sqrt{2}\mathbb{Q}_{1,2}^{(1,0;a)}(E_u)\mathbb{Q}_0^{(b)}(A_{1g})}{2} \\
\text{z921} \quad \mathbb{Q}_{1,1}^{(1,0;c)}(E_u, b) &= \frac{\sqrt{2}\mathbb{Q}_{1,1}^{(1,0;a)}(E_u)\mathbb{Q}_2^{(b)}(B_{1g})}{2} \\
\text{z922} \quad \mathbb{Q}_{1,2}^{(1,0;c)}(E_u, b) &= -\frac{\sqrt{2}\mathbb{Q}_{1,2}^{(1,0;a)}(E_u)\mathbb{Q}_2^{(b)}(B_{1g})}{2} \\
\text{z923} \quad \mathbb{Q}_{1,1}^{(1,0;c)}(E_u, c) &= \frac{3\sqrt{3}\mathbb{Q}_{3,1}^{(1,0;a)}(E_u, 1)\mathbb{Q}_2^{(b)}(B_{1g})}{8} - \frac{\sqrt{5}\mathbb{Q}_{3,1}^{(1,0;a)}(E_u, 2)\mathbb{Q}_2^{(b)}(B_{1g})}{8} \\
\text{z924} \quad \mathbb{Q}_{1,2}^{(1,0;c)}(E_u, c) &= -\frac{3\sqrt{3}\mathbb{Q}_{3,2}^{(1,0;a)}(E_u, 1)\mathbb{Q}_2^{(b)}(B_{1g})}{8} + \frac{\sqrt{5}\mathbb{Q}_{3,2}^{(1,0;a)}(E_u, 2)\mathbb{Q}_2^{(b)}(B_{1g})}{8} \\
\text{z925} \quad \mathbb{Q}_{1,1}^{(1,0;c)}(E_u, d) &= \frac{\sqrt{2}\mathbb{G}_{2,1}^{(1,0;a)}(E_u)\mathbb{Q}_2^{(b)}(B_{1g})}{2} \\
\text{z926} \quad \mathbb{Q}_{1,2}^{(1,0;c)}(E_u, d) &= -\frac{\sqrt{2}\mathbb{G}_{2,2}^{(1,0;a)}(E_u)\mathbb{Q}_2^{(b)}(B_{1g})}{2}
\end{aligned}$$

$$\begin{aligned}
\boxed{\text{z927}} \quad \mathbb{Q}_{3,1}^{(1,0;c)}(E_u, 1a) &= \frac{\sqrt{2010}\mathbb{Q}_{5,1}^{(1,0;a)}(E_u, 1)\mathbb{Q}_2^{(b)}(B_{1g})}{67} - \frac{\sqrt{938}\mathbb{Q}_{5,1}^{(1,0;a)}(E_u, 3)\mathbb{Q}_2^{(b)}(B_{1g})}{134} \\
\boxed{\text{z928}} \quad \mathbb{Q}_{3,2}^{(1,0;c)}(E_u, 1a) &= -\frac{\sqrt{2010}\mathbb{Q}_{5,2}^{(1,0;a)}(E_u, 1)\mathbb{Q}_2^{(b)}(B_{1g})}{67} + \frac{\sqrt{938}\mathbb{Q}_{5,2}^{(1,0;a)}(E_u, 3)\mathbb{Q}_2^{(b)}(B_{1g})}{134} \\
\boxed{\text{z929}} \quad \mathbb{Q}_{3,1}^{(1,0;c)}(E_u, 1b) &= \frac{\sqrt{2}\mathbb{Q}_{3,1}^{(1,0;a)}(E_u, 1)\mathbb{Q}_0^{(b)}(A_{1g})}{2} \\
\boxed{\text{z930}} \quad \mathbb{Q}_{3,2}^{(1,0;c)}(E_u, 1b) &= \frac{\sqrt{2}\mathbb{Q}_{3,2}^{(1,0;a)}(E_u, 1)\mathbb{Q}_0^{(b)}(A_{1g})}{2} \\
\boxed{\text{z931}} \quad \mathbb{Q}_{3,1}^{(1,0;c)}(E_u, 1c) &= \frac{\sqrt{5}\mathbb{Q}_{3,1}^{(1,0;a)}(E_u, 1)\mathbb{Q}_2^{(b)}(B_{1g})}{8} + \frac{3\sqrt{3}\mathbb{Q}_{3,1}^{(1,0;a)}(E_u, 2)\mathbb{Q}_2^{(b)}(B_{1g})}{8} \\
\boxed{\text{z932}} \quad \mathbb{Q}_{3,2}^{(1,0;c)}(E_u, 1c) &= -\frac{\sqrt{5}\mathbb{Q}_{3,2}^{(1,0;a)}(E_u, 1)\mathbb{Q}_2^{(b)}(B_{1g})}{8} - \frac{3\sqrt{3}\mathbb{Q}_{3,2}^{(1,0;a)}(E_u, 2)\mathbb{Q}_2^{(b)}(B_{1g})}{8} \\
\boxed{\text{z933}} \quad \mathbb{Q}_{3,1}^{(1,0;c)}(E_u, 1d) &= \frac{\sqrt{2}\mathbb{G}_{4,1}^{(1,0;a)}(E_u, 2)\mathbb{Q}_2^{(b)}(B_{1g})}{2} \\
\boxed{\text{z934}} \quad \mathbb{Q}_{3,2}^{(1,0;c)}(E_u, 1d) &= -\frac{\sqrt{2}\mathbb{G}_{4,2}^{(1,0;a)}(E_u, 2)\mathbb{Q}_2^{(b)}(B_{1g})}{2} \\
\boxed{\text{z935}} \quad \mathbb{Q}_{3,1}^{(1,0;c)}(E_u, 2a) &= \frac{17\sqrt{2345}\mathbb{Q}_{5,1}^{(1,0;a)}(E_u, 1)\mathbb{Q}_2^{(b)}(B_{1g})}{4288} - \frac{3\sqrt{67}\mathbb{Q}_{5,1}^{(1,0;a)}(E_u, 2)\mathbb{Q}_2^{(b)}(B_{1g})}{64} + \frac{85\sqrt{201}\mathbb{Q}_{5,1}^{(1,0;a)}(E_u, 3)\mathbb{Q}_2^{(b)}(B_{1g})}{2144} \\
\boxed{\text{z936}} \quad \mathbb{Q}_{3,2}^{(1,0;c)}(E_u, 2a) &= -\frac{17\sqrt{2345}\mathbb{Q}_{5,2}^{(1,0;a)}(E_u, 1)\mathbb{Q}_2^{(b)}(B_{1g})}{4288} + \frac{3\sqrt{67}\mathbb{Q}_{5,2}^{(1,0;a)}(E_u, 2)\mathbb{Q}_2^{(b)}(B_{1g})}{64} - \frac{85\sqrt{201}\mathbb{Q}_{5,2}^{(1,0;a)}(E_u, 3)\mathbb{Q}_2^{(b)}(B_{1g})}{2144} \\
\boxed{\text{z937}} \quad \mathbb{Q}_{3,1}^{(1,0;c)}(E_u, 2b) &= \frac{\sqrt{2}\mathbb{Q}_{3,1}^{(1,0;a)}(E_u, 2)\mathbb{Q}_0^{(b)}(A_{1g})}{2} \\
\boxed{\text{z938}} \quad \mathbb{Q}_{3,2}^{(1,0;c)}(E_u, 2b) &= \frac{\sqrt{2}\mathbb{Q}_{3,2}^{(1,0;a)}(E_u, 2)\mathbb{Q}_0^{(b)}(A_{1g})}{2} \\
\boxed{\text{z939}} \quad \mathbb{Q}_{3,1}^{(1,0;c)}(E_u, 2c) &= \frac{\sqrt{2}\mathbb{G}_{4,1}^{(1,0;a)}(E_u, 1)\mathbb{Q}_2^{(b)}(B_{1g})}{2} \\
\boxed{\text{z940}} \quad \mathbb{Q}_{3,2}^{(1,0;c)}(E_u, 2c) &= -\frac{\sqrt{2}\mathbb{G}_{4,2}^{(1,0;a)}(E_u, 1)\mathbb{Q}_2^{(b)}(B_{1g})}{2}
\end{aligned}$$

$$\begin{aligned}
\text{z941} \quad \mathbb{Q}_{5,1}^{(1,0;c)}(E_u, 1a) &= \frac{\sqrt{2}\mathbb{Q}_{5,1}^{(1,0;a)}(E_u, 1)\mathbb{Q}_0^{(b)}(A_{1g})}{2} \\
\text{z942} \quad \mathbb{Q}_{5,2}^{(1,0;c)}(E_u, 1a) &= \frac{\sqrt{2}\mathbb{Q}_{5,2}^{(1,0;a)}(E_u, 1)\mathbb{Q}_0^{(b)}(A_{1g})}{2} \\
\text{z943} \quad \mathbb{Q}_{5,1}^{(1,0;c)}(E_u, 1b) &= \frac{3\sqrt{7}\mathbb{Q}_{5,1}^{(1,0;a)}(E_u, 1)\mathbb{Q}_2^{(b)}(B_{1g})}{64} + \frac{17\sqrt{5}\mathbb{Q}_{5,1}^{(1,0;a)}(E_u, 2)\mathbb{Q}_2^{(b)}(B_{1g})}{64} + \frac{3\sqrt{15}\mathbb{Q}_{5,1}^{(1,0;a)}(E_u, 3)\mathbb{Q}_2^{(b)}(B_{1g})}{32} \\
\text{z944} \quad \mathbb{Q}_{5,2}^{(1,0;c)}(E_u, 1b) &= -\frac{3\sqrt{7}\mathbb{Q}_{5,2}^{(1,0;a)}(E_u, 1)\mathbb{Q}_2^{(b)}(B_{1g})}{64} - \frac{17\sqrt{5}\mathbb{Q}_{5,2}^{(1,0;a)}(E_u, 2)\mathbb{Q}_2^{(b)}(B_{1g})}{64} - \frac{3\sqrt{15}\mathbb{Q}_{5,2}^{(1,0;a)}(E_u, 3)\mathbb{Q}_2^{(b)}(B_{1g})}{32} \\
\text{z945} \quad \mathbb{Q}_{5,1}^{(1,0;c)}(E_u, 2) &= \frac{\sqrt{2}\mathbb{Q}_{5,1}^{(1,0;a)}(E_u, 2)\mathbb{Q}_0^{(b)}(A_{1g})}{2} \\
\text{z946} \quad \mathbb{Q}_{5,2}^{(1,0;c)}(E_u, 2) &= \frac{\sqrt{2}\mathbb{Q}_{5,2}^{(1,0;a)}(E_u, 2)\mathbb{Q}_0^{(b)}(A_{1g})}{2} \\
\text{z947} \quad \mathbb{Q}_{5,1}^{(1,0;c)}(E_u, 3) &= \frac{\sqrt{2}\mathbb{Q}_{5,1}^{(1,0;a)}(E_u, 3)\mathbb{Q}_0^{(b)}(A_{1g})}{2} \\
\text{z1008} \quad \mathbb{Q}_{5,2}^{(1,0;c)}(E_u, 3) &= \frac{\sqrt{2}\mathbb{Q}_{5,2}^{(1,0;a)}(E_u, 3)\mathbb{Q}_0^{(b)}(A_{1g})}{2} \\
\text{z1009} \quad \mathbb{Q}_{1,1}^{(1,1;c)}(E_u, a) &= \frac{\sqrt{2}\mathbb{Q}_{1,1}^{(1,1;a)}(E_u)\mathbb{Q}_0^{(b)}(A_{1g})}{2} \\
\text{z1010} \quad \mathbb{Q}_{1,2}^{(1,1;c)}(E_u, a) &= \frac{\sqrt{2}\mathbb{Q}_{1,2}^{(1,1;a)}(E_u)\mathbb{Q}_0^{(b)}(A_{1g})}{2} \\
\text{z1011} \quad \mathbb{Q}_{1,1}^{(1,1;c)}(E_u, b) &= \frac{\sqrt{2}\mathbb{Q}_{1,1}^{(1,1;a)}(E_u)\mathbb{Q}_2^{(b)}(B_{1g})}{2} \\
\text{z1012} \quad \mathbb{Q}_{1,2}^{(1,1;c)}(E_u, b) &= -\frac{\sqrt{2}\mathbb{Q}_{1,2}^{(1,1;a)}(E_u)\mathbb{Q}_2^{(b)}(B_{1g})}{2} \\
\text{z1013} \quad \mathbb{Q}_{1,1}^{(1,1;c)}(E_u, c) &= \frac{3\sqrt{3}\mathbb{Q}_{3,1}^{(1,1;a)}(E_u, 1)\mathbb{Q}_2^{(b)}(B_{1g})}{8} - \frac{\sqrt{5}\mathbb{Q}_{3,1}^{(1,1;a)}(E_u, 2)\mathbb{Q}_2^{(b)}(B_{1g})}{8} \\
\text{z1014} \quad \mathbb{Q}_{1,2}^{(1,1;c)}(E_u, c) &= -\frac{3\sqrt{3}\mathbb{Q}_{3,2}^{(1,1;a)}(E_u, 1)\mathbb{Q}_2^{(b)}(B_{1g})}{8} + \frac{\sqrt{5}\mathbb{Q}_{3,2}^{(1,1;a)}(E_u, 2)\mathbb{Q}_2^{(b)}(B_{1g})}{8}
\end{aligned}$$

$$\begin{aligned}
\boxed{\text{z1015}} \quad \mathbb{Q}_{1,1}^{(1,1;c)}(E_u, d) &= \frac{\sqrt{2}\mathbb{G}_{2,1}^{(1,1;a)}(E_u)\mathbb{Q}_2^{(b)}(B_{1g})}{2} \\
\boxed{\text{z1016}} \quad \mathbb{Q}_{1,2}^{(1,1;c)}(E_u, d) &= -\frac{\sqrt{2}\mathbb{G}_{2,2}^{(1,1;a)}(E_u)\mathbb{Q}_2^{(b)}(B_{1g})}{2} \\
\boxed{\text{z1017}} \quad \mathbb{Q}_{3,1}^{(1,1;c)}(E_u, 1a) &= \frac{\sqrt{2}\mathbb{Q}_{3,1}^{(1,1;a)}(E_u, 1)\mathbb{Q}_0^{(b)}(A_{1g})}{2} \\
\boxed{\text{z1018}} \quad \mathbb{Q}_{3,2}^{(1,1;c)}(E_u, 1a) &= \frac{\sqrt{2}\mathbb{Q}_{3,2}^{(1,1;a)}(E_u, 1)\mathbb{Q}_0^{(b)}(A_{1g})}{2} \\
\boxed{\text{z1019}} \quad \mathbb{Q}_{3,1}^{(1,1;c)}(E_u, 1b) &= \frac{\sqrt{5}\mathbb{Q}_{3,1}^{(1,1;a)}(E_u, 1)\mathbb{Q}_2^{(b)}(B_{1g})}{8} + \frac{3\sqrt{3}\mathbb{Q}_{3,1}^{(1,1;a)}(E_u, 2)\mathbb{Q}_2^{(b)}(B_{1g})}{8} \\
\boxed{\text{z1020}} \quad \mathbb{Q}_{3,2}^{(1,1;c)}(E_u, 1b) &= -\frac{\sqrt{5}\mathbb{Q}_{3,2}^{(1,1;a)}(E_u, 1)\mathbb{Q}_2^{(b)}(B_{1g})}{8} - \frac{3\sqrt{3}\mathbb{Q}_{3,2}^{(1,1;a)}(E_u, 2)\mathbb{Q}_2^{(b)}(B_{1g})}{8} \\
\boxed{\text{z1021}} \quad \mathbb{Q}_{3,1}^{(1,1;c)}(E_u, 1c) &= \frac{\sqrt{2}\mathbb{G}_{4,1}^{(1,1;a)}(E_u, 2)\mathbb{Q}_2^{(b)}(B_{1g})}{2} \\
\boxed{\text{z1022}} \quad \mathbb{Q}_{3,2}^{(1,1;c)}(E_u, 1c) &= -\frac{\sqrt{2}\mathbb{G}_{4,2}^{(1,1;a)}(E_u, 2)\mathbb{Q}_2^{(b)}(B_{1g})}{2} \\
\boxed{\text{z1023}} \quad \mathbb{Q}_{3,1}^{(1,1;c)}(E_u, 2a) &= \frac{\sqrt{2}\mathbb{Q}_{3,1}^{(1,1;a)}(E_u, 2)\mathbb{Q}_0^{(b)}(A_{1g})}{2} \\
\boxed{\text{z1024}} \quad \mathbb{Q}_{3,2}^{(1,1;c)}(E_u, 2a) &= \frac{\sqrt{2}\mathbb{Q}_{3,2}^{(1,1;a)}(E_u, 2)\mathbb{Q}_0^{(b)}(A_{1g})}{2} \\
\boxed{\text{z1025}} \quad \mathbb{Q}_{3,1}^{(1,1;c)}(E_u, 2b) &= \frac{\sqrt{2}\mathbb{G}_{4,1}^{(1,1;a)}(E_u, 1)\mathbb{Q}_2^{(b)}(B_{1g})}{2} \\
\boxed{\text{z1026}} \quad \mathbb{Q}_{3,2}^{(1,1;c)}(E_u, 2b) &= -\frac{\sqrt{2}\mathbb{G}_{4,2}^{(1,1;a)}(E_u, 1)\mathbb{Q}_2^{(b)}(B_{1g})}{2} \\
\boxed{\text{z1027}} \quad \mathbb{G}_5^{(1,-1;c)}(A_{1g}) &= -\frac{\sqrt{65}\mathbb{M}_{6,1}^{(1,-1;a)}(E_u, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{52} + \frac{3\sqrt{143}\mathbb{M}_{6,1}^{(1,-1;a)}(E_u, 3)\mathbb{T}_{1,1}^{(b)}(E_u)}{52} - \frac{\sqrt{65}\mathbb{M}_{6,2}^{(1,-1;a)}(E_u, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{52} + \frac{3\sqrt{143}\mathbb{M}_{6,2}^{(1,-1;a)}(E_u, 3)\mathbb{T}_{1,2}^{(b)}(E_u)}{52} \\
\boxed{\text{z1028}} \quad \mathbb{G}_0^{(c)}(A_{1u}) &= \mathbb{G}_2^{(a)}(B_{1u})\mathbb{Q}_2^{(b)}(B_{1g})
\end{aligned}$$



$$\begin{aligned}
\boxed{\text{z1029}} \quad & \mathbb{G}_2^{(c)}(A_{1u}) = \mathbb{G}_2^{(a)}(A_{1u})\mathbb{Q}_0^{(b)}(A_{1g}) \\
\boxed{\text{z1030}} \quad & \mathbb{G}_4^{(c)}(A_{1u}, 1) = \mathbb{G}_4^{(a)}(A_{1u}, 1)\mathbb{Q}_0^{(b)}(A_{1g}) \\
\boxed{\text{z1031}} \quad & \mathbb{G}_4^{(c)}(A_{1u}, 2) = \mathbb{G}_4^{(a)}(A_{1u}, 2)\mathbb{Q}_0^{(b)}(A_{1g}) \\
\boxed{\text{z1032}} \quad & \mathbb{G}_0^{(1,-1;c)}(A_{1u}) = \mathbb{G}_2^{(1,-1;a)}(B_{1u})\mathbb{Q}_2^{(b)}(B_{1g}) \\
\boxed{\text{z1033}} \quad & \mathbb{G}_2^{(1,-1;c)}(A_{1u}) = \mathbb{G}_2^{(1,-1;a)}(A_{1u})\mathbb{Q}_0^{(b)}(A_{1g}) \\
\boxed{\text{z1034}} \quad & \mathbb{G}_4^{(1,-1;c)}(A_{1u}, 1) = \mathbb{G}_4^{(1,-1;a)}(A_{1u}, 1)\mathbb{Q}_0^{(b)}(A_{1g}) \\
\boxed{\text{z1035}} \quad & \mathbb{G}_4^{(1,-1;c)}(A_{1u}, 2) = \mathbb{G}_4^{(1,-1;a)}(A_{1u}, 2)\mathbb{Q}_0^{(b)}(A_{1g}) \\
\boxed{\text{z1036}} \quad & \mathbb{G}_6^{(1,-1;c)}(A_{1u}, 1) = \mathbb{G}_6^{(1,-1;a)}(A_{1u}, 1)\mathbb{Q}_0^{(b)}(A_{1g}) \\
\boxed{\text{z1037}} \quad & \mathbb{G}_6^{(1,-1;c)}(A_{1u}, 2) = \mathbb{G}_6^{(1,-1;a)}(A_{1u}, 2)\mathbb{Q}_0^{(b)}(A_{1g}) \\
\boxed{\text{z1038}} \quad & \mathbb{G}_0^{(1,0;c)}(A_{1u}) = \mathbb{G}_2^{(1,0;a)}(B_{1u})\mathbb{Q}_2^{(b)}(B_{1g}) \\
\boxed{\text{z1039}} \quad & \mathbb{G}_2^{(1,0;c)}(A_{1u}) = \mathbb{G}_2^{(1,0;a)}(A_{1u})\mathbb{Q}_0^{(b)}(A_{1g}) \\
\boxed{\text{z1040}} \quad & \mathbb{G}_4^{(1,0;c)}(A_{1u}, 1) = \mathbb{G}_4^{(1,0;a)}(A_{1u}, 1)\mathbb{Q}_0^{(b)}(A_{1g}) \\
\boxed{\text{z1041}} \quad & \mathbb{G}_4^{(1,0;c)}(A_{1u}, 2) = \mathbb{G}_4^{(1,0;a)}(A_{1u}, 2)\mathbb{Q}_0^{(b)}(A_{1g}) \\
\boxed{\text{z1042}} \quad & \mathbb{G}_0^{(1,1;c)}(A_{1u}, a) = \mathbb{G}_0^{(1,1;a)}(A_{1u})\mathbb{Q}_0^{(b)}(A_{1g}) \\
\boxed{\text{z1191}} \quad & \mathbb{G}_0^{(1,1;c)}(A_{1u}, b) = \mathbb{G}_2^{(1,1;a)}(B_{1u})\mathbb{Q}_2^{(b)}(B_{1g}) \\
\boxed{\text{z1192}} \quad & \mathbb{G}_2^{(1,1;c)}(A_{1u}) = \mathbb{G}_2^{(1,1;a)}(A_{1u})\mathbb{Q}_0^{(b)}(A_{1g}) \\
\boxed{\text{z1193}} \quad & \mathbb{G}_4^{(1,1;c)}(A_{1u}, 1) = \mathbb{G}_4^{(1,1;a)}(A_{1u}, 1)\mathbb{Q}_0^{(b)}(A_{1g}) \\
\boxed{\text{z1194}} \quad & \mathbb{G}_4^{(1,1;c)}(A_{1u}, 2) = \mathbb{G}_4^{(1,1;a)}(A_{1u}, 2)\mathbb{Q}_0^{(b)}(A_{1g})
\end{aligned}$$

$$\begin{aligned}
\boxed{\text{z1195}} \quad \mathbb{G}_1^{(c)}(A_{2g}, a) &= \frac{\sqrt{2}\mathbb{M}_{2,1}^{(a)}(Eu)\mathbb{T}_{1,2}^{(b)}(Eu)}{2} - \frac{\sqrt{2}\mathbb{M}_{2,2}^{(a)}(Eu)\mathbb{T}_{1,1}^{(b)}(Eu)}{2} \\
\boxed{\text{z1196}} \quad \mathbb{G}_1^{(c)}(A_{2g}, b) &= \frac{\sqrt{2}\mathbb{T}_{1,1}^{(a)}(Eu)\mathbb{T}_{1,2}^{(b)}(Eu)}{2} - \frac{\sqrt{2}\mathbb{T}_{1,2}^{(a)}(Eu)\mathbb{T}_{1,1}^{(b)}(Eu)}{2} \\
\boxed{\text{z1197}} \quad \mathbb{G}_3^{(c)}(A_{2g}, a) &= -\frac{\sqrt{7}\mathbb{M}_{4,1}^{(a)}(Eu, 1)\mathbb{T}_{1,2}^{(b)}(Eu)}{4} - \frac{\mathbb{M}_{4,1}^{(a)}(Eu, 2)\mathbb{T}_{1,2}^{(b)}(Eu)}{4} + \frac{\sqrt{7}\mathbb{M}_{4,2}^{(a)}(Eu, 1)\mathbb{T}_{1,1}^{(b)}(Eu)}{4} + \frac{\mathbb{M}_{4,2}^{(a)}(Eu, 2)\mathbb{T}_{1,1}^{(b)}(Eu)}{4} \\
\boxed{\text{z1198}} \quad \mathbb{G}_3^{(c)}(A_{2g}, b) &= -\frac{\sqrt{3}\mathbb{T}_{3,1}^{(a)}(Eu, 1)\mathbb{T}_{1,2}^{(b)}(Eu)}{4} - \frac{\sqrt{5}\mathbb{T}_{3,1}^{(a)}(Eu, 2)\mathbb{T}_{1,2}^{(b)}(Eu)}{4} + \frac{\sqrt{3}\mathbb{T}_{3,2}^{(a)}(Eu, 1)\mathbb{T}_{1,1}^{(b)}(Eu)}{4} + \frac{\sqrt{5}\mathbb{T}_{3,2}^{(a)}(Eu, 2)\mathbb{T}_{1,1}^{(b)}(Eu)}{4} \\
\boxed{\text{z1199}} \quad \mathbb{G}_5^{(c)}(A_{2g}, 1) &= \frac{\sqrt{30}\mathbb{T}_{5,1}^{(a)}(Eu, 1)\mathbb{T}_{1,2}^{(b)}(Eu)}{16} + \frac{\sqrt{42}\mathbb{T}_{5,1}^{(a)}(Eu, 2)\mathbb{T}_{1,2}^{(b)}(Eu)}{16} + \frac{\sqrt{14}\mathbb{T}_{5,1}^{(a)}(Eu, 3)\mathbb{T}_{1,2}^{(b)}(Eu)}{8} - \frac{\sqrt{30}\mathbb{T}_{5,2}^{(a)}(Eu, 1)\mathbb{T}_{1,1}^{(b)}(Eu)}{16} - \frac{\sqrt{42}\mathbb{T}_{5,2}^{(a)}(Eu, 2)\mathbb{T}_{1,1}^{(b)}(Eu)}{16} - \frac{\sqrt{14}\mathbb{T}_{5,2}^{(a)}(Eu, 3)\mathbb{T}_{1,1}^{(b)}(Eu)}{8} \\
\boxed{\text{z1200}} \quad \mathbb{G}_1^{(1,-1;c)}(A_{2g}) &= \frac{\sqrt{2}\mathbb{M}_{2,1}^{(1,-1;a)}(Eu)\mathbb{T}_{1,2}^{(b)}(Eu)}{2} - \frac{\sqrt{2}\mathbb{M}_{2,2}^{(1,-1;a)}(Eu)\mathbb{T}_{1,1}^{(b)}(Eu)}{2} \\
\boxed{\text{z1201}} \quad \mathbb{G}_3^{(1,-1;c)}(A_{2g}, a) &= -\frac{\sqrt{7}\mathbb{M}_{4,1}^{(1,-1;a)}(Eu, 1)\mathbb{T}_{1,2}^{(b)}(Eu)}{4} - \frac{\mathbb{M}_{4,1}^{(1,-1;a)}(Eu, 2)\mathbb{T}_{1,2}^{(b)}(Eu)}{4} + \frac{\sqrt{7}\mathbb{M}_{4,2}^{(1,-1;a)}(Eu, 1)\mathbb{T}_{1,1}^{(b)}(Eu)}{4} + \frac{\mathbb{M}_{4,2}^{(1,-1;a)}(Eu, 2)\mathbb{T}_{1,1}^{(b)}(Eu)}{4} \\
\boxed{\text{z1202}} \quad \mathbb{G}_3^{(1,-1;c)}(A_{2g}, b) &= -\frac{\sqrt{3}\mathbb{T}_{3,1}^{(1,-1;a)}(Eu, 1)\mathbb{T}_{1,2}^{(b)}(Eu)}{4} - \frac{\sqrt{5}\mathbb{T}_{3,1}^{(1,-1;a)}(Eu, 2)\mathbb{T}_{1,2}^{(b)}(Eu)}{4} + \frac{\sqrt{3}\mathbb{T}_{3,2}^{(1,-1;a)}(Eu, 1)\mathbb{T}_{1,1}^{(b)}(Eu)}{4} + \frac{\sqrt{5}\mathbb{T}_{3,2}^{(1,-1;a)}(Eu, 2)\mathbb{T}_{1,1}^{(b)}(Eu)}{4} \\
\boxed{\text{z1203}} \quad \mathbb{G}_5^{(1,-1;c)}(A_{2g}, 1a) &= \frac{\sqrt{6}\mathbb{M}_{6,1}^{(1,-1;a)}(Eu, 1)\mathbb{T}_{1,2}^{(b)}(Eu)}{8} + \frac{3\sqrt{11}\mathbb{M}_{6,1}^{(1,-1;a)}(Eu, 2)\mathbb{T}_{1,2}^{(b)}(Eu)}{16} + \frac{\sqrt{5}\mathbb{M}_{6,1}^{(1,-1;a)}(Eu, 3)\mathbb{T}_{1,2}^{(b)}(Eu)}{16} \\
&\quad - \frac{\sqrt{6}\mathbb{M}_{6,2}^{(1,-1;a)}(Eu, 1)\mathbb{T}_{1,1}^{(b)}(Eu)}{8} - \frac{3\sqrt{11}\mathbb{M}_{6,2}^{(1,-1;a)}(Eu, 2)\mathbb{T}_{1,1}^{(b)}(Eu)}{16} - \frac{\sqrt{5}\mathbb{M}_{6,2}^{(1,-1;a)}(Eu, 3)\mathbb{T}_{1,1}^{(b)}(Eu)}{16} \\
\boxed{\text{z1204}} \quad \mathbb{G}_5^{(1,-1;c)}(A_{2g}, 1b) &= \frac{\sqrt{30}\mathbb{T}_{5,1}^{(1,-1;a)}(Eu, 1)\mathbb{T}_{1,2}^{(b)}(Eu)}{16} + \frac{\sqrt{42}\mathbb{T}_{5,1}^{(1,-1;a)}(Eu, 2)\mathbb{T}_{1,2}^{(b)}(Eu)}{16} + \frac{\sqrt{14}\mathbb{T}_{5,1}^{(1,-1;a)}(Eu, 3)\mathbb{T}_{1,2}^{(b)}(Eu)}{8} \\
&\quad - \frac{\sqrt{30}\mathbb{T}_{5,2}^{(1,-1;a)}(Eu, 1)\mathbb{T}_{1,1}^{(b)}(Eu)}{16} - \frac{\sqrt{42}\mathbb{T}_{5,2}^{(1,-1;a)}(Eu, 2)\mathbb{T}_{1,1}^{(b)}(Eu)}{16} - \frac{\sqrt{14}\mathbb{T}_{5,2}^{(1,-1;a)}(Eu, 3)\mathbb{T}_{1,1}^{(b)}(Eu)}{8} \\
\boxed{\text{z1205}} \quad \mathbb{G}_5^{(1,-1;c)}(A_{2g}, 2) &= -\frac{\sqrt{4290}\mathbb{M}_{6,1}^{(1,-1;a)}(Eu, 1)\mathbb{T}_{1,2}^{(b)}(Eu)}{104} + \frac{7\sqrt{65}\mathbb{M}_{6,1}^{(1,-1;a)}(Eu, 2)\mathbb{T}_{1,2}^{(b)}(Eu)}{208} + \frac{3\sqrt{143}\mathbb{M}_{6,1}^{(1,-1;a)}(Eu, 3)\mathbb{T}_{1,2}^{(b)}(Eu)}{208} \\
&\quad + \frac{\sqrt{4290}\mathbb{M}_{6,2}^{(1,-1;a)}(Eu, 1)\mathbb{T}_{1,1}^{(b)}(Eu)}{104} - \frac{7\sqrt{65}\mathbb{M}_{6,2}^{(1,-1;a)}(Eu, 2)\mathbb{T}_{1,1}^{(b)}(Eu)}{208} - \frac{3\sqrt{143}\mathbb{M}_{6,2}^{(1,-1;a)}(Eu, 3)\mathbb{T}_{1,1}^{(b)}(Eu)}{208}
\end{aligned}$$

$$\boxed{\text{z1206}} \quad \mathbb{G}_1^{(1,0;c)}(A_{2g}, a) = \frac{\sqrt{2}\mathbb{M}_{2,1}^{(1,0;a)}(E_u)\mathbb{T}_{1,2}^{(b)}(E_u)}{2} - \frac{\sqrt{2}\mathbb{M}_{2,2}^{(1,0;a)}(E_u)\mathbb{T}_{1,1}^{(b)}(E_u)}{2}$$

$$\boxed{\text{z1207}} \quad \mathbb{G}_1^{(1,0;c)}(A_{2g}, b) = \frac{\sqrt{2}\mathbb{T}_{1,1}^{(1,0;a)}(E_u)\mathbb{T}_{1,2}^{(b)}(E_u)}{2} - \frac{\sqrt{2}\mathbb{T}_{1,2}^{(1,0;a)}(E_u)\mathbb{T}_{1,1}^{(b)}(E_u)}{2}$$

$$\boxed{\text{z1208}} \quad \mathbb{G}_3^{(1,0;c)}(A_{2g}, a) = -\frac{\sqrt{7}\mathbb{M}_{4,1}^{(1,0;a)}(E_u, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{4} - \frac{\mathbb{M}_{4,1}^{(1,0;a)}(E_u, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{4} + \frac{\sqrt{7}\mathbb{M}_{4,2}^{(1,0;a)}(E_u, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{4} + \frac{\mathbb{M}_{4,2}^{(1,0;a)}(E_u, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{4}$$

$$\boxed{\text{z1209}} \quad \mathbb{G}_3^{(1,0;c)}(A_{2g}, b) = -\frac{\sqrt{3}\mathbb{T}_{3,1}^{(1,0;a)}(E_u, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{4} - \frac{\sqrt{5}\mathbb{T}_{3,1}^{(1,0;a)}(E_u, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{4} + \frac{\sqrt{3}\mathbb{T}_{3,2}^{(1,0;a)}(E_u, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{4} + \frac{\sqrt{5}\mathbb{T}_{3,2}^{(1,0;a)}(E_u, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{4}$$

$$\boxed{\text{z1210}} \quad \mathbb{G}_5^{(1,0;c)}(A_{2g}, 1) = \frac{\sqrt{30}\mathbb{T}_{5,1}^{(1,0;a)}(E_u, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{16} + \frac{\sqrt{42}\mathbb{T}_{5,1}^{(1,0;a)}(E_u, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{16} + \frac{\sqrt{14}\mathbb{T}_{5,1}^{(1,0;a)}(E_u, 3)\mathbb{T}_{1,2}^{(b)}(E_u)}{8} \\ - \frac{\sqrt{30}\mathbb{T}_{5,2}^{(1,0;a)}(E_u, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{16} - \frac{\sqrt{42}\mathbb{T}_{5,2}^{(1,0;a)}(E_u, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{16} - \frac{\sqrt{14}\mathbb{T}_{5,2}^{(1,0;a)}(E_u, 3)\mathbb{T}_{1,1}^{(b)}(E_u)}{8}$$

$$\boxed{\text{z1211}} \quad \mathbb{G}_1^{(1,1;c)}(A_{2g}, a) = \frac{\sqrt{2}\mathbb{M}_{2,1}^{(1,1;a)}(E_u)\mathbb{T}_{1,2}^{(b)}(E_u)}{2} - \frac{\sqrt{2}\mathbb{M}_{2,2}^{(1,1;a)}(E_u)\mathbb{T}_{1,1}^{(b)}(E_u)}{2}$$

$$\boxed{\text{z1212}} \quad \mathbb{G}_1^{(1,1;c)}(A_{2g}, b) = \frac{\sqrt{2}\mathbb{T}_{1,1}^{(1,1;a)}(E_u)\mathbb{T}_{1,2}^{(b)}(E_u)}{2} - \frac{\sqrt{2}\mathbb{T}_{1,2}^{(1,1;a)}(E_u)\mathbb{T}_{1,1}^{(b)}(E_u)}{2}$$

$$\boxed{\text{z1213}} \quad \mathbb{G}_3^{(1,1;c)}(A_{2g}, a) = -\frac{\sqrt{7}\mathbb{M}_{4,1}^{(1,1;a)}(E_u, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{4} - \frac{\mathbb{M}_{4,1}^{(1,1;a)}(E_u, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{4} + \frac{\sqrt{7}\mathbb{M}_{4,2}^{(1,1;a)}(E_u, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{4} + \frac{\mathbb{M}_{4,2}^{(1,1;a)}(E_u, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{4}$$

$$\boxed{\text{z1214}} \quad \mathbb{G}_3^{(1,1;c)}(A_{2g}, b) = -\frac{\sqrt{3}\mathbb{T}_{3,1}^{(1,1;a)}(E_u, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{4} - \frac{\sqrt{5}\mathbb{T}_{3,1}^{(1,1;a)}(E_u, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{4} + \frac{\sqrt{3}\mathbb{T}_{3,2}^{(1,1;a)}(E_u, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{4} + \frac{\sqrt{5}\mathbb{T}_{3,2}^{(1,1;a)}(E_u, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{4}$$

$$\boxed{\text{z1215}} \quad \mathbb{G}_4^{(c)}(A_{2u}) = \mathbb{G}_4^{(a)}(A_{2u})\mathbb{Q}_0^{(b)}(A_{1g})$$

$$\boxed{\text{z1216}} \quad \mathbb{G}_4^{(1,-1;c)}(A_{2u}) = \mathbb{G}_4^{(1,-1;a)}(A_{2u})\mathbb{Q}_0^{(b)}(A_{1g})$$

$$\boxed{\text{z1217}} \quad \mathbb{G}_6^{(1,-1;c)}(A_{2u}) = \mathbb{G}_6^{(1,-1;a)}(A_{2u})\mathbb{Q}_0^{(b)}(A_{1g})$$

$$\boxed{\text{z1218}} \quad \mathbb{G}_4^{(1,0;c)}(A_{2u}) = \mathbb{G}_4^{(1,0;a)}(A_{2u})\mathbb{Q}_0^{(b)}(A_{1g})$$

$$\boxed{\text{z1219}} \quad \mathbb{G}_4^{(1,1;c)}(A_{2u}) = \mathbb{G}_4^{(1,1;a)}(A_{2u})\mathbb{Q}_0^{(b)}(A_{1g})$$

$$\begin{aligned}
\boxed{\text{z1220}} \quad \mathbb{G}_3^{(c)}(B_{1g}) &= \frac{\mathbb{M}_{4,1}^{(a)}(E_u, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{4} + \frac{\sqrt{7}\mathbb{M}_{4,1}^{(a)}(E_u, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{4} - \frac{\mathbb{M}_{4,2}^{(a)}(E_u, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{4} - \frac{\sqrt{7}\mathbb{M}_{4,2}^{(a)}(E_u, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{4} \\
\boxed{\text{z1221}} \quad \mathbb{G}_3^{(1,-1;c)}(B_{1g}) &= \frac{\mathbb{M}_{4,1}^{(1,-1;a)}(E_u, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{4} + \frac{\sqrt{7}\mathbb{M}_{4,1}^{(1,-1;a)}(E_u, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{4} - \frac{\mathbb{M}_{4,2}^{(1,-1;a)}(E_u, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{4} - \frac{\sqrt{7}\mathbb{M}_{4,2}^{(1,-1;a)}(E_u, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{4} \\
\boxed{\text{z1222}} \quad \mathbb{G}_5^{(1,-1;c)}(B_{1g}) &= \frac{\sqrt{114}\mathbb{M}_{6,1}^{(1,-1;a)}(E_u, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{19} + \frac{\sqrt{209}\mathbb{M}_{6,1}^{(1,-1;a)}(E_u, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{76} + \frac{3\sqrt{95}\mathbb{M}_{6,1}^{(1,-1;a)}(E_u, 3)\mathbb{T}_{1,1}^{(b)}(E_u)}{76} \\
&\quad - \frac{\sqrt{114}\mathbb{M}_{6,2}^{(1,-1;a)}(E_u, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{19} - \frac{\sqrt{209}\mathbb{M}_{6,2}^{(1,-1;a)}(E_u, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{76} - \frac{3\sqrt{95}\mathbb{M}_{6,2}^{(1,-1;a)}(E_u, 3)\mathbb{T}_{1,2}^{(b)}(E_u)}{76} \\
\boxed{\text{z1223}} \quad \mathbb{G}_3^{(1,0;c)}(B_{1g}) &= \frac{\mathbb{M}_{4,1}^{(1,0;a)}(E_u, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{4} + \frac{\sqrt{7}\mathbb{M}_{4,1}^{(1,0;a)}(E_u, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{4} - \frac{\mathbb{M}_{4,2}^{(1,0;a)}(E_u, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{4} - \frac{\sqrt{7}\mathbb{M}_{4,2}^{(1,0;a)}(E_u, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{4} \\
\boxed{\text{z1224}} \quad \mathbb{G}_3^{(1,1;c)}(B_{1g}) &= \frac{\mathbb{M}_{4,1}^{(1,1;a)}(E_u, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{4} + \frac{\sqrt{7}\mathbb{M}_{4,1}^{(1,1;a)}(E_u, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{4} - \frac{\mathbb{M}_{4,2}^{(1,1;a)}(E_u, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{4} - \frac{\sqrt{7}\mathbb{M}_{4,2}^{(1,1;a)}(E_u, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{4} \\
\boxed{\text{z1225}} \quad \mathbb{G}_2^{(c)}(B_{1u}) &= \mathbb{G}_2^{(a)}(B_{1u})\mathbb{Q}_0^{(b)}(A_{1g}) \\
\boxed{\text{z1226}} \quad \mathbb{G}_4^{(c)}(B_{1u}) &= \mathbb{G}_4^{(a)}(B_{1u})\mathbb{Q}_0^{(b)}(A_{1g}) \\
\boxed{\text{z1227}} \quad \mathbb{G}_2^{(1,-1;c)}(B_{1u}) &= \mathbb{G}_2^{(1,-1;a)}(B_{1u})\mathbb{Q}_0^{(b)}(A_{1g}) \\
\boxed{\text{z1228}} \quad \mathbb{G}_4^{(1,-1;c)}(B_{1u}) &= \mathbb{G}_4^{(1,-1;a)}(B_{1u})\mathbb{Q}_0^{(b)}(A_{1g}) \\
\boxed{\text{z1229}} \quad \mathbb{G}_6^{(1,-1;c)}(B_{1u}, 1) &= \mathbb{G}_6^{(1,-1;a)}(B_{1u}, 1)\mathbb{Q}_0^{(b)}(A_{1g}) \\
\boxed{\text{z1230}} \quad \mathbb{G}_6^{(1,-1;c)}(B_{1u}, 2) &= \mathbb{G}_6^{(1,-1;a)}(B_{1u}, 2)\mathbb{Q}_0^{(b)}(A_{1g}) \\
\boxed{\text{z1231}} \quad \mathbb{G}_2^{(1,0;c)}(B_{1u}) &= \mathbb{G}_2^{(1,0;a)}(B_{1u})\mathbb{Q}_0^{(b)}(A_{1g}) \\
\boxed{\text{z1232}} \quad \mathbb{G}_4^{(1,0;c)}(B_{1u}) &= \mathbb{G}_4^{(1,0;a)}(B_{1u})\mathbb{Q}_0^{(b)}(A_{1g}) \\
\boxed{\text{z1233}} \quad \mathbb{G}_2^{(1,1;c)}(B_{1u}, a) &= \mathbb{G}_0^{(1,1;a)}(A_{1u})\mathbb{Q}_2^{(b)}(B_{1g}) \\
\boxed{\text{z1234}} \quad \mathbb{G}_2^{(1,1;c)}(B_{1u}, b) &= \mathbb{G}_2^{(1,1;a)}(B_{1u})\mathbb{Q}_0^{(b)}(A_{1g}) \\
\boxed{\text{z1235}} \quad \mathbb{G}_4^{(1,1;c)}(B_{1u}) &= \mathbb{G}_4^{(1,1;a)}(B_{1u})\mathbb{Q}_0^{(b)}(A_{1g})
\end{aligned}$$

$$\boxed{\text{z1236}} \quad \mathbb{G}_3^{(c)}(B_{2g}) = -\frac{5\mathbb{M}_{4,1}^{(a)}(E_u, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{8} + \frac{\sqrt{7}\mathbb{M}_{4,1}^{(a)}(E_u, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{8} - \frac{5\mathbb{M}_{4,2}^{(a)}(E_u, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{8} + \frac{\sqrt{7}\mathbb{M}_{4,2}^{(a)}(E_u, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{8}$$

$$\boxed{\text{z1237}} \quad \mathbb{G}_3^{(1,-1;c)}(B_{2g}) = -\frac{5\mathbb{M}_{4,1}^{(1,-1;a)}(E_u, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{8} + \frac{\sqrt{7}\mathbb{M}_{4,1}^{(1,-1;a)}(E_u, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{8} - \frac{5\mathbb{M}_{4,2}^{(1,-1;a)}(E_u, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{8} + \frac{\sqrt{7}\mathbb{M}_{4,2}^{(1,-1;a)}(E_u, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{8}$$

$$\boxed{\text{z1238}} \quad \mathbb{G}_5^{(1,-1;c)}(B_{2g}) = -\frac{\sqrt{114}\mathbb{M}_{6,1}^{(1,-1;a)}(E_u, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{76} + \frac{7\sqrt{209}\mathbb{M}_{6,1}^{(1,-1;a)}(E_u, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{152} - \frac{3\sqrt{95}\mathbb{M}_{6,1}^{(1,-1;a)}(E_u, 3)\mathbb{T}_{1,2}^{(b)}(E_u)}{152} \\ - \frac{\sqrt{114}\mathbb{M}_{6,2}^{(1,-1;a)}(E_u, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{76} + \frac{7\sqrt{209}\mathbb{M}_{6,2}^{(1,-1;a)}(E_u, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{152} - \frac{3\sqrt{95}\mathbb{M}_{6,2}^{(1,-1;a)}(E_u, 3)\mathbb{T}_{1,1}^{(b)}(E_u)}{152}$$

$$\boxed{\text{z1239}} \quad \mathbb{G}_3^{(1,0;c)}(B_{2g}) = -\frac{5\mathbb{M}_{4,1}^{(1,0;a)}(E_u, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{8} + \frac{\sqrt{7}\mathbb{M}_{4,1}^{(1,0;a)}(E_u, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{8} - \frac{5\mathbb{M}_{4,2}^{(1,0;a)}(E_u, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{8} + \frac{\sqrt{7}\mathbb{M}_{4,2}^{(1,0;a)}(E_u, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{8}$$

$$\boxed{\text{z1240}} \quad \mathbb{G}_3^{(1,1;c)}(B_{2g}) = -\frac{5\mathbb{M}_{4,1}^{(1,1;a)}(E_u, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{8} + \frac{\sqrt{7}\mathbb{M}_{4,1}^{(1,1;a)}(E_u, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{8} - \frac{5\mathbb{M}_{4,2}^{(1,1;a)}(E_u, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{8} + \frac{\sqrt{7}\mathbb{M}_{4,2}^{(1,1;a)}(E_u, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{8}$$

$$\boxed{\text{z1241}} \quad \mathbb{G}_2^{(c)}(B_{2u}) = \mathbb{G}_2^{(a)}(B_{2u})\mathbb{Q}_0^{(b)}(A_{1g})$$

$$\boxed{\text{z1242}} \quad \mathbb{G}_4^{(c)}(B_{2u}) = \mathbb{G}_4^{(a)}(B_{2u})\mathbb{Q}_0^{(b)}(A_{1g})$$

$$\boxed{\text{z1243}} \quad \mathbb{G}_2^{(1,-1;c)}(B_{2u}) = \mathbb{G}_2^{(1,-1;a)}(B_{2u})\mathbb{Q}_0^{(b)}(A_{1g})$$

$$\boxed{\text{z1244}} \quad \mathbb{G}_4^{(1,-1;c)}(B_{2u}) = \mathbb{G}_4^{(1,-1;a)}(B_{2u})\mathbb{Q}_0^{(b)}(A_{1g})$$

$$\boxed{\text{z1245}} \quad \mathbb{G}_6^{(1,-1;c)}(B_{2u}, 1) = \mathbb{G}_6^{(1,-1;a)}(B_{2u}, 1)\mathbb{Q}_0^{(b)}(A_{1g})$$

$$\boxed{\text{z1246}} \quad \mathbb{G}_6^{(1,-1;c)}(B_{2u}, 2) = \mathbb{G}_6^{(1,-1;a)}(B_{2u}, 2)\mathbb{Q}_0^{(b)}(A_{1g})$$

$$\boxed{\text{z1247}} \quad \mathbb{G}_2^{(1,0;c)}(B_{2u}) = \mathbb{G}_2^{(1,0;a)}(B_{2u})\mathbb{Q}_0^{(b)}(A_{1g})$$

$$\boxed{\text{z1248}} \quad \mathbb{G}_4^{(1,0;c)}(B_{2u}) = \mathbb{G}_4^{(1,0;a)}(B_{2u})\mathbb{Q}_0^{(b)}(A_{1g})$$

$$\boxed{\text{z1249}} \quad \mathbb{G}_2^{(1,1;c)}(B_{2u}) = \mathbb{G}_2^{(1,1;a)}(B_{2u})\mathbb{Q}_0^{(b)}(A_{1g})$$

$$\boxed{\text{z1250}} \quad \mathbb{G}_4^{(1,1;c)}(B_{2u}) = \mathbb{G}_4^{(1,1;a)}(B_{2u})\mathbb{Q}_0^{(b)}(A_{1g})$$

$$\boxed{\text{z1251}} \quad \mathbb{G}_{1,1}^{(c)}(E_g) = -\frac{\sqrt{5}\mathbb{M}_2^{(a)}(A_{1u})\mathbb{T}_{1,1}^{(b)}(E_u)}{5} + \frac{\sqrt{15}\mathbb{M}_2^{(a)}(B_{1u})\mathbb{T}_{1,1}^{(b)}(E_u)}{10} + \frac{\sqrt{15}\mathbb{M}_2^{(a)}(B_{2u})\mathbb{T}_{1,2}^{(b)}(E_u)}{10}$$

$$\boxed{\text{z1252}} \quad \mathbb{G}_{1,2}^{(c)}(E_g) = \frac{\sqrt{5}\mathbb{M}_2^{(a)}(A_{1u})\mathbb{T}_{1,2}^{(b)}(E_u)}{5} + \frac{\sqrt{15}\mathbb{M}_2^{(a)}(B_{1u})\mathbb{T}_{1,2}^{(b)}(E_u)}{10} - \frac{\sqrt{15}\mathbb{M}_2^{(a)}(B_{2u})\mathbb{T}_{1,1}^{(b)}(E_u)}{10}$$

$$\boxed{\text{z1253}} \quad \mathbb{G}_{3,1}^{(c)}(E_g, 1a) = \frac{\mathbb{M}_2^{(a)}(B_{1u})\mathbb{T}_{1,1}^{(b)}(E_u)}{2} - \frac{\mathbb{M}_2^{(a)}(B_{2u})\mathbb{T}_{1,2}^{(b)}(E_u)}{2}$$

$$\boxed{\text{z1254}} \quad \mathbb{G}_{3,2}^{(c)}(E_g, 1a) = \frac{\mathbb{M}_2^{(a)}(B_{1u})\mathbb{T}_{1,2}^{(b)}(E_u)}{2} + \frac{\mathbb{M}_2^{(a)}(B_{2u})\mathbb{T}_{1,1}^{(b)}(E_u)}{2}$$

$$\boxed{\text{z1255}} \quad \mathbb{G}_{3,1}^{(c)}(E_g, 1b) = \frac{97\sqrt{8778}\mathbb{M}_4^{(a)}(A_{1u}, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{21318} - \frac{\sqrt{6270}\mathbb{M}_4^{(a)}(A_{1u}, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{1254} + \frac{\sqrt{14630}\mathbb{M}_4^{(a)}(A_{2u})\mathbb{T}_{1,2}^{(b)}(E_u)}{374} + \frac{71\sqrt{2090}\mathbb{M}_4^{(a)}(B_{1u})\mathbb{T}_{1,1}^{(b)}(E_u)}{7106} + \frac{5\sqrt{2090}\mathbb{M}_4^{(a)}(B_{2u})\mathbb{T}_{1,2}^{(b)}(E_u)}{7106}$$

$$\boxed{\text{z1256}} \quad \mathbb{G}_{3,2}^{(c)}(E_g, 1b) = -\frac{97\sqrt{8778}\mathbb{M}_4^{(a)}(A_{1u}, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{21318} + \frac{\sqrt{6270}\mathbb{M}_4^{(a)}(A_{1u}, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{1254} + \frac{\sqrt{14630}\mathbb{M}_4^{(a)}(A_{2u})\mathbb{T}_{1,1}^{(b)}(E_u)}{374} + \frac{71\sqrt{2090}\mathbb{M}_4^{(a)}(B_{1u})\mathbb{T}_{1,2}^{(b)}(E_u)}{7106} - \frac{5\sqrt{2090}\mathbb{M}_4^{(a)}(B_{2u})\mathbb{T}_{1,1}^{(b)}(E_u)}{7106}$$

$$\boxed{\text{z1257}} \quad \mathbb{G}_{3,1}^{(c)}(E_g, 2) = \frac{\sqrt{105}\mathbb{M}_4^{(a)}(A_{1u}, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{68} + \frac{\sqrt{3}\mathbb{M}_4^{(a)}(A_{1u}, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{4} - \frac{3\sqrt{7}\mathbb{M}_4^{(a)}(A_{2u})\mathbb{T}_{1,2}^{(b)}(E_u)}{34} + \frac{2\mathbb{M}_4^{(a)}(B_{1u})\mathbb{T}_{1,1}^{(b)}(E_u)}{17} - \frac{8\mathbb{M}_4^{(a)}(B_{2u})\mathbb{T}_{1,2}^{(b)}(E_u)}{17}$$

$$\boxed{\text{z1258}} \quad \mathbb{G}_{3,2}^{(c)}(E_g, 2) = -\frac{\sqrt{105}\mathbb{M}_4^{(a)}(A_{1u}, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{68} - \frac{\sqrt{3}\mathbb{M}_4^{(a)}(A_{1u}, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{4} - \frac{3\sqrt{7}\mathbb{M}_4^{(a)}(A_{2u})\mathbb{T}_{1,1}^{(b)}(E_u)}{34} + \frac{2\mathbb{M}_4^{(a)}(B_{1u})\mathbb{T}_{1,2}^{(b)}(E_u)}{17} + \frac{8\mathbb{M}_4^{(a)}(B_{2u})\mathbb{T}_{1,1}^{(b)}(E_u)}{17}$$

$$\boxed{\text{z1259}} \quad \mathbb{G}_{5,1}^{(c)}(E_g, 1) = \frac{\sqrt{15}\mathbb{M}_4^{(a)}(A_{1u}, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{12} - \frac{\sqrt{21}\mathbb{M}_4^{(a)}(A_{1u}, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{12} - \frac{\mathbb{M}_4^{(a)}(A_{2u})\mathbb{T}_{1,2}^{(b)}(E_u)}{2}$$

$$\boxed{\text{z1260}} \quad \mathbb{G}_{5,2}^{(c)}(E_g, 1) = -\frac{\sqrt{15}\mathbb{M}_4^{(a)}(A_{1u}, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{12} + \frac{\sqrt{21}\mathbb{M}_4^{(a)}(A_{1u}, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{12} - \frac{\mathbb{M}_4^{(a)}(A_{2u})\mathbb{T}_{1,1}^{(b)}(E_u)}{2}$$

$$\boxed{\text{z1261}} \quad \mathbb{G}_{1,1}^{(1,-1;c)}(E_g) = -\frac{\sqrt{5}\mathbb{M}_2^{(1,-1;a)}(A_{1u})\mathbb{T}_{1,1}^{(b)}(E_u)}{5} + \frac{\sqrt{15}\mathbb{M}_2^{(1,-1;a)}(B_{1u})\mathbb{T}_{1,1}^{(b)}(E_u)}{10} + \frac{\sqrt{15}\mathbb{M}_2^{(1,-1;a)}(B_{2u})\mathbb{T}_{1,2}^{(b)}(E_u)}{10}$$

$$\boxed{\text{z1262}} \quad \mathbb{G}_{1,2}^{(1,-1;c)}(E_g) = \frac{\sqrt{5}\mathbb{M}_2^{(1,-1;a)}(A_{1u})\mathbb{T}_{1,2}^{(b)}(E_u)}{5} + \frac{\sqrt{15}\mathbb{M}_2^{(1,-1;a)}(B_{1u})\mathbb{T}_{1,2}^{(b)}(E_u)}{10} - \frac{\sqrt{15}\mathbb{M}_2^{(1,-1;a)}(B_{2u})\mathbb{T}_{1,1}^{(b)}(E_u)}{10}$$

$$\boxed{\text{z1263}} \quad \mathbb{G}_{3,1}^{(1,-1;c)}(E_g, 1a) = \frac{\mathbb{M}_2^{(1,-1;a)}(B_{1u})\mathbb{T}_{1,1}^{(b)}(E_u)}{2} - \frac{\mathbb{M}_2^{(1,-1;a)}(B_{2u})\mathbb{T}_{1,2}^{(b)}(E_u)}{2}$$

$$\boxed{\text{z1264}} \quad \mathbb{G}_{3,2}^{(1,-1;c)}(E_g, 1a) = \frac{\mathbb{M}_2^{(1,-1;a)}(B_{1u})\mathbb{T}_{1,2}^{(b)}(E_u)}{2} + \frac{\mathbb{M}_2^{(1,-1;a)}(B_{2u})\mathbb{T}_{1,1}^{(b)}(E_u)}{2}$$

$$\begin{aligned}
\boxed{\text{z1265}} \quad \mathbb{G}_{3,1}^{(1,-1;c)}(E_g, 1b) &= \frac{97\sqrt{8778}\mathbb{M}_4^{(1,-1;a)}(A_{1u}, 1)\mathbb{T}_{1,1}^{(b)}(Eu)}{21318} - \frac{\sqrt{6270}\mathbb{M}_4^{(1,-1;a)}(A_{1u}, 2)\mathbb{T}_{1,1}^{(b)}(Eu)}{1254} \\
&+ \frac{\sqrt{14630}\mathbb{M}_4^{(1,-1;a)}(A_{2u})\mathbb{T}_{1,2}^{(b)}(Eu)}{374} + \frac{71\sqrt{2090}\mathbb{M}_4^{(1,-1;a)}(B_{1u})\mathbb{T}_{1,1}^{(b)}(Eu)}{7106} + \frac{5\sqrt{2090}\mathbb{M}_4^{(1,-1;a)}(B_{2u})\mathbb{T}_{1,2}^{(b)}(Eu)}{7106} \\
\boxed{\text{z1266}} \quad \mathbb{G}_{3,2}^{(1,-1;c)}(E_g, 1b) &= -\frac{97\sqrt{8778}\mathbb{M}_4^{(1,-1;a)}(A_{1u}, 1)\mathbb{T}_{1,2}^{(b)}(Eu)}{21318} + \frac{\sqrt{6270}\mathbb{M}_4^{(1,-1;a)}(A_{1u}, 2)\mathbb{T}_{1,2}^{(b)}(Eu)}{1254} + \frac{\sqrt{14630}\mathbb{M}_4^{(1,-1;a)}(A_{2u})\mathbb{T}_{1,1}^{(b)}(Eu)}{374} \\
&+ \frac{71\sqrt{2090}\mathbb{M}_4^{(1,-1;a)}(B_{1u})\mathbb{T}_{1,2}^{(b)}(Eu)}{7106} - \frac{5\sqrt{2090}\mathbb{M}_4^{(1,-1;a)}(B_{2u})\mathbb{T}_{1,1}^{(b)}(Eu)}{7106} \\
\boxed{\text{z1267}} \quad \mathbb{G}_{3,1}^{(1,-1;c)}(E_g, 2) &= \frac{\sqrt{105}\mathbb{M}_4^{(1,-1;a)}(A_{1u}, 1)\mathbb{T}_{1,1}^{(b)}(Eu)}{68} + \frac{\sqrt{3}\mathbb{M}_4^{(1,-1;a)}(A_{1u}, 2)\mathbb{T}_{1,1}^{(b)}(Eu)}{4} - \frac{3\sqrt{7}\mathbb{M}_4^{(1,-1;a)}(A_{2u})\mathbb{T}_{1,2}^{(b)}(Eu)}{34} + \frac{2\mathbb{M}_4^{(1,-1;a)}(B_{1u})\mathbb{T}_{1,1}^{(b)}(Eu)}{17} - \frac{8\mathbb{M}_4^{(1,-1;a)}(B_{2u})\mathbb{T}_{1,2}^{(b)}(Eu)}{17} \\
\boxed{\text{z1268}} \quad \mathbb{G}_{3,2}^{(1,-1;c)}(E_g, 2) &= -\frac{\sqrt{105}\mathbb{M}_4^{(1,-1;a)}(A_{1u}, 1)\mathbb{T}_{1,2}^{(b)}(Eu)}{68} - \frac{\sqrt{3}\mathbb{M}_4^{(1,-1;a)}(A_{1u}, 2)\mathbb{T}_{1,2}^{(b)}(Eu)}{4} - \frac{3\sqrt{7}\mathbb{M}_4^{(1,-1;a)}(A_{2u})\mathbb{T}_{1,1}^{(b)}(Eu)}{34} + \frac{2\mathbb{M}_4^{(1,-1;a)}(B_{1u})\mathbb{T}_{1,2}^{(b)}(Eu)}{17} + \frac{8\mathbb{M}_4^{(1,-1;a)}(B_{2u})\mathbb{T}_{1,1}^{(b)}(Eu)}{17} \\
\boxed{\text{z1269}} \quad \mathbb{G}_{5,1}^{(1,-1;c)}(E_g, 1a) &= \frac{\sqrt{15}\mathbb{M}_4^{(1,-1;a)}(A_{1u}, 1)\mathbb{T}_{1,1}^{(b)}(Eu)}{12} - \frac{\sqrt{21}\mathbb{M}_4^{(1,-1;a)}(A_{1u}, 2)\mathbb{T}_{1,1}^{(b)}(Eu)}{12} - \frac{\mathbb{M}_4^{(1,-1;a)}(A_{2u})\mathbb{T}_{1,2}^{(b)}(Eu)}{2} \\
\boxed{\text{z1270}} \quad \mathbb{G}_{5,2}^{(1,-1;c)}(E_g, 1a) &= -\frac{\sqrt{15}\mathbb{M}_4^{(1,-1;a)}(A_{1u}, 1)\mathbb{T}_{1,2}^{(b)}(Eu)}{12} + \frac{\sqrt{21}\mathbb{M}_4^{(1,-1;a)}(A_{1u}, 2)\mathbb{T}_{1,2}^{(b)}(Eu)}{12} - \frac{\mathbb{M}_4^{(1,-1;a)}(A_{2u})\mathbb{T}_{1,1}^{(b)}(Eu)}{2} \\
\boxed{\text{z1271}} \quad \mathbb{G}_{5,1}^{(1,-1;c)}(E_g, 1b) &= \frac{10397\sqrt{688120917}\mathbb{M}_6^{(1,-1;a)}(A_{1u}, 1)\mathbb{T}_{1,1}^{(b)}(Eu)}{917494556} - \frac{4691\sqrt{4816846419}\mathbb{M}_6^{(1,-1;a)}(A_{1u}, 2)\mathbb{T}_{1,1}^{(b)}(Eu)}{917494556} + \frac{7\sqrt{9633692838}\mathbb{M}_6^{(1,-1;a)}(A_{2u})\mathbb{T}_{1,2}^{(b)}(Eu)}{22377916} \\
&- \frac{349\sqrt{729825215}\mathbb{M}_6^{(1,-1;a)}(B_{1u}, 1)\mathbb{T}_{1,1}^{(b)}(Eu)}{83408596} + \frac{9863\sqrt{1605615473}\mathbb{M}_6^{(1,-1;a)}(B_{1u}, 2)\mathbb{T}_{1,1}^{(b)}(Eu)}{917494556} \\
&+ \frac{99\sqrt{145965043}\mathbb{M}_6^{(1,-1;a)}(B_{2u}, 1)\mathbb{T}_{1,2}^{(b)}(Eu)}{4068712} - \frac{7\sqrt{8028077365}\mathbb{M}_6^{(1,-1;a)}(B_{2u}, 2)\mathbb{T}_{1,2}^{(b)}(Eu)}{107940536} \\
\boxed{\text{z1272}} \quad \mathbb{G}_{5,2}^{(1,-1;c)}(E_g, 1b) &= -\frac{10397\sqrt{688120917}\mathbb{M}_6^{(1,-1;a)}(A_{1u}, 1)\mathbb{T}_{1,2}^{(b)}(Eu)}{917494556} + \frac{4691\sqrt{4816846419}\mathbb{M}_6^{(1,-1;a)}(A_{1u}, 2)\mathbb{T}_{1,2}^{(b)}(Eu)}{917494556} + \frac{7\sqrt{9633692838}\mathbb{M}_6^{(1,-1;a)}(A_{2u})\mathbb{T}_{1,1}^{(b)}(Eu)}{22377916} \\
&- \frac{349\sqrt{729825215}\mathbb{M}_6^{(1,-1;a)}(B_{1u}, 1)\mathbb{T}_{1,2}^{(b)}(Eu)}{83408596} + \frac{9863\sqrt{1605615473}\mathbb{M}_6^{(1,-1;a)}(B_{1u}, 2)\mathbb{T}_{1,2}^{(b)}(Eu)}{917494556} \\
&- \frac{99\sqrt{145965043}\mathbb{M}_6^{(1,-1;a)}(B_{2u}, 1)\mathbb{T}_{1,1}^{(b)}(Eu)}{4068712} + \frac{7\sqrt{8028077365}\mathbb{M}_6^{(1,-1;a)}(B_{2u}, 2)\mathbb{T}_{1,1}^{(b)}(Eu)}{107940536}
\end{aligned}$$

$$\begin{aligned}
\boxed{\text{z1273}} \quad \mathbb{G}_{5,1}^{(1,-1;c)}(E_g, 2) &= -\frac{1179\sqrt{9445843995}\mathbb{M}_6^{(1,-1;a)}(A_{1u}, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{359841676} - \frac{1709\sqrt{1349406285}\mathbb{M}_6^{(1,-1;a)}(A_{1u}, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{359841676} \\
&+ \frac{2477\sqrt{2698812570}\mathbb{M}_6^{(1,-1;a)}(A_{2u})\mathbb{T}_{1,2}^{(b)}(E_u)}{359841676} + \frac{1201\sqrt{989564609}\mathbb{M}_6^{(1,-1;a)}(B_{1u}, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{359841676} + \frac{481\sqrt{449802095}\mathbb{M}_6^{(1,-1;a)}(B_{1u}, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{359841676} \\
&+ \frac{841\sqrt{4947823045}\mathbb{M}_6^{(1,-1;a)}(B_{2u}, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{719683352} + \frac{35727\sqrt{89960419}\mathbb{M}_6^{(1,-1;a)}(B_{2u}, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{719683352} \\
\boxed{\text{z1274}} \quad \mathbb{G}_{5,2}^{(1,-1;c)}(E_g, 2) &= \frac{1179\sqrt{9445843995}\mathbb{M}_6^{(1,-1;a)}(A_{1u}, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{359841676} + \frac{1709\sqrt{1349406285}\mathbb{M}_6^{(1,-1;a)}(A_{1u}, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{359841676} + \frac{2477\sqrt{2698812570}\mathbb{M}_6^{(1,-1;a)}(A_{2u})\mathbb{T}_{1,1}^{(b)}(E_u)}{359841676} \\
&+ \frac{1201\sqrt{989564609}\mathbb{M}_6^{(1,-1;a)}(B_{1u}, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{359841676} + \frac{481\sqrt{449802095}\mathbb{M}_6^{(1,-1;a)}(B_{1u}, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{359841676} \\
&- \frac{841\sqrt{4947823045}\mathbb{M}_6^{(1,-1;a)}(B_{2u}, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{719683352} - \frac{35727\sqrt{89960419}\mathbb{M}_6^{(1,-1;a)}(B_{2u}, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{719683352} \\
\boxed{\text{z1275}} \quad \mathbb{G}_{5,1}^{(1,-1;c)}(E_g, 3) &= -\frac{4\sqrt{21049}\mathbb{M}_6^{(1,-1;a)}(A_{1u}, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{3007} - \frac{16\sqrt{3007}\mathbb{M}_6^{(1,-1;a)}(A_{1u}, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{3007} - \frac{12\sqrt{6014}\mathbb{M}_6^{(1,-1;a)}(A_{2u})\mathbb{T}_{1,2}^{(b)}(E_u)}{3007} - \frac{15\sqrt{496155}\mathbb{M}_6^{(1,-1;a)}(B_{1u}, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{24056} \\
&- \frac{5\sqrt{9021}\mathbb{M}_6^{(1,-1;a)}(B_{1u}, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{24056} - \frac{5\sqrt{99231}\mathbb{M}_6^{(1,-1;a)}(B_{2u}, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{6014} + \frac{2\sqrt{45105}\mathbb{M}_6^{(1,-1;a)}(B_{2u}, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{3007} \\
\boxed{\text{z1276}} \quad \mathbb{G}_{5,2}^{(1,-1;c)}(E_g, 3) &= \frac{4\sqrt{21049}\mathbb{M}_6^{(1,-1;a)}(A_{1u}, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{3007} + \frac{16\sqrt{3007}\mathbb{M}_6^{(1,-1;a)}(A_{1u}, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{3007} - \frac{12\sqrt{6014}\mathbb{M}_6^{(1,-1;a)}(A_{2u})\mathbb{T}_{1,1}^{(b)}(E_u)}{3007} - \frac{15\sqrt{496155}\mathbb{M}_6^{(1,-1;a)}(B_{1u}, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{24056} \\
&- \frac{5\sqrt{9021}\mathbb{M}_6^{(1,-1;a)}(B_{1u}, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{24056} + \frac{5\sqrt{99231}\mathbb{M}_6^{(1,-1;a)}(B_{2u}, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{6014} - \frac{2\sqrt{45105}\mathbb{M}_6^{(1,-1;a)}(B_{2u}, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{3007} \\
\boxed{\text{z1277}} \quad \mathbb{G}_{7,1}^{(1,-1;c)}(E_g, 1) &= \frac{\sqrt{5}\mathbb{M}_6^{(1,-1;a)}(B_{1u}, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{8} + \frac{\sqrt{11}\mathbb{M}_6^{(1,-1;a)}(B_{1u}, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{8} - \frac{\mathbb{M}_6^{(1,-1;a)}(B_{2u}, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{2} \\
\boxed{\text{z1278}} \quad \mathbb{G}_{7,2}^{(1,-1;c)}(E_g, 1) &= \frac{\sqrt{5}\mathbb{M}_6^{(1,-1;a)}(B_{1u}, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{8} + \frac{\sqrt{11}\mathbb{M}_6^{(1,-1;a)}(B_{1u}, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{8} + \frac{\mathbb{M}_6^{(1,-1;a)}(B_{2u}, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{2} \\
\boxed{\text{z1279}} \quad \mathbb{G}_{1,1}^{(1,0;c)}(E_g) &= -\frac{\sqrt{5}\mathbb{M}_2^{(1,0;a)}(A_{1u})\mathbb{T}_{1,1}^{(b)}(E_u)}{5} + \frac{\sqrt{15}\mathbb{M}_2^{(1,0;a)}(B_{1u})\mathbb{T}_{1,1}^{(b)}(E_u)}{10} + \frac{\sqrt{15}\mathbb{M}_2^{(1,0;a)}(B_{2u})\mathbb{T}_{1,2}^{(b)}(E_u)}{10} \\
\boxed{\text{z1280}} \quad \mathbb{G}_{1,2}^{(1,0;c)}(E_g) &= \frac{\sqrt{5}\mathbb{M}_2^{(1,0;a)}(A_{1u})\mathbb{T}_{1,2}^{(b)}(E_u)}{5} + \frac{\sqrt{15}\mathbb{M}_2^{(1,0;a)}(B_{1u})\mathbb{T}_{1,2}^{(b)}(E_u)}{10} - \frac{\sqrt{15}\mathbb{M}_2^{(1,0;a)}(B_{2u})\mathbb{T}_{1,1}^{(b)}(E_u)}{10} \\
\boxed{\text{z1281}} \quad \mathbb{G}_{3,1}^{(1,0;c)}(E_g, 1a) &= \frac{\mathbb{M}_2^{(1,0;a)}(B_{1u})\mathbb{T}_{1,1}^{(b)}(E_u)}{2} - \frac{\mathbb{M}_2^{(1,0;a)}(B_{2u})\mathbb{T}_{1,2}^{(b)}(E_u)}{2}
\end{aligned}$$



$$\begin{aligned}
\boxed{\text{z1282}} \quad \mathbb{G}_{3,2}^{(1,0;c)}(E_g, 1a) &= \frac{\mathbb{M}_2^{(1,0;a)}(B_{1u})\mathbb{T}_{1,2}^{(b)}(E_u)}{2} + \frac{\mathbb{M}_2^{(1,0;a)}(B_{2u})\mathbb{T}_{1,1}^{(b)}(E_u)}{2} \\
\boxed{\text{z1283}} \quad \mathbb{G}_{3,1}^{(1,0;c)}(E_g, 1b) &= \frac{97\sqrt{8778}\mathbb{M}_4^{(1,0;a)}(A_{1u}, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{21318} - \frac{\sqrt{6270}\mathbb{M}_4^{(1,0;a)}(A_{1u}, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{1254} + \frac{\sqrt{14630}\mathbb{M}_4^{(1,0;a)}(A_{2u})\mathbb{T}_{1,2}^{(b)}(E_u)}{374} \\
&\quad + \frac{71\sqrt{2090}\mathbb{M}_4^{(1,0;a)}(B_{1u})\mathbb{T}_{1,1}^{(b)}(E_u)}{7106} + \frac{5\sqrt{2090}\mathbb{M}_4^{(1,0;a)}(B_{2u})\mathbb{T}_{1,2}^{(b)}(E_u)}{7106} \\
\boxed{\text{z1284}} \quad \mathbb{G}_{3,2}^{(1,0;c)}(E_g, 1b) &= -\frac{97\sqrt{8778}\mathbb{M}_4^{(1,0;a)}(A_{1u}, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{21318} + \frac{\sqrt{6270}\mathbb{M}_4^{(1,0;a)}(A_{1u}, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{1254} + \frac{\sqrt{14630}\mathbb{M}_4^{(1,0;a)}(A_{2u})\mathbb{T}_{1,1}^{(b)}(E_u)}{374} \\
&\quad + \frac{71\sqrt{2090}\mathbb{M}_4^{(1,0;a)}(B_{1u})\mathbb{T}_{1,2}^{(b)}(E_u)}{7106} - \frac{5\sqrt{2090}\mathbb{M}_4^{(1,0;a)}(B_{2u})\mathbb{T}_{1,1}^{(b)}(E_u)}{7106} \\
\boxed{\text{z1285}} \quad \mathbb{G}_{3,1}^{(1,0;c)}(E_g, 2) &= \frac{\sqrt{105}\mathbb{M}_4^{(1,0;a)}(A_{1u}, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{68} + \frac{\sqrt{3}\mathbb{M}_4^{(1,0;a)}(A_{1u}, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{4} - \frac{3\sqrt{7}\mathbb{M}_4^{(1,0;a)}(A_{2u})\mathbb{T}_{1,2}^{(b)}(E_u)}{34} + \frac{2\mathbb{M}_4^{(1,0;a)}(B_{1u})\mathbb{T}_{1,1}^{(b)}(E_u)}{17} - \frac{8\mathbb{M}_4^{(1,0;a)}(B_{2u})\mathbb{T}_{1,2}^{(b)}(E_u)}{17} \\
\boxed{\text{z1286}} \quad \mathbb{G}_{3,2}^{(1,0;c)}(E_g, 2) &= -\frac{\sqrt{105}\mathbb{M}_4^{(1,0;a)}(A_{1u}, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{68} - \frac{\sqrt{3}\mathbb{M}_4^{(1,0;a)}(A_{1u}, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{4} - \frac{3\sqrt{7}\mathbb{M}_4^{(1,0;a)}(A_{2u})\mathbb{T}_{1,1}^{(b)}(E_u)}{34} + \frac{2\mathbb{M}_4^{(1,0;a)}(B_{1u})\mathbb{T}_{1,2}^{(b)}(E_u)}{17} + \frac{8\mathbb{M}_4^{(1,0;a)}(B_{2u})\mathbb{T}_{1,1}^{(b)}(E_u)}{17} \\
\boxed{\text{z1287}} \quad \mathbb{G}_{5,1}^{(1,0;c)}(E_g, 1) &= \frac{\sqrt{15}\mathbb{M}_4^{(1,0;a)}(A_{1u}, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{12} - \frac{\sqrt{21}\mathbb{M}_4^{(1,0;a)}(A_{1u}, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{12} - \frac{\mathbb{M}_4^{(1,0;a)}(A_{2u})\mathbb{T}_{1,2}^{(b)}(E_u)}{2} \\
\boxed{\text{z1288}} \quad \mathbb{G}_{5,2}^{(1,0;c)}(E_g, 1) &= -\frac{\sqrt{15}\mathbb{M}_4^{(1,0;a)}(A_{1u}, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{12} + \frac{\sqrt{21}\mathbb{M}_4^{(1,0;a)}(A_{1u}, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{12} - \frac{\mathbb{M}_4^{(1,0;a)}(A_{2u})\mathbb{T}_{1,1}^{(b)}(E_u)}{2} \\
\boxed{\text{z1289}} \quad \mathbb{G}_{1,1}^{(1,1;c)}(E_g, a) &= \frac{\sqrt{2}\mathbb{M}_0^{(1,1;a)}(A_{1u})\mathbb{T}_{1,1}^{(b)}(E_u)}{2} \\
\boxed{\text{z1290}} \quad \mathbb{G}_{1,2}^{(1,1;c)}(E_g, a) &= -\frac{\sqrt{2}\mathbb{M}_0^{(1,1;a)}(A_{1u})\mathbb{T}_{1,2}^{(b)}(E_u)}{2} \\
\boxed{\text{z1291}} \quad \mathbb{G}_{1,1}^{(1,1;c)}(E_g, b) &= -\frac{\sqrt{5}\mathbb{M}_2^{(1,1;a)}(A_{1u})\mathbb{T}_{1,1}^{(b)}(E_u)}{5} + \frac{\sqrt{15}\mathbb{M}_2^{(1,1;a)}(B_{1u})\mathbb{T}_{1,1}^{(b)}(E_u)}{10} + \frac{\sqrt{15}\mathbb{M}_2^{(1,1;a)}(B_{2u})\mathbb{T}_{1,2}^{(b)}(E_u)}{10} \\
\boxed{\text{z1292}} \quad \mathbb{G}_{1,2}^{(1,1;c)}(E_g, b) &= \frac{\sqrt{5}\mathbb{M}_2^{(1,1;a)}(A_{1u})\mathbb{T}_{1,2}^{(b)}(E_u)}{5} + \frac{\sqrt{15}\mathbb{M}_2^{(1,1;a)}(B_{1u})\mathbb{T}_{1,2}^{(b)}(E_u)}{10} - \frac{\sqrt{15}\mathbb{M}_2^{(1,1;a)}(B_{2u})\mathbb{T}_{1,1}^{(b)}(E_u)}{10} \\
\boxed{\text{z1293}} \quad \mathbb{G}_{3,1}^{(1,1;c)}(E_g, 1a) &= \frac{\mathbb{M}_2^{(1,1;a)}(B_{1u})\mathbb{T}_{1,1}^{(b)}(E_u)}{2} - \frac{\mathbb{M}_2^{(1,1;a)}(B_{2u})\mathbb{T}_{1,2}^{(b)}(E_u)}{2}
\end{aligned}$$

$$\boxed{\text{z1294}} \quad \mathbb{G}_{3,2}^{(1,1;c)}(E_g, 1a) = \frac{\mathbb{M}_2^{(1,1;a)}(B_{1u})\mathbb{T}_{1,2}^{(b)}(E_u)}{2} + \frac{\mathbb{M}_2^{(1,1;a)}(B_{2u})\mathbb{T}_{1,1}^{(b)}(E_u)}{2}$$

$$\boxed{\text{z1295}} \quad \mathbb{G}_{3,1}^{(1,1;c)}(E_g, 1b) = \frac{97\sqrt{8778}\mathbb{M}_4^{(1,1;a)}(A_{1u}, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{21318} - \frac{\sqrt{6270}\mathbb{M}_4^{(1,1;a)}(A_{1u}, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{1254} + \frac{\sqrt{14630}\mathbb{M}_4^{(1,1;a)}(A_{2u})\mathbb{T}_{1,2}^{(b)}(E_u)}{374} \\ + \frac{71\sqrt{2090}\mathbb{M}_4^{(1,1;a)}(B_{1u})\mathbb{T}_{1,1}^{(b)}(E_u)}{7106} + \frac{5\sqrt{2090}\mathbb{M}_4^{(1,1;a)}(B_{2u})\mathbb{T}_{1,2}^{(b)}(E_u)}{7106}$$

$$\boxed{\text{z1296}} \quad \mathbb{G}_{3,2}^{(1,1;c)}(E_g, 1b) = -\frac{97\sqrt{8778}\mathbb{M}_4^{(1,1;a)}(A_{1u}, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{21318} + \frac{\sqrt{6270}\mathbb{M}_4^{(1,1;a)}(A_{1u}, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{1254} + \frac{\sqrt{14630}\mathbb{M}_4^{(1,1;a)}(A_{2u})\mathbb{T}_{1,1}^{(b)}(E_u)}{374} \\ + \frac{71\sqrt{2090}\mathbb{M}_4^{(1,1;a)}(B_{1u})\mathbb{T}_{1,2}^{(b)}(E_u)}{7106} - \frac{5\sqrt{2090}\mathbb{M}_4^{(1,1;a)}(B_{2u})\mathbb{T}_{1,1}^{(b)}(E_u)}{7106}$$

$$\boxed{\text{z1297}} \quad \mathbb{G}_{3,1}^{(1,1;c)}(E_g, 2) = \frac{\sqrt{105}\mathbb{M}_4^{(1,1;a)}(A_{1u}, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{68} + \frac{\sqrt{3}\mathbb{M}_4^{(1,1;a)}(A_{1u}, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{4} - \frac{3\sqrt{7}\mathbb{M}_4^{(1,1;a)}(A_{2u})\mathbb{T}_{1,2}^{(b)}(E_u)}{34} + \frac{2\mathbb{M}_4^{(1,1;a)}(B_{1u})\mathbb{T}_{1,1}^{(b)}(E_u)}{17} - \frac{8\mathbb{M}_4^{(1,1;a)}(B_{2u})\mathbb{T}_{1,2}^{(b)}(E_u)}{17}$$

$$\boxed{\text{z1298}} \quad \mathbb{G}_{3,2}^{(1,1;c)}(E_g, 2) = -\frac{\sqrt{105}\mathbb{M}_4^{(1,1;a)}(A_{1u}, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{68} - \frac{\sqrt{3}\mathbb{M}_4^{(1,1;a)}(A_{1u}, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{4} - \frac{3\sqrt{7}\mathbb{M}_4^{(1,1;a)}(A_{2u})\mathbb{T}_{1,1}^{(b)}(E_u)}{34} + \frac{2\mathbb{M}_4^{(1,1;a)}(B_{1u})\mathbb{T}_{1,2}^{(b)}(E_u)}{17} + \frac{8\mathbb{M}_4^{(1,1;a)}(B_{2u})\mathbb{T}_{1,1}^{(b)}(E_u)}{17}$$

$$\boxed{\text{z1299}} \quad \mathbb{G}_{5,1}^{(1,1;c)}(E_g, 1) = \frac{\sqrt{15}\mathbb{M}_4^{(1,1;a)}(A_{1u}, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{12} - \frac{\sqrt{21}\mathbb{M}_4^{(1,1;a)}(A_{1u}, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{12} - \frac{\mathbb{M}_4^{(1,1;a)}(A_{2u})\mathbb{T}_{1,2}^{(b)}(E_u)}{2}$$

$$\boxed{\text{z1300}} \quad \mathbb{G}_{5,2}^{(1,1;c)}(E_g, 1) = -\frac{\sqrt{15}\mathbb{M}_4^{(1,1;a)}(A_{1u}, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{12} + \frac{\sqrt{21}\mathbb{M}_4^{(1,1;a)}(A_{1u}, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{12} - \frac{\mathbb{M}_4^{(1,1;a)}(A_{2u})\mathbb{T}_{1,1}^{(b)}(E_u)}{2}$$

$$\boxed{\text{z1301}} \quad \mathbb{G}_{2,1}^{(c)}(E_u) = \frac{\sqrt{2}\mathbb{G}_{2,1}^{(a)}(E_u)\mathbb{Q}_0^{(b)}(A_{1g})}{2}$$

$$\boxed{\text{z1302}} \quad \mathbb{G}_{2,2}^{(c)}(E_u) = \frac{\sqrt{2}\mathbb{G}_{2,2}^{(a)}(E_u)\mathbb{Q}_0^{(b)}(A_{1g})}{2}$$

$$\boxed{\text{z1303}} \quad \mathbb{G}_{4,1}^{(c)}(E_u, 1) = \frac{\sqrt{2}\mathbb{G}_{4,1}^{(a)}(E_u, 1)\mathbb{Q}_0^{(b)}(A_{1g})}{2}$$

$$\boxed{\text{z1304}} \quad \mathbb{G}_{4,2}^{(c)}(E_u, 1) = \frac{\sqrt{2}\mathbb{G}_{4,2}^{(a)}(E_u, 1)\mathbb{Q}_0^{(b)}(A_{1g})}{2}$$

$$\boxed{\text{z1305}} \quad \mathbb{G}_{4,1}^{(c)}(E_u, 2) = \frac{\sqrt{2}\mathbb{G}_{4,1}^{(a)}(E_u, 2)\mathbb{Q}_0^{(b)}(A_{1g})}{2}$$

$$\begin{aligned}
\boxed{\text{z1306}} \quad \mathbb{G}_{4,2}^{(c)}(E_u, 2) &= \frac{\sqrt{2}\mathbb{G}_{4,2}^{(a)}(E_u, 2)\mathbb{Q}_0^{(b)}(A_{1g})}{2} \\
\boxed{\text{z1307}} \quad \mathbb{G}_{2,1}^{(1,-1;c)}(E_u) &= \frac{\sqrt{2}\mathbb{G}_{2,1}^{(1,-1;a)}(E_u)\mathbb{Q}_0^{(b)}(A_{1g})}{2} \\
\boxed{\text{z1308}} \quad \mathbb{G}_{2,2}^{(1,-1;c)}(E_u) &= \frac{\sqrt{2}\mathbb{G}_{2,2}^{(1,-1;a)}(E_u)\mathbb{Q}_0^{(b)}(A_{1g})}{2} \\
\boxed{\text{z1309}} \quad \mathbb{G}_{4,1}^{(1,-1;c)}(E_u, 1) &= \frac{\sqrt{2}\mathbb{G}_{4,1}^{(1,-1;a)}(E_u, 1)\mathbb{Q}_0^{(b)}(A_{1g})}{2} \\
\boxed{\text{z1310}} \quad \mathbb{G}_{4,2}^{(1,-1;c)}(E_u, 1) &= \frac{\sqrt{2}\mathbb{G}_{4,2}^{(1,-1;a)}(E_u, 1)\mathbb{Q}_0^{(b)}(A_{1g})}{2} \\
\boxed{\text{z1311}} \quad \mathbb{G}_{4,1}^{(1,-1;c)}(E_u, 2) &= \frac{\sqrt{2}\mathbb{G}_{4,1}^{(1,-1;a)}(E_u, 2)\mathbb{Q}_0^{(b)}(A_{1g})}{2} \\
\boxed{\text{z1312}} \quad \mathbb{G}_{4,2}^{(1,-1;c)}(E_u, 2) &= \frac{\sqrt{2}\mathbb{G}_{4,2}^{(1,-1;a)}(E_u, 2)\mathbb{Q}_0^{(b)}(A_{1g})}{2} \\
\boxed{\text{z1313}} \quad \mathbb{G}_{6,1}^{(1,-1;c)}(E_u, 1) &= \frac{\sqrt{2}\mathbb{G}_{6,1}^{(1,-1;a)}(E_u, 1)\mathbb{Q}_0^{(b)}(A_{1g})}{2} \\
\boxed{\text{z1314}} \quad \mathbb{G}_{6,2}^{(1,-1;c)}(E_u, 1) &= \frac{\sqrt{2}\mathbb{G}_{6,2}^{(1,-1;a)}(E_u, 1)\mathbb{Q}_0^{(b)}(A_{1g})}{2} \\
\boxed{\text{z1315}} \quad \mathbb{G}_{6,1}^{(1,-1;c)}(E_u, 2) &= \frac{\sqrt{2}\mathbb{G}_{6,1}^{(1,-1;a)}(E_u, 2)\mathbb{Q}_0^{(b)}(A_{1g})}{2} \\
\boxed{\text{z1316}} \quad \mathbb{G}_{6,2}^{(1,-1;c)}(E_u, 2) &= \frac{\sqrt{2}\mathbb{G}_{6,2}^{(1,-1;a)}(E_u, 2)\mathbb{Q}_0^{(b)}(A_{1g})}{2} \\
\boxed{\text{z1317}} \quad \mathbb{G}_{6,1}^{(1,-1;c)}(E_u, 3) &= \frac{\sqrt{2}\mathbb{G}_{6,1}^{(1,-1;a)}(E_u, 3)\mathbb{Q}_0^{(b)}(A_{1g})}{2} \\
\boxed{\text{z1318}} \quad \mathbb{G}_{6,2}^{(1,-1;c)}(E_u, 3) &= \frac{\sqrt{2}\mathbb{G}_{6,2}^{(1,-1;a)}(E_u, 3)\mathbb{Q}_0^{(b)}(A_{1g})}{2} \\
\boxed{\text{z1319}} \quad \mathbb{G}_{2,1}^{(1,0;c)}(E_u) &= \frac{\sqrt{2}\mathbb{G}_{2,1}^{(1,0;a)}(E_u)\mathbb{Q}_0^{(b)}(A_{1g})}{2}
\end{aligned}$$

$$\boxed{\text{z1320}} \quad \mathbb{G}_{2,2}^{(1,0;c)}(E_u) = \frac{\sqrt{2}\mathbb{G}_{2,2}^{(1,0;a)}(E_u)\mathbb{Q}_0^{(b)}(A_{1g})}{2}$$

$$\boxed{\text{z1321}} \quad \mathbb{G}_{4,1}^{(1,0;c)}(E_u, 1) = \frac{\sqrt{2}\mathbb{G}_{4,1}^{(1,0;a)}(E_u, 1)\mathbb{Q}_0^{(b)}(A_{1g})}{2}$$

$$\boxed{\text{z1322}} \quad \mathbb{G}_{4,2}^{(1,0;c)}(E_u, 1) = \frac{\sqrt{2}\mathbb{G}_{4,2}^{(1,0;a)}(E_u, 1)\mathbb{Q}_0^{(b)}(A_{1g})}{2}$$

$$\boxed{\text{z1323}} \quad \mathbb{G}_{4,1}^{(1,0;c)}(E_u, 2) = \frac{\sqrt{2}\mathbb{G}_{4,1}^{(1,0;a)}(E_u, 2)\mathbb{Q}_0^{(b)}(A_{1g})}{2}$$

$$\boxed{\text{z1324}} \quad \mathbb{G}_{4,2}^{(1,0;c)}(E_u, 2) = \frac{\sqrt{2}\mathbb{G}_{4,2}^{(1,0;a)}(E_u, 2)\mathbb{Q}_0^{(b)}(A_{1g})}{2}$$

$$\boxed{\text{z1325}} \quad \mathbb{G}_{2,1}^{(1,1;c)}(E_u) = \frac{\sqrt{2}\mathbb{G}_{2,1}^{(1,1;a)}(E_u)\mathbb{Q}_0^{(b)}(A_{1g})}{2}$$

$$\boxed{\text{z1326}} \quad \mathbb{G}_{2,2}^{(1,1;c)}(E_u) = \frac{\sqrt{2}\mathbb{G}_{2,2}^{(1,1;a)}(E_u)\mathbb{Q}_0^{(b)}(A_{1g})}{2}$$

$$\boxed{\text{z1327}} \quad \mathbb{G}_{4,1}^{(1,1;c)}(E_u, 1) = \frac{\sqrt{2}\mathbb{G}_{4,1}^{(1,1;a)}(E_u, 1)\mathbb{Q}_0^{(b)}(A_{1g})}{2}$$

$$\boxed{\text{z1328}} \quad \mathbb{G}_{4,2}^{(1,1;c)}(E_u, 1) = \frac{\sqrt{2}\mathbb{G}_{4,2}^{(1,1;a)}(E_u, 1)\mathbb{Q}_0^{(b)}(A_{1g})}{2}$$

$$\boxed{\text{z1329}} \quad \mathbb{G}_{4,1}^{(1,1;c)}(E_u, 2) = \frac{\sqrt{2}\mathbb{G}_{4,1}^{(1,1;a)}(E_u, 2)\mathbb{Q}_0^{(b)}(A_{1g})}{2}$$

$$\boxed{\text{z1330}} \quad \mathbb{G}_{4,2}^{(1,1;c)}(E_u, 2) = \frac{\sqrt{2}\mathbb{G}_{4,2}^{(1,1;a)}(E_u, 2)\mathbb{Q}_0^{(b)}(A_{1g})}{2}$$

• 'U'-'U' bond-cluster

- \* bra:  $\langle \frac{5}{2}, \frac{5}{2}; f |, \langle \frac{5}{2}, \frac{3}{2}; f |, \langle \frac{5}{2}, \frac{1}{2}; f |, \langle \frac{5}{2}, -\frac{1}{2}; f |, \langle \frac{5}{2}, -\frac{3}{2}; f |, \langle \frac{5}{2}, -\frac{5}{2}; f |, \langle \frac{7}{2}, \frac{7}{2}; f |, \langle \frac{7}{2}, \frac{5}{2}; f |, \langle \frac{7}{2}, \frac{3}{2}; f |, \langle \frac{7}{2}, \frac{1}{2}; f |, \langle \frac{7}{2}, -\frac{1}{2}; f |, \langle \frac{7}{2}, -\frac{3}{2}; f |, \langle \frac{7}{2}, -\frac{5}{2}; f |, \langle \frac{7}{2}, -\frac{7}{2}; f |$
- \* ket:  $|\frac{5}{2}, \frac{5}{2}; f\rangle, |\frac{5}{2}, \frac{3}{2}; f\rangle, |\frac{5}{2}, \frac{1}{2}; f\rangle, |\frac{5}{2}, -\frac{1}{2}; f\rangle, |\frac{5}{2}, -\frac{3}{2}; f\rangle, |\frac{5}{2}, -\frac{5}{2}; f\rangle, |\frac{7}{2}, \frac{7}{2}; f\rangle, |\frac{7}{2}, \frac{5}{2}; f\rangle, |\frac{7}{2}, \frac{3}{2}; f\rangle, |\frac{7}{2}, \frac{1}{2}; f\rangle, |\frac{7}{2}, -\frac{1}{2}; f\rangle, |\frac{7}{2}, -\frac{3}{2}; f\rangle, |\frac{7}{2}, -\frac{5}{2}; f\rangle, |\frac{7}{2}, -\frac{7}{2}; f\rangle$
- \* wyckoff: 4b@4c

$$\boxed{\text{z76}} \quad \mathbb{Q}_0^{(c)}(A_{1g}, a) = \mathbb{Q}_0^{(a)}(A_{1g})\mathbb{Q}_0^{(b)}(A_{1g})$$

$$\begin{aligned}
\boxed{\text{z77}} \quad \mathbb{Q}_0^{(c)}(A_{1g}, b) &= \mathbb{Q}_2^{(a)}(B_{1g})\mathbb{Q}_2^{(b)}(B_{1g}) \\
\boxed{\text{z78}} \quad \mathbb{Q}_2^{(c)}(A_{1g}, a) &= \mathbb{Q}_2^{(a)}(A_{1g})\mathbb{Q}_0^{(b)}(A_{1g}) \\
\boxed{\text{z79}} \quad \mathbb{Q}_2^{(c)}(A_{1g}, b) &= -\mathbb{Q}_4^{(a)}(B_{1g})\mathbb{Q}_2^{(b)}(B_{1g}) \\
\boxed{\text{z80}} \quad \mathbb{Q}_4^{(c)}(A_{1g}, 1a) &= \mathbb{Q}_4^{(a)}(A_{1g}, 1)\mathbb{Q}_0^{(b)}(A_{1g}) \\
\boxed{\text{z81}} \quad \mathbb{Q}_4^{(c)}(A_{1g}, 1b) &= \mathbb{Q}_6^{(a)}(B_{1g}, 2)\mathbb{Q}_2^{(b)}(B_{1g}) \\
\boxed{\text{z82}} \quad \mathbb{Q}_4^{(c)}(A_{1g}, 2a) &= \mathbb{Q}_4^{(a)}(A_{1g}, 2)\mathbb{Q}_0^{(b)}(A_{1g}) \\
\boxed{\text{z83}} \quad \mathbb{Q}_4^{(c)}(A_{1g}, 2b) &= -\mathbb{Q}_6^{(a)}(B_{1g}, 1)\mathbb{Q}_2^{(b)}(B_{1g}) \\
\boxed{\text{z84}} \quad \mathbb{Q}_6^{(c)}(A_{1g}, 1) &= \mathbb{Q}_6^{(a)}(A_{1g}, 1)\mathbb{Q}_0^{(b)}(A_{1g}) \\
\boxed{\text{z85}} \quad \mathbb{Q}_6^{(c)}(A_{1g}, 2) &= \mathbb{Q}_6^{(a)}(A_{1g}, 2)\mathbb{Q}_0^{(b)}(A_{1g}) \\
\boxed{\text{z86}} \quad \mathbb{Q}_0^{(1,-1;c)}(A_{1g}) &= \mathbb{Q}_2^{(1,-1;a)}(B_{1g})\mathbb{Q}_2^{(b)}(B_{1g}) \\
\boxed{\text{z87}} \quad \mathbb{Q}_2^{(1,-1;c)}(A_{1g}, a) &= \mathbb{Q}_2^{(1,-1;a)}(A_{1g})\mathbb{Q}_0^{(b)}(A_{1g}) \\
\boxed{\text{z88}} \quad \mathbb{Q}_2^{(1,-1;c)}(A_{1g}, b) &= -\mathbb{Q}_4^{(1,-1;a)}(B_{1g})\mathbb{Q}_2^{(b)}(B_{1g}) \\
\boxed{\text{z89}} \quad \mathbb{Q}_4^{(1,-1;c)}(A_{1g}, 1a) &= \mathbb{Q}_4^{(1,-1;a)}(A_{1g}, 1)\mathbb{Q}_0^{(b)}(A_{1g}) \\
\boxed{\text{z90}} \quad \mathbb{Q}_4^{(1,-1;c)}(A_{1g}, 1b) &= \mathbb{Q}_6^{(1,-1;a)}(B_{1g}, 2)\mathbb{Q}_2^{(b)}(B_{1g}) \\
\boxed{\text{z91}} \quad \mathbb{Q}_4^{(1,-1;c)}(A_{1g}, 2a) &= \mathbb{Q}_4^{(1,-1;a)}(A_{1g}, 2)\mathbb{Q}_0^{(b)}(A_{1g}) \\
\boxed{\text{z92}} \quad \mathbb{Q}_4^{(1,-1;c)}(A_{1g}, 2b) &= -\mathbb{Q}_6^{(1,-1;a)}(B_{1g}, 1)\mathbb{Q}_2^{(b)}(B_{1g}) \\
\boxed{\text{z93}} \quad \mathbb{Q}_6^{(1,-1;c)}(A_{1g}, 1) &= \mathbb{Q}_6^{(1,-1;a)}(A_{1g}, 1)\mathbb{Q}_0^{(b)}(A_{1g}) \\
\boxed{\text{z94}} \quad \mathbb{Q}_6^{(1,-1;c)}(A_{1g}, 2) &= \mathbb{Q}_6^{(1,-1;a)}(A_{1g}, 2)\mathbb{Q}_0^{(b)}(A_{1g}) \\
\boxed{\text{z95}} \quad \mathbb{Q}_2^{(1,0;c)}(A_{1g}) &= -\mathbb{G}_3^{(1,0;a)}(B_{1g})\mathbb{Q}_2^{(b)}(B_{1g})
\end{aligned}$$

$$\boxed{\text{z96}} \quad \mathbb{Q}_4^{(1,0;c)}(A_{1g}, 1) = \mathbb{G}_5^{(1,0;a)}(B_{1g})\mathbb{Q}_2^{(b)}(B_{1g})$$

$$\boxed{\text{z97}} \quad \mathbb{Q}_0^{(1,1;c)}(A_{1g}, a) = \mathbb{Q}_0^{(1,1;a)}(A_{1g})\mathbb{Q}_0^{(b)}(A_{1g})$$

$$\boxed{\text{z98}} \quad \mathbb{Q}_0^{(1,1;c)}(A_{1g}, b) = \mathbb{Q}_2^{(1,1;a)}(B_{1g})\mathbb{Q}_2^{(b)}(B_{1g})$$

$$\boxed{\text{z99}} \quad \mathbb{Q}_2^{(1,1;c)}(A_{1g}, a) = \mathbb{Q}_2^{(1,1;a)}(A_{1g})\mathbb{Q}_0^{(b)}(A_{1g})$$

$$\boxed{\text{z100}} \quad \mathbb{Q}_2^{(1,1;c)}(A_{1g}, b) = -\mathbb{Q}_4^{(1,1;a)}(B_{1g})\mathbb{Q}_2^{(b)}(B_{1g})$$

$$\boxed{\text{z101}} \quad \mathbb{Q}_4^{(1,1;c)}(A_{1g}, 1) = \mathbb{Q}_4^{(1,1;a)}(A_{1g}, 1)\mathbb{Q}_0^{(b)}(A_{1g})$$

$$\boxed{\text{z102}} \quad \mathbb{Q}_4^{(1,1;c)}(A_{1g}, 2) = \mathbb{Q}_4^{(1,1;a)}(A_{1g}, 2)\mathbb{Q}_0^{(b)}(A_{1g})$$

$$\boxed{\text{z103}} \quad \mathbb{Q}_5^{(c)}(A_{1u}) = \frac{\sqrt{14}\mathbb{M}_{5,1}^{(a)}(E_g, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{7} - \frac{\sqrt{42}\mathbb{M}_{5,1}^{(a)}(E_g, 3)\mathbb{T}_{1,1}^{(b)}(E_u)}{14} - \frac{\sqrt{14}\mathbb{M}_{5,2}^{(a)}(E_g, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{7} + \frac{\sqrt{42}\mathbb{M}_{5,2}^{(a)}(E_g, 3)\mathbb{T}_{1,2}^{(b)}(E_u)}{14}$$

$$\boxed{\text{z162}} \quad \mathbb{Q}_5^{(1,-1;c)}(A_{1u}) = \frac{\sqrt{14}\mathbb{M}_{5,1}^{(1,-1;a)}(E_g, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{7} - \frac{\sqrt{42}\mathbb{M}_{5,1}^{(1,-1;a)}(E_g, 3)\mathbb{T}_{1,1}^{(b)}(E_u)}{14} - \frac{\sqrt{14}\mathbb{M}_{5,2}^{(1,-1;a)}(E_g, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{7} + \frac{\sqrt{42}\mathbb{M}_{5,2}^{(1,-1;a)}(E_g, 3)\mathbb{T}_{1,2}^{(b)}(E_u)}{14}$$

$$\boxed{\text{z163}} \quad \mathbb{Q}_7^{(1,-1;c)}(A_{1u}) = \frac{\sqrt{10}\mathbb{M}_{7,1}^{(1,-1;a)}(E_g, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{10} - \frac{3\sqrt{65}\mathbb{M}_{7,1}^{(1,-1;a)}(E_g, 3)\mathbb{T}_{1,1}^{(b)}(E_u)}{40} + \frac{\sqrt{55}\mathbb{M}_{7,1}^{(1,-1;a)}(E_g, 4)\mathbb{T}_{1,1}^{(b)}(E_u)}{40} \\ - \frac{\sqrt{10}\mathbb{M}_{7,2}^{(1,-1;a)}(E_g, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{10} + \frac{3\sqrt{65}\mathbb{M}_{7,2}^{(1,-1;a)}(E_g, 3)\mathbb{T}_{1,2}^{(b)}(E_u)}{40} - \frac{\sqrt{55}\mathbb{M}_{7,2}^{(1,-1;a)}(E_g, 4)\mathbb{T}_{1,2}^{(b)}(E_u)}{40}$$

$$\boxed{\text{z164}} \quad \mathbb{Q}_5^{(1,0;c)}(A_{1u}, a) = -\frac{\mathbb{T}_{4,1}^{(1,0;a)}(E_g, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{4} + \frac{\sqrt{7}\mathbb{T}_{4,1}^{(1,0;a)}(E_g, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{4} + \frac{\mathbb{T}_{4,2}^{(1,0;a)}(E_g, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{4} - \frac{\sqrt{7}\mathbb{T}_{4,2}^{(1,0;a)}(E_g, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{4}$$

$$\boxed{\text{z165}} \quad \mathbb{Q}_5^{(1,0;c)}(A_{1u}, b) = -\frac{\sqrt{290}\mathbb{T}_{6,1}^{(1,0;a)}(E_g, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{58} + \frac{2\sqrt{87}\mathbb{T}_{6,1}^{(1,0;a)}(E_g, 3)\mathbb{T}_{1,1}^{(b)}(E_u)}{29} + \frac{\sqrt{290}\mathbb{T}_{6,2}^{(1,0;a)}(E_g, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{58} - \frac{2\sqrt{87}\mathbb{T}_{6,2}^{(1,0;a)}(E_g, 3)\mathbb{T}_{1,2}^{(b)}(E_u)}{29}$$

$$\boxed{\text{z166}} \quad \mathbb{Q}_7^{(1,0;c)}(A_{1u}) = -\frac{3\sqrt{1914}\mathbb{T}_{6,1}^{(1,0;a)}(E_g, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{232} + \frac{\sqrt{29}\mathbb{T}_{6,1}^{(1,0;a)}(E_g, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{16} - \frac{3\sqrt{1595}\mathbb{T}_{6,1}^{(1,0;a)}(E_g, 3)\mathbb{T}_{1,1}^{(b)}(E_u)}{464} \\ + \frac{3\sqrt{1914}\mathbb{T}_{6,2}^{(1,0;a)}(E_g, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{232} - \frac{\sqrt{29}\mathbb{T}_{6,2}^{(1,0;a)}(E_g, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{16} + \frac{3\sqrt{1595}\mathbb{T}_{6,2}^{(1,0;a)}(E_g, 3)\mathbb{T}_{1,2}^{(b)}(E_u)}{464}$$

$$\boxed{\text{z167}} \quad \mathbb{Q}_5^{(1,1;c)}(A_{1u}) = \frac{\sqrt{14}\mathbb{M}_{5,1}^{(1,1;a)}(E_g, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{7} - \frac{\sqrt{42}\mathbb{M}_{5,1}^{(1,1;a)}(E_g, 3)\mathbb{T}_{1,1}^{(b)}(E_u)}{14} - \frac{\sqrt{14}\mathbb{M}_{5,2}^{(1,1;a)}(E_g, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{7} + \frac{\sqrt{42}\mathbb{M}_{5,2}^{(1,1;a)}(E_g, 3)\mathbb{T}_{1,2}^{(b)}(E_u)}{14}$$

$$\begin{aligned}
\boxed{\text{z168}} \quad \mathbb{Q}_4^{(c)}(A_{2g}, a) &= \mathbb{Q}_2^{(a)}(B_{2g})\mathbb{Q}_2^{(b)}(B_{1g}) \\
\boxed{\text{z169}} \quad \mathbb{Q}_4^{(c)}(A_{2g}, b) &= \mathbb{Q}_4^{(a)}(A_{2g})\mathbb{Q}_0^{(b)}(A_{1g}) \\
\boxed{\text{z170}} \quad \mathbb{Q}_4^{(c)}(A_{2g}, c) &= -\mathbb{Q}_4^{(a)}(B_{2g})\mathbb{Q}_2^{(b)}(B_{1g}) \\
\boxed{\text{z171}} \quad \mathbb{Q}_4^{(c)}(A_{2g}, d) &= \frac{3\sqrt{1705}\mathbb{Q}_6^{(a)}(B_{2g}, 1)\mathbb{Q}_2^{(b)}(B_{1g})}{124} + \frac{\sqrt{31}\mathbb{Q}_6^{(a)}(B_{2g}, 2)\mathbb{Q}_2^{(b)}(B_{1g})}{124} \\
\boxed{\text{z172}} \quad \mathbb{Q}_6^{(c)}(A_{2g}, a) &= \mathbb{Q}_6^{(a)}(A_{2g})\mathbb{Q}_0^{(b)}(A_{1g}) \\
\boxed{\text{z173}} \quad \mathbb{Q}_6^{(c)}(A_{2g}, b) &= \frac{\sqrt{31}\mathbb{Q}_6^{(a)}(B_{2g}, 1)\mathbb{Q}_2^{(b)}(B_{1g})}{124} - \frac{3\sqrt{1705}\mathbb{Q}_6^{(a)}(B_{2g}, 2)\mathbb{Q}_2^{(b)}(B_{1g})}{124} \\
\boxed{\text{z174}} \quad \mathbb{Q}_4^{(1, -1; c)}(A_{2g}, a) &= \mathbb{Q}_2^{(1, -1; a)}(B_{2g})\mathbb{Q}_2^{(b)}(B_{1g}) \\
\boxed{\text{z175}} \quad \mathbb{Q}_4^{(1, -1; c)}(A_{2g}, b) &= \mathbb{Q}_4^{(1, -1; a)}(A_{2g})\mathbb{Q}_0^{(b)}(A_{1g}) \\
\boxed{\text{z176}} \quad \mathbb{Q}_4^{(1, -1; c)}(A_{2g}, c) &= -\mathbb{Q}_4^{(1, -1; a)}(B_{2g})\mathbb{Q}_2^{(b)}(B_{1g}) \\
\boxed{\text{z177}} \quad \mathbb{Q}_4^{(1, -1; c)}(A_{2g}, d) &= \frac{3\sqrt{1705}\mathbb{Q}_6^{(1, -1; a)}(B_{2g}, 1)\mathbb{Q}_2^{(b)}(B_{1g})}{124} + \frac{\sqrt{31}\mathbb{Q}_6^{(1, -1; a)}(B_{2g}, 2)\mathbb{Q}_2^{(b)}(B_{1g})}{124} \\
\boxed{\text{z178}} \quad \mathbb{Q}_6^{(1, -1; c)}(A_{2g}, a) &= \mathbb{Q}_6^{(1, -1; a)}(A_{2g})\mathbb{Q}_0^{(b)}(A_{1g}) \\
\boxed{\text{z179}} \quad \mathbb{Q}_6^{(1, -1; c)}(A_{2g}, b) &= \frac{\sqrt{31}\mathbb{Q}_6^{(1, -1; a)}(B_{2g}, 1)\mathbb{Q}_2^{(b)}(B_{1g})}{124} - \frac{3\sqrt{1705}\mathbb{Q}_6^{(1, -1; a)}(B_{2g}, 2)\mathbb{Q}_2^{(b)}(B_{1g})}{124} \\
\boxed{\text{z180}} \quad \mathbb{Q}_4^{(1, 0; c)}(A_{2g}, a) &= -\mathbb{G}_5^{(1, 0; a)}(B_{2g})\mathbb{Q}_2^{(b)}(B_{1g}) \\
\boxed{\text{z181}} \quad \mathbb{Q}_4^{(1, 0; c)}(A_{2g}, b) &= \mathbb{G}_3^{(1, 0; a)}(B_{2g})\mathbb{Q}_2^{(b)}(B_{1g}) \\
\boxed{\text{z182}} \quad \mathbb{Q}_4^{(1, 1; c)}(A_{2g}, a) &= \mathbb{Q}_2^{(1, 1; a)}(B_{2g})\mathbb{Q}_2^{(b)}(B_{1g}) \\
\boxed{\text{z251}} \quad \mathbb{Q}_4^{(1, 1; c)}(A_{2g}, b) &= \mathbb{Q}_4^{(1, 1; a)}(A_{2g})\mathbb{Q}_0^{(b)}(A_{1g}) \\
\boxed{\text{z252}} \quad \mathbb{Q}_4^{(1, 1; c)}(A_{2g}, c) &= -\mathbb{Q}_4^{(1, 1; a)}(B_{2g})\mathbb{Q}_2^{(b)}(B_{1g})
\end{aligned}$$

$$\begin{aligned}
\text{z253} \quad \mathbb{Q}_1^{(c)}(A_{2u}) &= \frac{\sqrt{2}\mathbb{M}_{1,1}^{(a)}(E_g)\mathbb{T}_{1,2}^{(b)}(E_u)}{2} + \frac{\sqrt{2}\mathbb{M}_{1,2}^{(a)}(E_g)\mathbb{T}_{1,1}^{(b)}(E_u)}{2} \\
\text{z254} \quad \mathbb{Q}_3^{(c)}(A_{2u}) &= -\frac{\sqrt{3}\mathbb{M}_{3,1}^{(a)}(E_g,1)\mathbb{T}_{1,2}^{(b)}(E_u)}{4} - \frac{\sqrt{5}\mathbb{M}_{3,1}^{(a)}(E_g,2)\mathbb{T}_{1,2}^{(b)}(E_u)}{4} - \frac{\sqrt{3}\mathbb{M}_{3,2}^{(a)}(E_g,1)\mathbb{T}_{1,1}^{(b)}(E_u)}{4} - \frac{\sqrt{5}\mathbb{M}_{3,2}^{(a)}(E_g,2)\mathbb{T}_{1,1}^{(b)}(E_u)}{4} \\
\text{z255} \quad \mathbb{Q}_5^{(c)}(A_{2u},1) &= \frac{\sqrt{30}\mathbb{M}_{5,1}^{(a)}(E_g,1)\mathbb{T}_{1,2}^{(b)}(E_u)}{16} + \frac{\sqrt{42}\mathbb{M}_{5,1}^{(a)}(E_g,2)\mathbb{T}_{1,2}^{(b)}(E_u)}{16} + \frac{\sqrt{14}\mathbb{M}_{5,1}^{(a)}(E_g,3)\mathbb{T}_{1,2}^{(b)}(E_u)}{8} + \frac{\sqrt{30}\mathbb{M}_{5,2}^{(a)}(E_g,1)\mathbb{T}_{1,1}^{(b)}(E_u)}{16} + \frac{\sqrt{42}\mathbb{M}_{5,2}^{(a)}(E_g,2)\mathbb{T}_{1,1}^{(b)}(E_u)}{16} + \frac{\sqrt{14}\mathbb{M}_{5,2}^{(a)}(E_g,3)\mathbb{T}_{1,1}^{(b)}(E_u)}{8} \\
\text{z256} \quad \mathbb{Q}_5^{(c)}(A_{2u},2) &= \frac{3\sqrt{10}\mathbb{M}_{5,1}^{(a)}(E_g,1)\mathbb{T}_{1,2}^{(b)}(E_u)}{16} - \frac{11\sqrt{14}\mathbb{M}_{5,1}^{(a)}(E_g,2)\mathbb{T}_{1,2}^{(b)}(E_u)}{112} - \frac{\sqrt{42}\mathbb{M}_{5,1}^{(a)}(E_g,3)\mathbb{T}_{1,2}^{(b)}(E_u)}{56} \\
&\quad + \frac{3\sqrt{10}\mathbb{M}_{5,2}^{(a)}(E_g,1)\mathbb{T}_{1,1}^{(b)}(E_u)}{16} - \frac{11\sqrt{14}\mathbb{M}_{5,2}^{(a)}(E_g,2)\mathbb{T}_{1,1}^{(b)}(E_u)}{112} - \frac{\sqrt{42}\mathbb{M}_{5,2}^{(a)}(E_g,3)\mathbb{T}_{1,1}^{(b)}(E_u)}{56} \\
\text{z257} \quad \mathbb{Q}_1^{(1,-1;c)}(A_{2u}) &= \frac{\sqrt{2}\mathbb{M}_{1,1}^{(1,-1;a)}(E_g)\mathbb{T}_{1,2}^{(b)}(E_u)}{2} + \frac{\sqrt{2}\mathbb{M}_{1,2}^{(1,-1;a)}(E_g)\mathbb{T}_{1,1}^{(b)}(E_u)}{2} \\
\text{z258} \quad \mathbb{Q}_3^{(1,-1;c)}(A_{2u}) &= -\frac{\sqrt{3}\mathbb{M}_{3,1}^{(1,-1;a)}(E_g,1)\mathbb{T}_{1,2}^{(b)}(E_u)}{4} - \frac{\sqrt{5}\mathbb{M}_{3,1}^{(1,-1;a)}(E_g,2)\mathbb{T}_{1,2}^{(b)}(E_u)}{4} - \frac{\sqrt{3}\mathbb{M}_{3,2}^{(1,-1;a)}(E_g,1)\mathbb{T}_{1,1}^{(b)}(E_u)}{4} - \frac{\sqrt{5}\mathbb{M}_{3,2}^{(1,-1;a)}(E_g,2)\mathbb{T}_{1,1}^{(b)}(E_u)}{4} \\
\text{z259} \quad \mathbb{Q}_5^{(1,-1;c)}(A_{2u},1) &= \frac{\sqrt{30}\mathbb{M}_{5,1}^{(1,-1;a)}(E_g,1)\mathbb{T}_{1,2}^{(b)}(E_u)}{16} + \frac{\sqrt{42}\mathbb{M}_{5,1}^{(1,-1;a)}(E_g,2)\mathbb{T}_{1,2}^{(b)}(E_u)}{16} + \frac{\sqrt{14}\mathbb{M}_{5,1}^{(1,-1;a)}(E_g,3)\mathbb{T}_{1,2}^{(b)}(E_u)}{8} \\
&\quad + \frac{\sqrt{30}\mathbb{M}_{5,2}^{(1,-1;a)}(E_g,1)\mathbb{T}_{1,1}^{(b)}(E_u)}{16} + \frac{\sqrt{42}\mathbb{M}_{5,2}^{(1,-1;a)}(E_g,2)\mathbb{T}_{1,1}^{(b)}(E_u)}{16} + \frac{\sqrt{14}\mathbb{M}_{5,2}^{(1,-1;a)}(E_g,3)\mathbb{T}_{1,1}^{(b)}(E_u)}{8} \\
\text{z260} \quad \mathbb{Q}_5^{(1,-1;c)}(A_{2u},2) &= \frac{3\sqrt{10}\mathbb{M}_{5,1}^{(1,-1;a)}(E_g,1)\mathbb{T}_{1,2}^{(b)}(E_u)}{16} - \frac{11\sqrt{14}\mathbb{M}_{5,1}^{(1,-1;a)}(E_g,2)\mathbb{T}_{1,2}^{(b)}(E_u)}{112} - \frac{\sqrt{42}\mathbb{M}_{5,1}^{(1,-1;a)}(E_g,3)\mathbb{T}_{1,2}^{(b)}(E_u)}{56} \\
&\quad + \frac{3\sqrt{10}\mathbb{M}_{5,2}^{(1,-1;a)}(E_g,1)\mathbb{T}_{1,1}^{(b)}(E_u)}{16} - \frac{11\sqrt{14}\mathbb{M}_{5,2}^{(1,-1;a)}(E_g,2)\mathbb{T}_{1,1}^{(b)}(E_u)}{112} - \frac{\sqrt{42}\mathbb{M}_{5,2}^{(1,-1;a)}(E_g,3)\mathbb{T}_{1,1}^{(b)}(E_u)}{56} \\
\text{z261} \quad \mathbb{Q}_7^{(1,-1;c)}(A_{2u},1) &= -\frac{5\sqrt{14}\mathbb{M}_{7,1}^{(1,-1;a)}(E_g,1)\mathbb{T}_{1,2}^{(b)}(E_u)}{64} - \frac{3\sqrt{66}\mathbb{M}_{7,1}^{(1,-1;a)}(E_g,2)\mathbb{T}_{1,2}^{(b)}(E_u)}{64} - \frac{\sqrt{429}\mathbb{M}_{7,1}^{(1,-1;a)}(E_g,3)\mathbb{T}_{1,2}^{(b)}(E_u)}{64} - \frac{15\sqrt{3}\mathbb{M}_{7,1}^{(1,-1;a)}(E_g,4)\mathbb{T}_{1,2}^{(b)}(E_u)}{64} \\
&\quad - \frac{5\sqrt{14}\mathbb{M}_{7,2}^{(1,-1;a)}(E_g,1)\mathbb{T}_{1,1}^{(b)}(E_u)}{64} - \frac{3\sqrt{66}\mathbb{M}_{7,2}^{(1,-1;a)}(E_g,2)\mathbb{T}_{1,1}^{(b)}(E_u)}{64} - \frac{\sqrt{429}\mathbb{M}_{7,2}^{(1,-1;a)}(E_g,3)\mathbb{T}_{1,1}^{(b)}(E_u)}{64} - \frac{15\sqrt{3}\mathbb{M}_{7,2}^{(1,-1;a)}(E_g,4)\mathbb{T}_{1,1}^{(b)}(E_u)}{64} \\
\text{z262} \quad \mathbb{Q}_7^{(1,-1;c)}(A_{2u},2) &= -\frac{3\sqrt{2310}\mathbb{M}_{7,1}^{(1,-1;a)}(E_g,1)\mathbb{T}_{1,2}^{(b)}(E_u)}{320} + \frac{43\sqrt{10}\mathbb{M}_{7,1}^{(1,-1;a)}(E_g,2)\mathbb{T}_{1,2}^{(b)}(E_u)}{320} + \frac{9\sqrt{65}\mathbb{M}_{7,1}^{(1,-1;a)}(E_g,3)\mathbb{T}_{1,2}^{(b)}(E_u)}{320} - \frac{11\sqrt{55}\mathbb{M}_{7,1}^{(1,-1;a)}(E_g,4)\mathbb{T}_{1,2}^{(b)}(E_u)}{320} \\
&\quad - \frac{3\sqrt{2310}\mathbb{M}_{7,2}^{(1,-1;a)}(E_g,1)\mathbb{T}_{1,1}^{(b)}(E_u)}{320} + \frac{43\sqrt{10}\mathbb{M}_{7,2}^{(1,-1;a)}(E_g,2)\mathbb{T}_{1,1}^{(b)}(E_u)}{320} + \frac{9\sqrt{65}\mathbb{M}_{7,2}^{(1,-1;a)}(E_g,3)\mathbb{T}_{1,1}^{(b)}(E_u)}{320} - \frac{11\sqrt{55}\mathbb{M}_{7,2}^{(1,-1;a)}(E_g,4)\mathbb{T}_{1,1}^{(b)}(E_u)}{320}
\end{aligned}$$



$$\begin{aligned}
\text{z263} \quad \mathbb{Q}_1^{(1,0;c)}(A_{2u}) &= \frac{\sqrt{2}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{T}_{1,2}^{(b)}(E_u)}{2} + \frac{\sqrt{2}\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{T}_{1,1}^{(b)}(E_u)}{2} \\
\text{z264} \quad \mathbb{Q}_3^{(1,0;c)}(A_{2u}) &= -\frac{\sqrt{7}\mathbb{T}_{4,1}^{(1,0;a)}(E_g,1)\mathbb{T}_{1,2}^{(b)}(E_u)}{4} - \frac{\mathbb{T}_{4,1}^{(1,0;a)}(E_g,2)\mathbb{T}_{1,2}^{(b)}(E_u)}{4} - \frac{\sqrt{7}\mathbb{T}_{4,2}^{(1,0;a)}(E_g,1)\mathbb{T}_{1,1}^{(b)}(E_u)}{4} - \frac{\mathbb{T}_{4,2}^{(1,0;a)}(E_g,2)\mathbb{T}_{1,1}^{(b)}(E_u)}{4} \\
\text{z265} \quad \mathbb{Q}_5^{(1,0;c)}(A_{2u},1) &= \frac{\sqrt{6}\mathbb{T}_{6,1}^{(1,0;a)}(E_g,1)\mathbb{T}_{1,2}^{(b)}(E_u)}{8} + \frac{3\sqrt{11}\mathbb{T}_{6,1}^{(1,0;a)}(E_g,2)\mathbb{T}_{1,2}^{(b)}(E_u)}{16} + \frac{\sqrt{5}\mathbb{T}_{6,1}^{(1,0;a)}(E_g,3)\mathbb{T}_{1,2}^{(b)}(E_u)}{16} \\
&\quad + \frac{\sqrt{6}\mathbb{T}_{6,2}^{(1,0;a)}(E_g,1)\mathbb{T}_{1,1}^{(b)}(E_u)}{8} + \frac{3\sqrt{11}\mathbb{T}_{6,2}^{(1,0;a)}(E_g,2)\mathbb{T}_{1,1}^{(b)}(E_u)}{16} + \frac{\sqrt{5}\mathbb{T}_{6,2}^{(1,0;a)}(E_g,3)\mathbb{T}_{1,1}^{(b)}(E_u)}{16} \\
\text{z266} \quad \mathbb{Q}_5^{(1,0;c)}(A_{2u},2a) &= \frac{\mathbb{T}_{4,1}^{(1,0;a)}(E_g,1)\mathbb{T}_{1,2}^{(b)}(E_u)}{4} - \frac{\sqrt{7}\mathbb{T}_{4,1}^{(1,0;a)}(E_g,2)\mathbb{T}_{1,2}^{(b)}(E_u)}{4} + \frac{\mathbb{T}_{4,2}^{(1,0;a)}(E_g,1)\mathbb{T}_{1,1}^{(b)}(E_u)}{4} - \frac{\sqrt{7}\mathbb{T}_{4,2}^{(1,0;a)}(E_g,2)\mathbb{T}_{1,1}^{(b)}(E_u)}{4} \\
\text{z267} \quad \mathbb{Q}_5^{(1,0;c)}(A_{2u},2b) &= -\frac{7\sqrt{290}\mathbb{T}_{6,1}^{(1,0;a)}(E_g,1)\mathbb{T}_{1,2}^{(b)}(E_u)}{232} + \frac{\sqrt{4785}\mathbb{T}_{6,1}^{(1,0;a)}(E_g,2)\mathbb{T}_{1,2}^{(b)}(E_u)}{464} + \frac{23\sqrt{87}\mathbb{T}_{6,1}^{(1,0;a)}(E_g,3)\mathbb{T}_{1,2}^{(b)}(E_u)}{464} \\
&\quad - \frac{7\sqrt{290}\mathbb{T}_{6,2}^{(1,0;a)}(E_g,1)\mathbb{T}_{1,1}^{(b)}(E_u)}{232} + \frac{\sqrt{4785}\mathbb{T}_{6,2}^{(1,0;a)}(E_g,2)\mathbb{T}_{1,1}^{(b)}(E_u)}{464} + \frac{23\sqrt{87}\mathbb{T}_{6,2}^{(1,0;a)}(E_g,3)\mathbb{T}_{1,1}^{(b)}(E_u)}{464} \\
\text{z268} \quad \mathbb{Q}_7^{(1,0;c)}(A_{2u},2) &= \frac{\sqrt{1914}\mathbb{T}_{6,1}^{(1,0;a)}(E_g,1)\mathbb{T}_{1,2}^{(b)}(E_u)}{116} - \frac{13\sqrt{29}\mathbb{T}_{6,1}^{(1,0;a)}(E_g,2)\mathbb{T}_{1,2}^{(b)}(E_u)}{232} + \frac{3\sqrt{1595}\mathbb{T}_{6,1}^{(1,0;a)}(E_g,3)\mathbb{T}_{1,2}^{(b)}(E_u)}{232} \\
&\quad + \frac{\sqrt{1914}\mathbb{T}_{6,2}^{(1,0;a)}(E_g,1)\mathbb{T}_{1,1}^{(b)}(E_u)}{116} - \frac{13\sqrt{29}\mathbb{T}_{6,2}^{(1,0;a)}(E_g,2)\mathbb{T}_{1,1}^{(b)}(E_u)}{232} + \frac{3\sqrt{1595}\mathbb{T}_{6,2}^{(1,0;a)}(E_g,3)\mathbb{T}_{1,1}^{(b)}(E_u)}{232} \\
\text{z269} \quad \mathbb{Q}_1^{(1,1;c)}(A_{2u}) &= \frac{\sqrt{2}\mathbb{M}_{1,1}^{(1,1;a)}(E_g)\mathbb{T}_{1,2}^{(b)}(E_u)}{2} + \frac{\sqrt{2}\mathbb{M}_{1,2}^{(1,1;a)}(E_g)\mathbb{T}_{1,1}^{(b)}(E_u)}{2} \\
\text{z270} \quad \mathbb{Q}_3^{(1,1;c)}(A_{2u}) &= -\frac{\sqrt{3}\mathbb{M}_{3,1}^{(1,1;a)}(E_g,1)\mathbb{T}_{1,2}^{(b)}(E_u)}{4} - \frac{\sqrt{5}\mathbb{M}_{3,1}^{(1,1;a)}(E_g,2)\mathbb{T}_{1,2}^{(b)}(E_u)}{4} - \frac{\sqrt{3}\mathbb{M}_{3,2}^{(1,1;a)}(E_g,1)\mathbb{T}_{1,1}^{(b)}(E_u)}{4} - \frac{\sqrt{5}\mathbb{M}_{3,2}^{(1,1;a)}(E_g,2)\mathbb{T}_{1,1}^{(b)}(E_u)}{4} \\
\text{z271} \quad \mathbb{Q}_5^{(1,1;c)}(A_{2u},1) &= \frac{\sqrt{30}\mathbb{M}_{5,1}^{(1,1;a)}(E_g,1)\mathbb{T}_{1,2}^{(b)}(E_u)}{16} + \frac{\sqrt{42}\mathbb{M}_{5,1}^{(1,1;a)}(E_g,2)\mathbb{T}_{1,2}^{(b)}(E_u)}{16} + \frac{\sqrt{14}\mathbb{M}_{5,1}^{(1,1;a)}(E_g,3)\mathbb{T}_{1,2}^{(b)}(E_u)}{8} \\
&\quad + \frac{\sqrt{30}\mathbb{M}_{5,2}^{(1,1;a)}(E_g,1)\mathbb{T}_{1,1}^{(b)}(E_u)}{16} + \frac{\sqrt{42}\mathbb{M}_{5,2}^{(1,1;a)}(E_g,2)\mathbb{T}_{1,1}^{(b)}(E_u)}{16} + \frac{\sqrt{14}\mathbb{M}_{5,2}^{(1,1;a)}(E_g,3)\mathbb{T}_{1,1}^{(b)}(E_u)}{8} \\
\text{z272} \quad \mathbb{Q}_5^{(1,1;c)}(A_{2u},2) &= \frac{3\sqrt{10}\mathbb{M}_{5,1}^{(1,1;a)}(E_g,1)\mathbb{T}_{1,2}^{(b)}(E_u)}{16} - \frac{11\sqrt{14}\mathbb{M}_{5,1}^{(1,1;a)}(E_g,2)\mathbb{T}_{1,2}^{(b)}(E_u)}{112} - \frac{\sqrt{42}\mathbb{M}_{5,1}^{(1,1;a)}(E_g,3)\mathbb{T}_{1,2}^{(b)}(E_u)}{56} \\
&\quad + \frac{3\sqrt{10}\mathbb{M}_{5,2}^{(1,1;a)}(E_g,1)\mathbb{T}_{1,1}^{(b)}(E_u)}{16} - \frac{11\sqrt{14}\mathbb{M}_{5,2}^{(1,1;a)}(E_g,2)\mathbb{T}_{1,1}^{(b)}(E_u)}{112} - \frac{\sqrt{42}\mathbb{M}_{5,2}^{(1,1;a)}(E_g,3)\mathbb{T}_{1,1}^{(b)}(E_u)}{56}
\end{aligned}$$

$$\begin{aligned}
\boxed{\text{z273}} \quad \mathbb{Q}_2^{(c)}(B_{1g}, a) &= \mathbb{Q}_0^{(a)}(A_{1g})\mathbb{Q}_2^{(b)}(B_{1g}) \\
\boxed{\text{z274}} \quad \mathbb{Q}_2^{(c)}(B_{1g}, b) &= \mathbb{Q}_2^{(a)}(B_{1g})\mathbb{Q}_0^{(b)}(A_{1g}) \\
\boxed{\text{z275}} \quad \mathbb{Q}_2^{(c)}(B_{1g}, c) &= -\mathbb{Q}_2^{(a)}(A_{1g})\mathbb{Q}_2^{(b)}(B_{1g}) \\
\boxed{\text{z276}} \quad \mathbb{Q}_2^{(c)}(B_{1g}, d) &= \frac{\sqrt{21}\mathbb{Q}_4^{(a)}(A_{1g}, 1)\mathbb{Q}_2^{(b)}(B_{1g})}{6} - \frac{\sqrt{15}\mathbb{Q}_4^{(a)}(A_{1g}, 2)\mathbb{Q}_2^{(b)}(B_{1g})}{6} \\
\boxed{\text{z277}} \quad \mathbb{Q}_4^{(c)}(B_{1g}, a) &= \mathbb{Q}_4^{(a)}(B_{1g})\mathbb{Q}_0^{(b)}(A_{1g}) \\
\boxed{\text{z278}} \quad \mathbb{Q}_4^{(c)}(B_{1g}, b) &= \frac{\sqrt{15}\mathbb{Q}_4^{(a)}(A_{1g}, 1)\mathbb{Q}_2^{(b)}(B_{1g})}{6} + \frac{\sqrt{21}\mathbb{Q}_4^{(a)}(A_{1g}, 2)\mathbb{Q}_2^{(b)}(B_{1g})}{6} \\
\boxed{\text{z342}} \quad \mathbb{Q}_4^{(c)}(B_{1g}, c) &= \frac{3\mathbb{Q}_6^{(a)}(A_{1g}, 1)\mathbb{Q}_2^{(b)}(B_{1g})}{4} - \frac{\sqrt{7}\mathbb{Q}_6^{(a)}(A_{1g}, 2)\mathbb{Q}_2^{(b)}(B_{1g})}{4} \\
\boxed{\text{z343}} \quad \mathbb{Q}_6^{(c)}(B_{1g}, 1a) &= \mathbb{Q}_6^{(a)}(B_{1g}, 1)\mathbb{Q}_0^{(b)}(A_{1g}) \\
\boxed{\text{z344}} \quad \mathbb{Q}_6^{(c)}(B_{1g}, 1b) &= \frac{\sqrt{7}\mathbb{Q}_6^{(a)}(A_{1g}, 1)\mathbb{Q}_2^{(b)}(B_{1g})}{4} + \frac{3\mathbb{Q}_6^{(a)}(A_{1g}, 2)\mathbb{Q}_2^{(b)}(B_{1g})}{4} \\
\boxed{\text{z345}} \quad \mathbb{Q}_6^{(c)}(B_{1g}, 2) &= \mathbb{Q}_6^{(a)}(B_{1g}, 2)\mathbb{Q}_0^{(b)}(A_{1g}) \\
\boxed{\text{z346}} \quad \mathbb{Q}_2^{(1, -1; c)}(B_{1g}, a) &= \mathbb{Q}_2^{(1, -1; a)}(B_{1g})\mathbb{Q}_0^{(b)}(A_{1g}) \\
\boxed{\text{z347}} \quad \mathbb{Q}_2^{(1, -1; c)}(B_{1g}, b) &= -\mathbb{Q}_2^{(1, -1; a)}(A_{1g})\mathbb{Q}_2^{(b)}(B_{1g}) \\
\boxed{\text{z348}} \quad \mathbb{Q}_2^{(1, -1; c)}(B_{1g}, c) &= \frac{\sqrt{21}\mathbb{Q}_4^{(1, -1; a)}(A_{1g}, 1)\mathbb{Q}_2^{(b)}(B_{1g})}{6} - \frac{\sqrt{15}\mathbb{Q}_4^{(1, -1; a)}(A_{1g}, 2)\mathbb{Q}_2^{(b)}(B_{1g})}{6} \\
\boxed{\text{z349}} \quad \mathbb{Q}_4^{(1, -1; c)}(B_{1g}, a) &= \mathbb{Q}_4^{(1, -1; a)}(B_{1g})\mathbb{Q}_0^{(b)}(A_{1g}) \\
\boxed{\text{z350}} \quad \mathbb{Q}_4^{(1, -1; c)}(B_{1g}, b) &= \frac{\sqrt{15}\mathbb{Q}_4^{(1, -1; a)}(A_{1g}, 1)\mathbb{Q}_2^{(b)}(B_{1g})}{6} + \frac{\sqrt{21}\mathbb{Q}_4^{(1, -1; a)}(A_{1g}, 2)\mathbb{Q}_2^{(b)}(B_{1g})}{6} \\
\boxed{\text{z351}} \quad \mathbb{Q}_4^{(1, -1; c)}(B_{1g}, c) &= \frac{3\mathbb{Q}_6^{(1, -1; a)}(A_{1g}, 1)\mathbb{Q}_2^{(b)}(B_{1g})}{4} - \frac{\sqrt{7}\mathbb{Q}_6^{(1, -1; a)}(A_{1g}, 2)\mathbb{Q}_2^{(b)}(B_{1g})}{4}
\end{aligned}$$

$$\begin{aligned}
\boxed{\text{z352}} \quad \mathbb{Q}_6^{(1,-1;c)}(B_{1g}, 1a) &= \mathbb{Q}_6^{(1,-1;a)}(B_{1g}, 1) \mathbb{Q}_0^{(b)}(A_{1g}) \\
\boxed{\text{z353}} \quad \mathbb{Q}_6^{(1,-1;c)}(B_{1g}, 1b) &= \frac{\sqrt{7} \mathbb{Q}_6^{(1,-1;a)}(A_{1g}, 1) \mathbb{Q}_2^{(b)}(B_{1g})}{4} + \frac{3 \mathbb{Q}_6^{(1,-1;a)}(A_{1g}, 2) \mathbb{Q}_2^{(b)}(B_{1g})}{4} \\
\boxed{\text{z354}} \quad \mathbb{Q}_6^{(1,-1;c)}(B_{1g}, 2) &= \mathbb{Q}_6^{(1,-1;a)}(B_{1g}, 2) \mathbb{Q}_0^{(b)}(A_{1g}) \\
\boxed{\text{z355}} \quad \mathbb{Q}_4^{(1,0;c)}(B_{1g}) &= \mathbb{G}_5^{(1,0;a)}(A_{1g}) \mathbb{Q}_2^{(b)}(B_{1g}) \\
\boxed{\text{z356}} \quad \mathbb{Q}_2^{(1,1;c)}(B_{1g}, a) &= \mathbb{Q}_0^{(1,1;a)}(A_{1g}) \mathbb{Q}_2^{(b)}(B_{1g}) \\
\boxed{\text{z357}} \quad \mathbb{Q}_2^{(1,1;c)}(B_{1g}, b) &= \mathbb{Q}_2^{(1,1;a)}(B_{1g}) \mathbb{Q}_0^{(b)}(A_{1g}) \\
\boxed{\text{z358}} \quad \mathbb{Q}_2^{(1,1;c)}(B_{1g}, c) &= -\mathbb{Q}_2^{(1,1;a)}(A_{1g}) \mathbb{Q}_2^{(b)}(B_{1g}) \\
\boxed{\text{z359}} \quad \mathbb{Q}_2^{(1,1;c)}(B_{1g}, d) &= \frac{\sqrt{21} \mathbb{Q}_4^{(1,1;a)}(A_{1g}, 1) \mathbb{Q}_2^{(b)}(B_{1g})}{6} - \frac{\sqrt{15} \mathbb{Q}_4^{(1,1;a)}(A_{1g}, 2) \mathbb{Q}_2^{(b)}(B_{1g})}{6} \\
\boxed{\text{z360}} \quad \mathbb{Q}_4^{(1,1;c)}(B_{1g}, a) &= \mathbb{Q}_4^{(1,1;a)}(B_{1g}) \mathbb{Q}_0^{(b)}(A_{1g}) \\
\boxed{\text{z361}} \quad \mathbb{Q}_4^{(1,1;c)}(B_{1g}, b) &= \frac{\sqrt{15} \mathbb{Q}_4^{(1,1;a)}(A_{1g}, 1) \mathbb{Q}_2^{(b)}(B_{1g})}{6} + \frac{\sqrt{21} \mathbb{Q}_4^{(1,1;a)}(A_{1g}, 2) \mathbb{Q}_2^{(b)}(B_{1g})}{6} \\
\boxed{\text{z362}} \quad \mathbb{Q}_3^{(c)}(B_{1u}) &= -\frac{\sqrt{2} \mathbb{M}_{3,1}^{(a)}(E_g, 2) \mathbb{T}_{1,1}^{(b)}(E_u)}{2} - \frac{\sqrt{2} \mathbb{M}_{3,2}^{(a)}(E_g, 2) \mathbb{T}_{1,2}^{(b)}(E_u)}{2} \\
\boxed{\text{z605}} \quad \mathbb{Q}_5^{(c)}(B_{1u}) &= -\frac{\sqrt{78} \mathbb{M}_{5,1}^{(a)}(E_g, 2) \mathbb{T}_{1,1}^{(b)}(E_u)}{13} - \frac{\sqrt{26} \mathbb{M}_{5,1}^{(a)}(E_g, 3) \mathbb{T}_{1,1}^{(b)}(E_u)}{26} - \frac{\sqrt{78} \mathbb{M}_{5,2}^{(a)}(E_g, 2) \mathbb{T}_{1,2}^{(b)}(E_u)}{13} - \frac{\sqrt{26} \mathbb{M}_{5,2}^{(a)}(E_g, 3) \mathbb{T}_{1,2}^{(b)}(E_u)}{26} \\
\boxed{\text{z606}} \quad \mathbb{Q}_3^{(1,-1;c)}(B_{1u}) &= -\frac{\sqrt{2} \mathbb{M}_{3,1}^{(1,-1;a)}(E_g, 2) \mathbb{T}_{1,1}^{(b)}(E_u)}{2} - \frac{\sqrt{2} \mathbb{M}_{3,2}^{(1,-1;a)}(E_g, 2) \mathbb{T}_{1,2}^{(b)}(E_u)}{2} \\
\boxed{\text{z607}} \quad \mathbb{Q}_5^{(1,-1;c)}(B_{1u}) &= -\frac{\sqrt{78} \mathbb{M}_{5,1}^{(1,-1;a)}(E_g, 2) \mathbb{T}_{1,1}^{(b)}(E_u)}{13} - \frac{\sqrt{26} \mathbb{M}_{5,1}^{(1,-1;a)}(E_g, 3) \mathbb{T}_{1,1}^{(b)}(E_u)}{26} - \frac{\sqrt{78} \mathbb{M}_{5,2}^{(1,-1;a)}(E_g, 2) \mathbb{T}_{1,2}^{(b)}(E_u)}{13} - \frac{\sqrt{26} \mathbb{M}_{5,2}^{(1,-1;a)}(E_g, 3) \mathbb{T}_{1,2}^{(b)}(E_u)}{26} \\
\boxed{\text{z608}} \quad \mathbb{Q}_7^{(1,-1;c)}(B_{1u}, 1) &= -\frac{3\sqrt{154} \mathbb{M}_{7,1}^{(1,-1;a)}(E_g, 3) \mathbb{T}_{1,1}^{(b)}(E_u)}{56} - \frac{\sqrt{182} \mathbb{M}_{7,1}^{(1,-1;a)}(E_g, 4) \mathbb{T}_{1,1}^{(b)}(E_u)}{56} - \frac{3\sqrt{154} \mathbb{M}_{7,2}^{(1,-1;a)}(E_g, 3) \mathbb{T}_{1,2}^{(b)}(E_u)}{56} - \frac{\sqrt{182} \mathbb{M}_{7,2}^{(1,-1;a)}(E_g, 4) \mathbb{T}_{1,2}^{(b)}(E_u)}{56}
\end{aligned}$$

$$\begin{aligned}
\boxed{\text{z609}} \quad \mathbb{Q}_7^{(1,-1;c)}(B_{1u}, 2) &= -\frac{2\sqrt{455}\mathbb{M}_{7,1}^{(1,-1;a)}(E_g, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{65} - \frac{3\sqrt{70}\mathbb{M}_{7,1}^{(1,-1;a)}(E_g, 3)\mathbb{T}_{1,1}^{(b)}(E_u)}{280} + \frac{9\sqrt{10010}\mathbb{M}_{7,1}^{(1,-1;a)}(E_g, 4)\mathbb{T}_{1,1}^{(b)}(E_u)}{3640} \\
&\quad - \frac{2\sqrt{455}\mathbb{M}_{7,2}^{(1,-1;a)}(E_g, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{65} - \frac{3\sqrt{70}\mathbb{M}_{7,2}^{(1,-1;a)}(E_g, 3)\mathbb{T}_{1,2}^{(b)}(E_u)}{280} + \frac{9\sqrt{10010}\mathbb{M}_{7,2}^{(1,-1;a)}(E_g, 4)\mathbb{T}_{1,2}^{(b)}(E_u)}{3640} \\
\boxed{\text{z610}} \quad \mathbb{Q}_3^{(1,0;c)}(B_{1u}, a) &= \frac{\sqrt{2}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{T}_{1,1}^{(b)}(E_u)}{2} + \frac{\sqrt{2}\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{T}_{1,2}^{(b)}(E_u)}{2} \\
\boxed{\text{z611}} \quad \mathbb{Q}_3^{(1,0;c)}(B_{1u}, b) &= \frac{\sqrt{2}\mathbb{T}_{4,1}^{(1,0;a)}(E_g, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{2} + \frac{\sqrt{2}\mathbb{T}_{4,2}^{(1,0;a)}(E_g, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{2} \\
\boxed{\text{z612}} \quad \mathbb{Q}_5^{(1,0;c)}(B_{1u}, a) &= \frac{\sqrt{2}\mathbb{T}_{4,1}^{(1,0;a)}(E_g, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{2} + \frac{\sqrt{2}\mathbb{T}_{4,2}^{(1,0;a)}(E_g, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{2} \\
\boxed{\text{z613}} \quad \mathbb{Q}_5^{(1,0;c)}(B_{1u}, b) &= \frac{\sqrt{690}\mathbb{T}_{6,1}^{(1,0;a)}(E_g, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{46} + \frac{2\sqrt{23}\mathbb{T}_{6,1}^{(1,0;a)}(E_g, 3)\mathbb{T}_{1,1}^{(b)}(E_u)}{23} + \frac{\sqrt{690}\mathbb{T}_{6,2}^{(1,0;a)}(E_g, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{46} + \frac{2\sqrt{23}\mathbb{T}_{6,2}^{(1,0;a)}(E_g, 3)\mathbb{T}_{1,2}^{(b)}(E_u)}{23} \\
\boxed{\text{z614}} \quad \mathbb{Q}_7^{(1,0;c)}(B_{1u}, 1) &= -\frac{15\sqrt{4002}\mathbb{T}_{6,1}^{(1,0;a)}(E_g, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{2668} + \frac{\sqrt{7337}\mathbb{T}_{6,1}^{(1,0;a)}(E_g, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{232} + \frac{45\sqrt{3335}\mathbb{T}_{6,1}^{(1,0;a)}(E_g, 3)\mathbb{T}_{1,1}^{(b)}(E_u)}{5336} \\
&\quad - \frac{15\sqrt{4002}\mathbb{T}_{6,2}^{(1,0;a)}(E_g, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{2668} + \frac{\sqrt{7337}\mathbb{T}_{6,2}^{(1,0;a)}(E_g, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{232} + \frac{45\sqrt{3335}\mathbb{T}_{6,2}^{(1,0;a)}(E_g, 3)\mathbb{T}_{1,2}^{(b)}(E_u)}{5336} \\
\boxed{\text{z615}} \quad \mathbb{Q}_7^{(1,0;c)}(B_{1u}, 2) &= \frac{\sqrt{638}\mathbb{T}_{6,1}^{(1,0;a)}(E_g, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{116} + \frac{15\sqrt{87}\mathbb{T}_{6,1}^{(1,0;a)}(E_g, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{232} - \frac{\sqrt{4785}\mathbb{T}_{6,1}^{(1,0;a)}(E_g, 3)\mathbb{T}_{1,1}^{(b)}(E_u)}{232} \\
&\quad + \frac{\sqrt{638}\mathbb{T}_{6,2}^{(1,0;a)}(E_g, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{116} + \frac{15\sqrt{87}\mathbb{T}_{6,2}^{(1,0;a)}(E_g, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{232} - \frac{\sqrt{4785}\mathbb{T}_{6,2}^{(1,0;a)}(E_g, 3)\mathbb{T}_{1,2}^{(b)}(E_u)}{232} \\
\boxed{\text{z616}} \quad \mathbb{Q}_3^{(1,1;c)}(B_{1u}) &= -\frac{\sqrt{2}\mathbb{M}_{3,1}^{(1,1;a)}(E_g, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{2} - \frac{\sqrt{2}\mathbb{M}_{3,2}^{(1,1;a)}(E_g, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{2} \\
\boxed{\text{z617}} \quad \mathbb{Q}_5^{(1,1;c)}(B_{1u}) &= -\frac{\sqrt{78}\mathbb{M}_{5,1}^{(1,1;a)}(E_g, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{13} - \frac{\sqrt{26}\mathbb{M}_{5,1}^{(1,1;a)}(E_g, 3)\mathbb{T}_{1,1}^{(b)}(E_u)}{26} - \frac{\sqrt{78}\mathbb{M}_{5,2}^{(1,1;a)}(E_g, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{13} - \frac{\sqrt{26}\mathbb{M}_{5,2}^{(1,1;a)}(E_g, 3)\mathbb{T}_{1,2}^{(b)}(E_u)}{26} \\
\boxed{\text{z618}} \quad \mathbb{Q}_2^{(c)}(B_{2g}, a) &= \mathbb{Q}_2^{(a)}(B_{2g})\mathbb{Q}_0^{(b)}(A_{1g}) \\
\boxed{\text{z619}} \quad \mathbb{Q}_2^{(c)}(B_{2g}, b) &= \mathbb{Q}_4^{(a)}(A_{2g})\mathbb{Q}_2^{(b)}(B_{1g}) \\
\boxed{\text{z620}} \quad \mathbb{Q}_4^{(c)}(B_{2g}, a) &= \mathbb{Q}_4^{(a)}(B_{2g})\mathbb{Q}_0^{(b)}(A_{1g})
\end{aligned}$$

$$\begin{aligned}
\boxed{\text{z621}} \quad \mathbb{Q}_4^{(c)}(B_{2g}, b) &= \mathbb{Q}_6^{(a)}(A_{2g})\mathbb{Q}_2^{(b)}(B_{1g}) \\
\boxed{\text{z622}} \quad \mathbb{Q}_6^{(c)}(B_{2g}, 1) &= \mathbb{Q}_6^{(a)}(B_{2g}, 1)\mathbb{Q}_0^{(b)}(A_{1g}) \\
\boxed{\text{z623}} \quad \mathbb{Q}_6^{(c)}(B_{2g}, 2) &= \mathbb{Q}_6^{(a)}(B_{2g}, 2)\mathbb{Q}_0^{(b)}(A_{1g}) \\
\boxed{\text{z624}} \quad \mathbb{Q}_2^{(1, -1; c)}(B_{2g}, a) &= \mathbb{Q}_2^{(1, -1; a)}(B_{2g})\mathbb{Q}_0^{(b)}(A_{1g}) \\
\boxed{\text{z625}} \quad \mathbb{Q}_2^{(1, -1; c)}(B_{2g}, b) &= \mathbb{Q}_4^{(1, -1; a)}(A_{2g})\mathbb{Q}_2^{(b)}(B_{1g}) \\
\boxed{\text{z626}} \quad \mathbb{Q}_4^{(1, -1; c)}(B_{2g}, a) &= \mathbb{Q}_4^{(1, -1; a)}(B_{2g})\mathbb{Q}_0^{(b)}(A_{1g}) \\
\boxed{\text{z627}} \quad \mathbb{Q}_4^{(1, -1; c)}(B_{2g}, b) &= \mathbb{Q}_6^{(1, -1; a)}(A_{2g})\mathbb{Q}_2^{(b)}(B_{1g}) \\
\boxed{\text{z628}} \quad \mathbb{Q}_6^{(1, -1; c)}(B_{2g}, 1) &= \mathbb{Q}_6^{(1, -1; a)}(B_{2g}, 1)\mathbb{Q}_0^{(b)}(A_{1g}) \\
\boxed{\text{z629}} \quad \mathbb{Q}_6^{(1, -1; c)}(B_{2g}, 2) &= \mathbb{Q}_6^{(1, -1; a)}(B_{2g}, 2)\mathbb{Q}_0^{(b)}(A_{1g}) \\
\boxed{\text{z630}} \quad \mathbb{Q}_2^{(1, 0; c)}(B_{2g}, a) &= \mathbb{G}_1^{(1, 0; a)}(A_{2g})\mathbb{Q}_2^{(b)}(B_{1g}) \\
\boxed{\text{z631}} \quad \mathbb{Q}_2^{(1, 0; c)}(B_{2g}, b) &= -\mathbb{G}_3^{(1, 0; a)}(A_{2g})\mathbb{Q}_2^{(b)}(B_{1g}) \\
\boxed{\text{z632}} \quad \mathbb{Q}_4^{(1, 0; c)}(B_{2g}) &= -\frac{\sqrt{15}\mathbb{G}_5^{(1, 0; a)}(A_{2g}, 1)\mathbb{Q}_2^{(b)}(B_{1g})}{6} + \frac{\sqrt{21}\mathbb{G}_5^{(1, 0; a)}(A_{2g}, 2)\mathbb{Q}_2^{(b)}(B_{1g})}{6} \\
\boxed{\text{z633}} \quad \mathbb{Q}_6^{(1, 0; c)}(B_{2g}, 1) &= \frac{\sqrt{21}\mathbb{G}_5^{(1, 0; a)}(A_{2g}, 1)\mathbb{Q}_2^{(b)}(B_{1g})}{6} + \frac{\sqrt{15}\mathbb{G}_5^{(1, 0; a)}(A_{2g}, 2)\mathbb{Q}_2^{(b)}(B_{1g})}{6} \\
\boxed{\text{z634}} \quad \mathbb{Q}_2^{(1, 1; c)}(B_{2g}, a) &= \mathbb{Q}_2^{(1, 1; a)}(B_{2g})\mathbb{Q}_0^{(b)}(A_{1g}) \\
\boxed{\text{z635}} \quad \mathbb{Q}_2^{(1, 1; c)}(B_{2g}, b) &= \mathbb{Q}_4^{(1, 1; a)}(A_{2g})\mathbb{Q}_2^{(b)}(B_{1g}) \\
\boxed{\text{z636}} \quad \mathbb{Q}_4^{(1, 1; c)}(B_{2g}) &= \mathbb{Q}_4^{(1, 1; a)}(B_{2g})\mathbb{Q}_0^{(b)}(A_{1g}) \\
\boxed{\text{z637}} \quad \mathbb{Q}_3^{(c)}(B_{2u}) &= \frac{\sqrt{30}\mathbb{M}_{3,1}^{(a)}(E_g, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{8} + \frac{\sqrt{2}\mathbb{M}_{3,1}^{(a)}(E_g, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{8} - \frac{\sqrt{30}\mathbb{M}_{3,2}^{(a)}(E_g, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{8} - \frac{\sqrt{2}\mathbb{M}_{3,2}^{(a)}(E_g, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{8}
\end{aligned}$$

$$\begin{aligned}
\text{z638} \quad \mathbb{Q}_5^{(c)}(B_{2u}) &= -\frac{\sqrt{2730}\mathbb{M}_{5,1}^{(a)}(E_g, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{104} + \frac{\sqrt{78}\mathbb{M}_{5,1}^{(a)}(E_g, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{104} - \frac{5\sqrt{26}\mathbb{M}_{5,1}^{(a)}(E_g, 3)\mathbb{T}_{1,2}^{(b)}(E_u)}{52} \\
&\quad + \frac{\sqrt{2730}\mathbb{M}_{5,2}^{(a)}(E_g, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{104} - \frac{\sqrt{78}\mathbb{M}_{5,2}^{(a)}(E_g, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{104} + \frac{5\sqrt{26}\mathbb{M}_{5,2}^{(a)}(E_g, 3)\mathbb{T}_{1,1}^{(b)}(E_u)}{52} \\
\text{z639} \quad \mathbb{Q}_3^{(1,-1;c)}(B_{2u}) &= \frac{\sqrt{30}\mathbb{M}_{3,1}^{(1,-1;a)}(E_g, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{8} + \frac{\sqrt{2}\mathbb{M}_{3,1}^{(1,-1;a)}(E_g, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{8} - \frac{\sqrt{30}\mathbb{M}_{3,2}^{(1,-1;a)}(E_g, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{8} - \frac{\sqrt{2}\mathbb{M}_{3,2}^{(1,-1;a)}(E_g, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{8} \\
\text{z640} \quad \mathbb{Q}_5^{(1,-1;c)}(B_{2u}) &= -\frac{\sqrt{2730}\mathbb{M}_{5,1}^{(1,-1;a)}(E_g, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{104} + \frac{\sqrt{78}\mathbb{M}_{5,1}^{(1,-1;a)}(E_g, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{104} - \frac{5\sqrt{26}\mathbb{M}_{5,1}^{(1,-1;a)}(E_g, 3)\mathbb{T}_{1,2}^{(b)}(E_u)}{52} \\
&\quad + \frac{\sqrt{2730}\mathbb{M}_{5,2}^{(1,-1;a)}(E_g, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{104} - \frac{\sqrt{78}\mathbb{M}_{5,2}^{(1,-1;a)}(E_g, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{104} + \frac{5\sqrt{26}\mathbb{M}_{5,2}^{(1,-1;a)}(E_g, 3)\mathbb{T}_{1,1}^{(b)}(E_u)}{52} \\
\text{z641} \quad \mathbb{Q}_7^{(1,-1;c)}(B_{2u}, 1) &= \frac{\sqrt{30030}\mathbb{M}_{7,1}^{(1,-1;a)}(E_g, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{320} - \frac{9\sqrt{130}\mathbb{M}_{7,1}^{(1,-1;a)}(E_g, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{320} + \frac{29\sqrt{5}\mathbb{M}_{7,1}^{(1,-1;a)}(E_g, 3)\mathbb{T}_{1,2}^{(b)}(E_u)}{320} - \frac{3\sqrt{715}\mathbb{M}_{7,1}^{(1,-1;a)}(E_g, 4)\mathbb{T}_{1,2}^{(b)}(E_u)}{320} \\
&\quad - \frac{\sqrt{30030}\mathbb{M}_{7,2}^{(1,-1;a)}(E_g, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{320} + \frac{9\sqrt{130}\mathbb{M}_{7,2}^{(1,-1;a)}(E_g, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{320} - \frac{29\sqrt{5}\mathbb{M}_{7,2}^{(1,-1;a)}(E_g, 3)\mathbb{T}_{1,1}^{(b)}(E_u)}{320} + \frac{3\sqrt{715}\mathbb{M}_{7,2}^{(1,-1;a)}(E_g, 4)\mathbb{T}_{1,1}^{(b)}(E_u)}{320} \\
\text{z642} \quad \mathbb{Q}_7^{(1,-1;c)}(B_{2u}, 2) &= \frac{15\sqrt{546}\mathbb{M}_{7,1}^{(1,-1;a)}(E_g, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{832} + \frac{11\sqrt{286}\mathbb{M}_{7,1}^{(1,-1;a)}(E_g, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{832} - \frac{3\sqrt{11}\mathbb{M}_{7,1}^{(1,-1;a)}(E_g, 3)\mathbb{T}_{1,2}^{(b)}(E_u)}{64} + \frac{115\sqrt{13}\mathbb{M}_{7,1}^{(1,-1;a)}(E_g, 4)\mathbb{T}_{1,2}^{(b)}(E_u)}{832} \\
&\quad - \frac{15\sqrt{546}\mathbb{M}_{7,2}^{(1,-1;a)}(E_g, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{832} - \frac{11\sqrt{286}\mathbb{M}_{7,2}^{(1,-1;a)}(E_g, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{832} + \frac{3\sqrt{11}\mathbb{M}_{7,2}^{(1,-1;a)}(E_g, 3)\mathbb{T}_{1,1}^{(b)}(E_u)}{64} - \frac{115\sqrt{13}\mathbb{M}_{7,2}^{(1,-1;a)}(E_g, 4)\mathbb{T}_{1,1}^{(b)}(E_u)}{832} \\
\text{z643} \quad \mathbb{Q}_3^{(1,0;c)}(B_{2u}, a) &= -\frac{\sqrt{2}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{T}_{1,2}^{(b)}(E_u)}{2} + \frac{\sqrt{2}\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{T}_{1,1}^{(b)}(E_u)}{2} \\
\text{z644} \quad \mathbb{Q}_3^{(1,0;c)}(B_{2u}, b) &= -\frac{\sqrt{14}\mathbb{T}_{4,1}^{(1,0;a)}(E_g, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{8} + \frac{3\sqrt{2}\mathbb{T}_{4,1}^{(1,0;a)}(E_g, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{8} + \frac{\sqrt{14}\mathbb{T}_{4,2}^{(1,0;a)}(E_g, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{8} - \frac{3\sqrt{2}\mathbb{T}_{4,2}^{(1,0;a)}(E_g, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{8} \\
\text{z645} \quad \mathbb{Q}_5^{(1,0;c)}(B_{2u}, a) &= \frac{3\sqrt{2}\mathbb{T}_{4,1}^{(1,0;a)}(E_g, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{8} + \frac{\sqrt{14}\mathbb{T}_{4,1}^{(1,0;a)}(E_g, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{8} - \frac{3\sqrt{2}\mathbb{T}_{4,2}^{(1,0;a)}(E_g, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{8} - \frac{\sqrt{14}\mathbb{T}_{4,2}^{(1,0;a)}(E_g, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{8} \\
\text{z646} \quad \mathbb{Q}_5^{(1,0;c)}(B_{2u}, b) &= -\frac{\sqrt{690}\mathbb{T}_{6,1}^{(1,0;a)}(E_g, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{92} + \frac{3\sqrt{1265}\mathbb{T}_{6,1}^{(1,0;a)}(E_g, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{184} - \frac{11\sqrt{23}\mathbb{T}_{6,1}^{(1,0;a)}(E_g, 3)\mathbb{T}_{1,2}^{(b)}(E_u)}{184} \\
&\quad + \frac{\sqrt{690}\mathbb{T}_{6,2}^{(1,0;a)}(E_g, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{92} - \frac{3\sqrt{1265}\mathbb{T}_{6,2}^{(1,0;a)}(E_g, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{184} + \frac{11\sqrt{23}\mathbb{T}_{6,2}^{(1,0;a)}(E_g, 3)\mathbb{T}_{1,1}^{(b)}(E_u)}{184}
\end{aligned}$$

$$\begin{aligned}
\boxed{\text{z647}} \quad \mathbb{Q}_7^{(1,0;c)}(B_{2u}, 1) &= \frac{\sqrt{11}\mathbb{T}_{6,1}^{(1,0;a)}(E_g, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{8} - \frac{\sqrt{6}\mathbb{T}_{6,1}^{(1,0;a)}(E_g, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{32} - \frac{\sqrt{330}\mathbb{T}_{6,1}^{(1,0;a)}(E_g, 3)\mathbb{T}_{1,2}^{(b)}(E_u)}{32} \\
&\quad - \frac{\sqrt{11}\mathbb{T}_{6,2}^{(1,0;a)}(E_g, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{8} + \frac{\sqrt{6}\mathbb{T}_{6,2}^{(1,0;a)}(E_g, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{32} + \frac{\sqrt{330}\mathbb{T}_{6,2}^{(1,0;a)}(E_g, 3)\mathbb{T}_{1,1}^{(b)}(E_u)}{32} \\
\boxed{\text{z648}} \quad \mathbb{Q}_7^{(1,0;c)}(B_{2u}, 2) &= -\frac{11\sqrt{69}\mathbb{T}_{6,1}^{(1,0;a)}(E_g, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{184} - \frac{13\sqrt{506}\mathbb{T}_{6,1}^{(1,0;a)}(E_g, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{736} - \frac{15\sqrt{230}\mathbb{T}_{6,1}^{(1,0;a)}(E_g, 3)\mathbb{T}_{1,2}^{(b)}(E_u)}{736} \\
&\quad + \frac{11\sqrt{69}\mathbb{T}_{6,2}^{(1,0;a)}(E_g, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{184} + \frac{13\sqrt{506}\mathbb{T}_{6,2}^{(1,0;a)}(E_g, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{736} + \frac{15\sqrt{230}\mathbb{T}_{6,2}^{(1,0;a)}(E_g, 3)\mathbb{T}_{1,1}^{(b)}(E_u)}{736} \\
\boxed{\text{z649}} \quad \mathbb{Q}_3^{(1,1;c)}(B_{2u}) &= \frac{\sqrt{30}\mathbb{M}_{3,1}^{(1,1;a)}(E_g, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{8} + \frac{\sqrt{2}\mathbb{M}_{3,1}^{(1,1;a)}(E_g, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{8} - \frac{\sqrt{30}\mathbb{M}_{3,2}^{(1,1;a)}(E_g, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{8} - \frac{\sqrt{2}\mathbb{M}_{3,2}^{(1,1;a)}(E_g, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{8} \\
\boxed{\text{z650}} \quad \mathbb{Q}_5^{(1,1;c)}(B_{2u}) &= -\frac{\sqrt{2730}\mathbb{M}_{5,1}^{(1,1;a)}(E_g, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{104} + \frac{\sqrt{78}\mathbb{M}_{5,1}^{(1,1;a)}(E_g, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{104} - \frac{5\sqrt{26}\mathbb{M}_{5,1}^{(1,1;a)}(E_g, 3)\mathbb{T}_{1,2}^{(b)}(E_u)}{52} \\
&\quad + \frac{\sqrt{2730}\mathbb{M}_{5,2}^{(1,1;a)}(E_g, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{104} - \frac{\sqrt{78}\mathbb{M}_{5,2}^{(1,1;a)}(E_g, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{104} + \frac{5\sqrt{26}\mathbb{M}_{5,2}^{(1,1;a)}(E_g, 3)\mathbb{T}_{1,1}^{(b)}(E_u)}{52} \\
\boxed{\text{z651}} \quad \mathbb{Q}_{2,1}^{(c)}(E_g, a) &= \frac{\sqrt{2}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_0^{(b)}(A_{1g})}{2} \\
\boxed{\text{z652}} \quad \mathbb{Q}_{2,2}^{(c)}(E_g, a) &= \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_0^{(b)}(A_{1g})}{2} \\
\boxed{\text{z653}} \quad \mathbb{Q}_{2,1}^{(c)}(E_g, b) &= -\frac{\sqrt{2}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_2^{(b)}(B_{1g})}{2} \\
\boxed{\text{z654}} \quad \mathbb{Q}_{2,2}^{(c)}(E_g, b) &= \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_2^{(b)}(B_{1g})}{2} \\
\boxed{\text{z655}} \quad \mathbb{Q}_{2,1}^{(c)}(E_g, c) &= -\frac{\sqrt{14}\mathbb{Q}_{4,1}^{(a)}(E_g, 1)\mathbb{Q}_2^{(b)}(B_{1g})}{8} + \frac{3\sqrt{2}\mathbb{Q}_{4,1}^{(a)}(E_g, 2)\mathbb{Q}_2^{(b)}(B_{1g})}{8} \\
\boxed{\text{z656}} \quad \mathbb{Q}_{2,2}^{(c)}(E_g, c) &= \frac{\sqrt{14}\mathbb{Q}_{4,2}^{(a)}(E_g, 1)\mathbb{Q}_2^{(b)}(B_{1g})}{8} - \frac{3\sqrt{2}\mathbb{Q}_{4,2}^{(a)}(E_g, 2)\mathbb{Q}_2^{(b)}(B_{1g})}{8} \\
\boxed{\text{z657}} \quad \mathbb{Q}_{4,1}^{(c)}(E_g, 1a) &= \frac{\sqrt{2}\mathbb{Q}_{4,1}^{(a)}(E_g, 1)\mathbb{Q}_0^{(b)}(A_{1g})}{2}
\end{aligned}$$

$$\begin{aligned}
\boxed{\text{z658}} \quad \mathbb{Q}_{4,2}^{(c)}(E_g, 1a) &= \frac{\sqrt{2}\mathbb{Q}_{4,2}^{(a)}(E_g, 1)\mathbb{Q}_0^{(b)}(A_{1g})}{2} \\
\boxed{\text{z659}} \quad \mathbb{Q}_{4,1}^{(c)}(E_g, 1b) &= -\frac{3\sqrt{2}\mathbb{Q}_{4,1}^{(a)}(E_g, 1)\mathbb{Q}_2^{(b)}(B_{1g})}{8} - \frac{\sqrt{14}\mathbb{Q}_{4,1}^{(a)}(E_g, 2)\mathbb{Q}_2^{(b)}(B_{1g})}{8} \\
\boxed{\text{z660}} \quad \mathbb{Q}_{4,2}^{(c)}(E_g, 1b) &= \frac{3\sqrt{2}\mathbb{Q}_{4,2}^{(a)}(E_g, 1)\mathbb{Q}_2^{(b)}(B_{1g})}{8} + \frac{\sqrt{14}\mathbb{Q}_{4,2}^{(a)}(E_g, 2)\mathbb{Q}_2^{(b)}(B_{1g})}{8} \\
\boxed{\text{z661}} \quad \mathbb{Q}_{4,1}^{(c)}(E_g, 1c) &= \frac{3\sqrt{11490}\mathbb{Q}_{6,1}^{(a)}(E_g, 1)\mathbb{Q}_2^{(b)}(B_{1g})}{766} - \frac{3\sqrt{21065}\mathbb{Q}_{6,1}^{(a)}(E_g, 2)\mathbb{Q}_2^{(b)}(B_{1g})}{766} - \frac{\sqrt{383}\mathbb{Q}_{6,1}^{(a)}(E_g, 3)\mathbb{Q}_2^{(b)}(B_{1g})}{766} \\
\boxed{\text{z662}} \quad \mathbb{Q}_{4,2}^{(c)}(E_g, 1c) &= -\frac{3\sqrt{11490}\mathbb{Q}_{6,2}^{(a)}(E_g, 1)\mathbb{Q}_2^{(b)}(B_{1g})}{766} + \frac{3\sqrt{21065}\mathbb{Q}_{6,2}^{(a)}(E_g, 2)\mathbb{Q}_2^{(b)}(B_{1g})}{766} + \frac{\sqrt{383}\mathbb{Q}_{6,2}^{(a)}(E_g, 3)\mathbb{Q}_2^{(b)}(B_{1g})}{766} \\
\boxed{\text{z663}} \quad \mathbb{Q}_{4,1}^{(c)}(E_g, 2a) &= \frac{\sqrt{2}\mathbb{Q}_{4,1}^{(a)}(E_g, 2)\mathbb{Q}_0^{(b)}(A_{1g})}{2} \\
\boxed{\text{z664}} \quad \mathbb{Q}_{4,2}^{(c)}(E_g, 2a) &= \frac{\sqrt{2}\mathbb{Q}_{4,2}^{(a)}(E_g, 2)\mathbb{Q}_0^{(b)}(A_{1g})}{2} \\
\boxed{\text{z665}} \quad \mathbb{Q}_{4,1}^{(c)}(E_g, 2b) &= -\frac{115\sqrt{383}\mathbb{Q}_{6,1}^{(a)}(E_g, 1)\mathbb{Q}_2^{(b)}(B_{1g})}{12256} - \frac{51\sqrt{25278}\mathbb{Q}_{6,1}^{(a)}(E_g, 2)\mathbb{Q}_2^{(b)}(B_{1g})}{49024} + \frac{303\sqrt{11490}\mathbb{Q}_{6,1}^{(a)}(E_g, 3)\mathbb{Q}_2^{(b)}(B_{1g})}{49024} \\
\boxed{\text{z666}} \quad \mathbb{Q}_{4,2}^{(c)}(E_g, 2b) &= \frac{115\sqrt{383}\mathbb{Q}_{6,2}^{(a)}(E_g, 1)\mathbb{Q}_2^{(b)}(B_{1g})}{12256} + \frac{51\sqrt{25278}\mathbb{Q}_{6,2}^{(a)}(E_g, 2)\mathbb{Q}_2^{(b)}(B_{1g})}{49024} - \frac{303\sqrt{11490}\mathbb{Q}_{6,2}^{(a)}(E_g, 3)\mathbb{Q}_2^{(b)}(B_{1g})}{49024} \\
\boxed{\text{z667}} \quad \mathbb{Q}_{6,1}^{(c)}(E_g, 1a) &= \frac{\sqrt{2}\mathbb{Q}_{6,1}^{(a)}(E_g, 1)\mathbb{Q}_0^{(b)}(A_{1g})}{2} \\
\boxed{\text{z668}} \quad \mathbb{Q}_{6,2}^{(c)}(E_g, 1a) &= \frac{\sqrt{2}\mathbb{Q}_{6,2}^{(a)}(E_g, 1)\mathbb{Q}_0^{(b)}(A_{1g})}{2} \\
\boxed{\text{z669}} \quad \mathbb{Q}_{6,1}^{(c)}(E_g, 1b) &= \frac{3\sqrt{33}\mathbb{Q}_{6,1}^{(a)}(E_g, 1)\mathbb{Q}_2^{(b)}(B_{1g})}{32} + \frac{35\sqrt{2}\mathbb{Q}_{6,1}^{(a)}(E_g, 2)\mathbb{Q}_2^{(b)}(B_{1g})}{128} + \frac{3\sqrt{110}\mathbb{Q}_{6,1}^{(a)}(E_g, 3)\mathbb{Q}_2^{(b)}(B_{1g})}{128} \\
\boxed{\text{z670}} \quad \mathbb{Q}_{6,2}^{(c)}(E_g, 1b) &= -\frac{3\sqrt{33}\mathbb{Q}_{6,2}^{(a)}(E_g, 1)\mathbb{Q}_2^{(b)}(B_{1g})}{32} - \frac{35\sqrt{2}\mathbb{Q}_{6,2}^{(a)}(E_g, 2)\mathbb{Q}_2^{(b)}(B_{1g})}{128} - \frac{3\sqrt{110}\mathbb{Q}_{6,2}^{(a)}(E_g, 3)\mathbb{Q}_2^{(b)}(B_{1g})}{128} \\
\boxed{\text{z671}} \quad \mathbb{Q}_{6,1}^{(c)}(E_g, 2) &= \frac{\sqrt{2}\mathbb{Q}_{6,1}^{(a)}(E_g, 2)\mathbb{Q}_0^{(b)}(A_{1g})}{2}
\end{aligned}$$



$$\begin{aligned}
\boxed{\text{z672}} \quad \mathbb{Q}_{6,2}^{(c)}(E_g, 2) &= \frac{\sqrt{2}\mathbb{Q}_{6,2}^{(a)}(E_g, 2)\mathbb{Q}_0^{(b)}(A_{1g})}{2} \\
\boxed{\text{z673}} \quad \mathbb{Q}_{6,1}^{(c)}(E_g, 3) &= \frac{\sqrt{2}\mathbb{Q}_{6,1}^{(a)}(E_g, 3)\mathbb{Q}_0^{(b)}(A_{1g})}{2} \\
\boxed{\text{z674}} \quad \mathbb{Q}_{6,2}^{(c)}(E_g, 3) &= \frac{\sqrt{2}\mathbb{Q}_{6,2}^{(a)}(E_g, 3)\mathbb{Q}_0^{(b)}(A_{1g})}{2} \\
\boxed{\text{z675}} \quad \mathbb{Q}_{2,1}^{(1,-1;c)}(E_g, a) &= \frac{\sqrt{2}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_0^{(b)}(A_{1g})}{2} \\
\boxed{\text{z676}} \quad \mathbb{Q}_{2,2}^{(1,-1;c)}(E_g, a) &= \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_0^{(b)}(A_{1g})}{2} \\
\boxed{\text{z677}} \quad \mathbb{Q}_{2,1}^{(1,-1;c)}(E_g, b) &= -\frac{\sqrt{2}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_2^{(b)}(B_{1g})}{2} \\
\boxed{\text{z678}} \quad \mathbb{Q}_{2,2}^{(1,-1;c)}(E_g, b) &= \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_2^{(b)}(B_{1g})}{2} \\
\boxed{\text{z679}} \quad \mathbb{Q}_{2,1}^{(1,-1;c)}(E_g, c) &= -\frac{\sqrt{14}\mathbb{Q}_{4,1}^{(1,-1;a)}(E_g, 1)\mathbb{Q}_2^{(b)}(B_{1g})}{8} + \frac{3\sqrt{2}\mathbb{Q}_{4,1}^{(1,-1;a)}(E_g, 2)\mathbb{Q}_2^{(b)}(B_{1g})}{8} \\
\boxed{\text{z680}} \quad \mathbb{Q}_{2,2}^{(1,-1;c)}(E_g, c) &= \frac{\sqrt{14}\mathbb{Q}_{4,2}^{(1,-1;a)}(E_g, 1)\mathbb{Q}_2^{(b)}(B_{1g})}{8} - \frac{3\sqrt{2}\mathbb{Q}_{4,2}^{(1,-1;a)}(E_g, 2)\mathbb{Q}_2^{(b)}(B_{1g})}{8} \\
\boxed{\text{z681}} \quad \mathbb{Q}_{4,1}^{(1,-1;c)}(E_g, 1a) &= \frac{\sqrt{2}\mathbb{Q}_{4,1}^{(1,-1;a)}(E_g, 1)\mathbb{Q}_0^{(b)}(A_{1g})}{2} \\
\boxed{\text{z682}} \quad \mathbb{Q}_{4,2}^{(1,-1;c)}(E_g, 1a) &= \frac{\sqrt{2}\mathbb{Q}_{4,2}^{(1,-1;a)}(E_g, 1)\mathbb{Q}_0^{(b)}(A_{1g})}{2} \\
\boxed{\text{z683}} \quad \mathbb{Q}_{4,1}^{(1,-1;c)}(E_g, 1b) &= -\frac{3\sqrt{2}\mathbb{Q}_{4,1}^{(1,-1;a)}(E_g, 1)\mathbb{Q}_2^{(b)}(B_{1g})}{8} - \frac{\sqrt{14}\mathbb{Q}_{4,1}^{(1,-1;a)}(E_g, 2)\mathbb{Q}_2^{(b)}(B_{1g})}{8} \\
\boxed{\text{z684}} \quad \mathbb{Q}_{4,2}^{(1,-1;c)}(E_g, 1b) &= \frac{3\sqrt{2}\mathbb{Q}_{4,2}^{(1,-1;a)}(E_g, 1)\mathbb{Q}_2^{(b)}(B_{1g})}{8} + \frac{\sqrt{14}\mathbb{Q}_{4,2}^{(1,-1;a)}(E_g, 2)\mathbb{Q}_2^{(b)}(B_{1g})}{8} \\
\boxed{\text{z685}} \quad \mathbb{Q}_{4,1}^{(1,-1;c)}(E_g, 1c) &= \frac{3\sqrt{11490}\mathbb{Q}_{6,1}^{(1,-1;a)}(E_g, 1)\mathbb{Q}_2^{(b)}(B_{1g})}{766} - \frac{3\sqrt{21065}\mathbb{Q}_{6,1}^{(1,-1;a)}(E_g, 2)\mathbb{Q}_2^{(b)}(B_{1g})}{766} - \frac{\sqrt{383}\mathbb{Q}_{6,1}^{(1,-1;a)}(E_g, 3)\mathbb{Q}_2^{(b)}(B_{1g})}{766}
\end{aligned}$$

$$\begin{aligned}
\boxed{\text{z686}} \quad \mathbb{Q}_{4,2}^{(1,-1;c)}(E_g, 1c) &= -\frac{3\sqrt{11490}\mathbb{Q}_{6,2}^{(1,-1;a)}(E_g, 1)\mathbb{Q}_2^{(b)}(B_{1g})}{766} + \frac{3\sqrt{21065}\mathbb{Q}_{6,2}^{(1,-1;a)}(E_g, 2)\mathbb{Q}_2^{(b)}(B_{1g})}{766} + \frac{\sqrt{383}\mathbb{Q}_{6,2}^{(1,-1;a)}(E_g, 3)\mathbb{Q}_2^{(b)}(B_{1g})}{766} \\
\boxed{\text{z687}} \quad \mathbb{Q}_{4,1}^{(1,-1;c)}(E_g, 2a) &= \frac{\sqrt{2}\mathbb{Q}_{4,1}^{(1,-1;a)}(E_g, 2)\mathbb{Q}_0^{(b)}(A_{1g})}{2} \\
\boxed{\text{z688}} \quad \mathbb{Q}_{4,2}^{(1,-1;c)}(E_g, 2a) &= \frac{\sqrt{2}\mathbb{Q}_{4,2}^{(1,-1;a)}(E_g, 2)\mathbb{Q}_0^{(b)}(A_{1g})}{2} \\
\boxed{\text{z757}} \quad \mathbb{Q}_{4,1}^{(1,-1;c)}(E_g, 2b) &= -\frac{115\sqrt{383}\mathbb{Q}_{6,1}^{(1,-1;a)}(E_g, 1)\mathbb{Q}_2^{(b)}(B_{1g})}{12256} - \frac{51\sqrt{25278}\mathbb{Q}_{6,1}^{(1,-1;a)}(E_g, 2)\mathbb{Q}_2^{(b)}(B_{1g})}{49024} + \frac{303\sqrt{11490}\mathbb{Q}_{6,1}^{(1,-1;a)}(E_g, 3)\mathbb{Q}_2^{(b)}(B_{1g})}{49024} \\
\boxed{\text{z758}} \quad \mathbb{Q}_{4,2}^{(1,-1;c)}(E_g, 2b) &= \frac{115\sqrt{383}\mathbb{Q}_{6,2}^{(1,-1;a)}(E_g, 1)\mathbb{Q}_2^{(b)}(B_{1g})}{12256} + \frac{51\sqrt{25278}\mathbb{Q}_{6,2}^{(1,-1;a)}(E_g, 2)\mathbb{Q}_2^{(b)}(B_{1g})}{49024} - \frac{303\sqrt{11490}\mathbb{Q}_{6,2}^{(1,-1;a)}(E_g, 3)\mathbb{Q}_2^{(b)}(B_{1g})}{49024} \\
\boxed{\text{z759}} \quad \mathbb{Q}_{6,1}^{(1,-1;c)}(E_g, 1a) &= \frac{\sqrt{2}\mathbb{Q}_{6,1}^{(1,-1;a)}(E_g, 1)\mathbb{Q}_0^{(b)}(A_{1g})}{2} \\
\boxed{\text{z760}} \quad \mathbb{Q}_{6,2}^{(1,-1;c)}(E_g, 1a) &= \frac{\sqrt{2}\mathbb{Q}_{6,2}^{(1,-1;a)}(E_g, 1)\mathbb{Q}_0^{(b)}(A_{1g})}{2} \\
\boxed{\text{z761}} \quad \mathbb{Q}_{6,1}^{(1,-1;c)}(E_g, 1b) &= \frac{3\sqrt{33}\mathbb{Q}_{6,1}^{(1,-1;a)}(E_g, 1)\mathbb{Q}_2^{(b)}(B_{1g})}{32} + \frac{35\sqrt{2}\mathbb{Q}_{6,1}^{(1,-1;a)}(E_g, 2)\mathbb{Q}_2^{(b)}(B_{1g})}{128} + \frac{3\sqrt{110}\mathbb{Q}_{6,1}^{(1,-1;a)}(E_g, 3)\mathbb{Q}_2^{(b)}(B_{1g})}{128} \\
\boxed{\text{z762}} \quad \mathbb{Q}_{6,2}^{(1,-1;c)}(E_g, 1b) &= -\frac{3\sqrt{33}\mathbb{Q}_{6,2}^{(1,-1;a)}(E_g, 1)\mathbb{Q}_2^{(b)}(B_{1g})}{32} - \frac{35\sqrt{2}\mathbb{Q}_{6,2}^{(1,-1;a)}(E_g, 2)\mathbb{Q}_2^{(b)}(B_{1g})}{128} - \frac{3\sqrt{110}\mathbb{Q}_{6,2}^{(1,-1;a)}(E_g, 3)\mathbb{Q}_2^{(b)}(B_{1g})}{128} \\
\boxed{\text{z763}} \quad \mathbb{Q}_{6,1}^{(1,-1;c)}(E_g, 2) &= \frac{\sqrt{2}\mathbb{Q}_{6,1}^{(1,-1;a)}(E_g, 2)\mathbb{Q}_0^{(b)}(A_{1g})}{2} \\
\boxed{\text{z764}} \quad \mathbb{Q}_{6,2}^{(1,-1;c)}(E_g, 2) &= \frac{\sqrt{2}\mathbb{Q}_{6,2}^{(1,-1;a)}(E_g, 2)\mathbb{Q}_0^{(b)}(A_{1g})}{2} \\
\boxed{\text{z765}} \quad \mathbb{Q}_{6,1}^{(1,-1;c)}(E_g, 3) &= \frac{\sqrt{2}\mathbb{Q}_{6,1}^{(1,-1;a)}(E_g, 3)\mathbb{Q}_0^{(b)}(A_{1g})}{2} \\
\boxed{\text{z766}} \quad \mathbb{Q}_{6,2}^{(1,-1;c)}(E_g, 3) &= \frac{\sqrt{2}\mathbb{Q}_{6,2}^{(1,-1;a)}(E_g, 3)\mathbb{Q}_0^{(b)}(A_{1g})}{2} \\
\boxed{\text{z767}} \quad \mathbb{Q}_{2,1}^{(1,0;c)}(E_g, a) &= -\frac{\sqrt{2}\mathbb{G}_{1,1}^{(1,0;a)}(E_g)\mathbb{Q}_2^{(b)}(B_{1g})}{2}
\end{aligned}$$

$$\begin{aligned}
\boxed{\text{z768}} \quad \mathbb{Q}_{2,2}^{(1,0;c)}(E_g, a) &= \frac{\sqrt{2}\mathbb{G}_{1,2}^{(1,0;a)}(E_g)\mathbb{Q}_2^{(b)}(B_{1g})}{2} \\
\boxed{\text{z769}} \quad \mathbb{Q}_{2,1}^{(1,0;c)}(E_g, b) &= \frac{\sqrt{2}\mathbb{G}_{3,1}^{(1,0;a)}(E_g, 1)\mathbb{Q}_2^{(b)}(B_{1g})}{8} - \frac{\sqrt{30}\mathbb{G}_{3,1}^{(1,0;a)}(E_g, 2)\mathbb{Q}_2^{(b)}(B_{1g})}{8} \\
\boxed{\text{z770}} \quad \mathbb{Q}_{2,2}^{(1,0;c)}(E_g, b) &= -\frac{\sqrt{2}\mathbb{G}_{3,2}^{(1,0;a)}(E_g, 1)\mathbb{Q}_2^{(b)}(B_{1g})}{8} + \frac{\sqrt{30}\mathbb{G}_{3,2}^{(1,0;a)}(E_g, 2)\mathbb{Q}_2^{(b)}(B_{1g})}{8} \\
\boxed{\text{z771}} \quad \mathbb{Q}_{4,1}^{(1,0;c)}(E_g, 1a) &= -\frac{3\sqrt{654}\mathbb{G}_{5,1}^{(1,0;a)}(E_g, 2)\mathbb{Q}_2^{(b)}(B_{1g})}{109} + \frac{\sqrt{218}\mathbb{G}_{5,1}^{(1,0;a)}(E_g, 3)\mathbb{Q}_2^{(b)}(B_{1g})}{218} \\
\boxed{\text{z772}} \quad \mathbb{Q}_{4,2}^{(1,0;c)}(E_g, 1a) &= \frac{3\sqrt{654}\mathbb{G}_{5,2}^{(1,0;a)}(E_g, 2)\mathbb{Q}_2^{(b)}(B_{1g})}{109} - \frac{\sqrt{218}\mathbb{G}_{5,2}^{(1,0;a)}(E_g, 3)\mathbb{Q}_2^{(b)}(B_{1g})}{218} \\
\boxed{\text{z773}} \quad \mathbb{Q}_{4,1}^{(1,0;c)}(E_g, 1b) &= -\frac{\sqrt{30}\mathbb{G}_{3,1}^{(1,0;a)}(E_g, 1)\mathbb{Q}_2^{(b)}(B_{1g})}{8} - \frac{\sqrt{2}\mathbb{G}_{3,1}^{(1,0;a)}(E_g, 2)\mathbb{Q}_2^{(b)}(B_{1g})}{8} \\
\boxed{\text{z774}} \quad \mathbb{Q}_{4,2}^{(1,0;c)}(E_g, 1b) &= \frac{\sqrt{30}\mathbb{G}_{3,2}^{(1,0;a)}(E_g, 1)\mathbb{Q}_2^{(b)}(B_{1g})}{8} + \frac{\sqrt{2}\mathbb{G}_{3,2}^{(1,0;a)}(E_g, 2)\mathbb{Q}_2^{(b)}(B_{1g})}{8} \\
\boxed{\text{z775}} \quad \mathbb{Q}_{4,1}^{(1,0;c)}(E_g, 2) &= \frac{\sqrt{3270}\mathbb{G}_{5,1}^{(1,0;a)}(E_g, 1)\mathbb{Q}_2^{(b)}(B_{1g})}{192} - \frac{19\sqrt{4578}\mathbb{G}_{5,1}^{(1,0;a)}(E_g, 2)\mathbb{Q}_2^{(b)}(B_{1g})}{20928} - \frac{57\sqrt{1526}\mathbb{G}_{5,1}^{(1,0;a)}(E_g, 3)\mathbb{Q}_2^{(b)}(B_{1g})}{3488} \\
\boxed{\text{z776}} \quad \mathbb{Q}_{4,2}^{(1,0;c)}(E_g, 2) &= -\frac{\sqrt{3270}\mathbb{G}_{5,2}^{(1,0;a)}(E_g, 1)\mathbb{Q}_2^{(b)}(B_{1g})}{192} + \frac{19\sqrt{4578}\mathbb{G}_{5,2}^{(1,0;a)}(E_g, 2)\mathbb{Q}_2^{(b)}(B_{1g})}{20928} + \frac{57\sqrt{1526}\mathbb{G}_{5,2}^{(1,0;a)}(E_g, 3)\mathbb{Q}_2^{(b)}(B_{1g})}{3488} \\
\boxed{\text{z777}} \quad \mathbb{Q}_{6,1}^{(1,0;c)}(E_g, 1) &= -\frac{19\sqrt{42}\mathbb{G}_{5,1}^{(1,0;a)}(E_g, 1)\mathbb{Q}_2^{(b)}(B_{1g})}{192} - \frac{\sqrt{30}\mathbb{G}_{5,1}^{(1,0;a)}(E_g, 2)\mathbb{Q}_2^{(b)}(B_{1g})}{192} - \frac{3\sqrt{10}\mathbb{G}_{5,1}^{(1,0;a)}(E_g, 3)\mathbb{Q}_2^{(b)}(B_{1g})}{32} \\
\boxed{\text{z778}} \quad \mathbb{Q}_{6,2}^{(1,0;c)}(E_g, 1) &= \frac{19\sqrt{42}\mathbb{G}_{5,2}^{(1,0;a)}(E_g, 1)\mathbb{Q}_2^{(b)}(B_{1g})}{192} + \frac{\sqrt{30}\mathbb{G}_{5,2}^{(1,0;a)}(E_g, 2)\mathbb{Q}_2^{(b)}(B_{1g})}{192} + \frac{3\sqrt{10}\mathbb{G}_{5,2}^{(1,0;a)}(E_g, 3)\mathbb{Q}_2^{(b)}(B_{1g})}{32} \\
\boxed{\text{z779}} \quad \mathbb{Q}_{2,1}^{(1,1;c)}(E_g, a) &= \frac{\sqrt{2}\mathbb{Q}_{2,1}^{(1,1;a)}(E_g)\mathbb{Q}_0^{(b)}(A_{1g})}{2} \\
\boxed{\text{z780}} \quad \mathbb{Q}_{2,2}^{(1,1;c)}(E_g, a) &= \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(1,1;a)}(E_g)\mathbb{Q}_0^{(b)}(A_{1g})}{2} \\
\boxed{\text{z781}} \quad \mathbb{Q}_{2,1}^{(1,1;c)}(E_g, b) &= -\frac{\sqrt{2}\mathbb{Q}_{2,1}^{(1,1;a)}(E_g)\mathbb{Q}_2^{(b)}(B_{1g})}{2}
\end{aligned}$$

$$\begin{aligned}
\boxed{\text{z782}} \quad \mathbb{Q}_{2,2}^{(1,1;c)}(E_g, b) &= \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(1,1;a)}(E_g)\mathbb{Q}_2^{(b)}(B_{1g})}{2} \\
\boxed{\text{z783}} \quad \mathbb{Q}_{2,1}^{(1,1;c)}(E_g, c) &= -\frac{\sqrt{14}\mathbb{Q}_{4,1}^{(1,1;a)}(E_g, 1)\mathbb{Q}_2^{(b)}(B_{1g})}{8} + \frac{3\sqrt{2}\mathbb{Q}_{4,1}^{(1,1;a)}(E_g, 2)\mathbb{Q}_2^{(b)}(B_{1g})}{8} \\
\boxed{\text{z784}} \quad \mathbb{Q}_{2,2}^{(1,1;c)}(E_g, c) &= \frac{\sqrt{14}\mathbb{Q}_{4,2}^{(1,1;a)}(E_g, 1)\mathbb{Q}_2^{(b)}(B_{1g})}{8} - \frac{3\sqrt{2}\mathbb{Q}_{4,2}^{(1,1;a)}(E_g, 2)\mathbb{Q}_2^{(b)}(B_{1g})}{8} \\
\boxed{\text{z853}} \quad \mathbb{Q}_{4,1}^{(1,1;c)}(E_g, 1a) &= \frac{\sqrt{2}\mathbb{Q}_{4,1}^{(1,1;a)}(E_g, 1)\mathbb{Q}_0^{(b)}(A_{1g})}{2} \\
\boxed{\text{z854}} \quad \mathbb{Q}_{4,2}^{(1,1;c)}(E_g, 1a) &= \frac{\sqrt{2}\mathbb{Q}_{4,2}^{(1,1;a)}(E_g, 1)\mathbb{Q}_0^{(b)}(A_{1g})}{2} \\
\boxed{\text{z855}} \quad \mathbb{Q}_{4,1}^{(1,1;c)}(E_g, 1b) &= -\frac{3\sqrt{2}\mathbb{Q}_{4,1}^{(1,1;a)}(E_g, 1)\mathbb{Q}_2^{(b)}(B_{1g})}{8} - \frac{\sqrt{14}\mathbb{Q}_{4,1}^{(1,1;a)}(E_g, 2)\mathbb{Q}_2^{(b)}(B_{1g})}{8} \\
\boxed{\text{z856}} \quad \mathbb{Q}_{4,2}^{(1,1;c)}(E_g, 1b) &= \frac{3\sqrt{2}\mathbb{Q}_{4,2}^{(1,1;a)}(E_g, 1)\mathbb{Q}_2^{(b)}(B_{1g})}{8} + \frac{\sqrt{14}\mathbb{Q}_{4,2}^{(1,1;a)}(E_g, 2)\mathbb{Q}_2^{(b)}(B_{1g})}{8} \\
\boxed{\text{z857}} \quad \mathbb{Q}_{4,1}^{(1,1;c)}(E_g, 2) &= \frac{\sqrt{2}\mathbb{Q}_{4,1}^{(1,1;a)}(E_g, 2)\mathbb{Q}_0^{(b)}(A_{1g})}{2} \\
\boxed{\text{z858}} \quad \mathbb{Q}_{4,2}^{(1,1;c)}(E_g, 2) &= \frac{\sqrt{2}\mathbb{Q}_{4,2}^{(1,1;a)}(E_g, 2)\mathbb{Q}_0^{(b)}(A_{1g})}{2} \\
\boxed{\text{z859}} \quad \mathbb{Q}_{1,1}^{(c)}(E_u) &= -\frac{\sqrt{2}\mathbb{M}_1^{(a)}(A_{2g})\mathbb{T}_{1,2}^{(b)}(E_u)}{2} \\
\boxed{\text{z860}} \quad \mathbb{Q}_{1,2}^{(c)}(E_u) &= \frac{\sqrt{2}\mathbb{M}_1^{(a)}(A_{2g})\mathbb{T}_{1,1}^{(b)}(E_u)}{2} \\
\boxed{\text{z861}} \quad \mathbb{Q}_{3,1}^{(c)}(E_u, 1) &= \frac{\sqrt{3}\mathbb{M}_3^{(a)}(A_{2g})\mathbb{T}_{1,2}^{(b)}(E_u)}{4} - \frac{\sqrt{5}\mathbb{M}_3^{(a)}(B_{2g})\mathbb{T}_{1,2}^{(b)}(E_u)}{4} \\
\boxed{\text{z862}} \quad \mathbb{Q}_{3,2}^{(c)}(E_u, 1) &= -\frac{\sqrt{3}\mathbb{M}_3^{(a)}(A_{2g})\mathbb{T}_{1,1}^{(b)}(E_u)}{4} - \frac{\sqrt{5}\mathbb{M}_3^{(a)}(B_{2g})\mathbb{T}_{1,1}^{(b)}(E_u)}{4} \\
\boxed{\text{z863}} \quad \mathbb{Q}_{3,1}^{(c)}(E_u, 2) &= \frac{\sqrt{165}\mathbb{M}_3^{(a)}(A_{2g})\mathbb{T}_{1,2}^{(b)}(E_u)}{44} + \frac{2\sqrt{11}\mathbb{M}_3^{(a)}(B_{1g})\mathbb{T}_{1,1}^{(b)}(E_u)}{11} + \frac{3\sqrt{11}\mathbb{M}_3^{(a)}(B_{2g})\mathbb{T}_{1,2}^{(b)}(E_u)}{44}
\end{aligned}$$

$$\begin{aligned}
\text{z864} \quad \mathbb{Q}_{3,2}^{(c)}(E_u, 2) &= -\frac{\sqrt{165}\mathbb{M}_3^{(a)}(A_{2g})\mathbb{T}_{1,1}^{(b)}(E_u)}{44} - \frac{2\sqrt{11}\mathbb{M}_3^{(a)}(B_{1g})\mathbb{T}_{1,2}^{(b)}(E_u)}{11} + \frac{3\sqrt{11}\mathbb{M}_3^{(a)}(B_{2g})\mathbb{T}_{1,1}^{(b)}(E_u)}{44} \\
\text{z865} \quad \mathbb{Q}_{5,1}^{(c)}(E_u, 1) &= -\frac{\sqrt{30}\mathbb{M}_5^{(a)}(A_{2g}, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{16} - \frac{\sqrt{42}\mathbb{M}_5^{(a)}(A_{2g}, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{16} + \frac{\sqrt{14}\mathbb{M}_5^{(a)}(B_{2g})\mathbb{T}_{1,2}^{(b)}(E_u)}{8} \\
\text{z866} \quad \mathbb{Q}_{5,2}^{(c)}(E_u, 1) &= \frac{\sqrt{30}\mathbb{M}_5^{(a)}(A_{2g}, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{16} + \frac{\sqrt{42}\mathbb{M}_5^{(a)}(A_{2g}, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{16} + \frac{\sqrt{14}\mathbb{M}_5^{(a)}(B_{2g})\mathbb{T}_{1,1}^{(b)}(E_u)}{8} \\
\text{z867} \quad \mathbb{Q}_{5,1}^{(c)}(E_u, 2) &= -\frac{\sqrt{46}\mathbb{M}_5^{(a)}(A_{1g})\mathbb{T}_{1,1}^{(b)}(E_u)}{23} - \frac{3\sqrt{1610}\mathbb{M}_5^{(a)}(A_{2g}, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{368} + \frac{11\sqrt{46}\mathbb{M}_5^{(a)}(A_{2g}, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{368} + \frac{\sqrt{138}\mathbb{M}_5^{(a)}(B_{1g})\mathbb{T}_{1,1}^{(b)}(E_u)}{23} - \frac{\sqrt{138}\mathbb{M}_5^{(a)}(B_{2g})\mathbb{T}_{1,2}^{(b)}(E_u)}{184} \\
\text{z868} \quad \mathbb{Q}_{5,2}^{(c)}(E_u, 2) &= -\frac{\sqrt{46}\mathbb{M}_5^{(a)}(A_{1g})\mathbb{T}_{1,2}^{(b)}(E_u)}{23} + \frac{3\sqrt{1610}\mathbb{M}_5^{(a)}(A_{2g}, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{368} - \frac{11\sqrt{46}\mathbb{M}_5^{(a)}(A_{2g}, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{368} - \frac{\sqrt{138}\mathbb{M}_5^{(a)}(B_{1g})\mathbb{T}_{1,2}^{(b)}(E_u)}{23} - \frac{\sqrt{138}\mathbb{M}_5^{(a)}(B_{2g})\mathbb{T}_{1,1}^{(b)}(E_u)}{184} \\
\text{z869} \quad \mathbb{Q}_{5,1}^{(c)}(E_u, 3) &= \frac{\sqrt{28014}\mathbb{M}_5^{(a)}(A_{1g})\mathbb{T}_{1,1}^{(b)}(E_u)}{322} - \frac{7\sqrt{20010}\mathbb{M}_5^{(a)}(A_{2g}, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{5336} + \frac{3\sqrt{28014}\mathbb{M}_5^{(a)}(A_{2g}, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{1288} + \frac{5\sqrt{9338}\mathbb{M}_5^{(a)}(B_{1g})\mathbb{T}_{1,1}^{(b)}(E_u)}{9338} + \frac{39\sqrt{9338}\mathbb{M}_5^{(a)}(B_{2g})\mathbb{T}_{1,2}^{(b)}(E_u)}{18676} \\
\text{z870} \quad \mathbb{Q}_{5,2}^{(c)}(E_u, 3) &= \frac{\sqrt{28014}\mathbb{M}_5^{(a)}(A_{1g})\mathbb{T}_{1,2}^{(b)}(E_u)}{322} + \frac{7\sqrt{20010}\mathbb{M}_5^{(a)}(A_{2g}, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{5336} - \frac{3\sqrt{28014}\mathbb{M}_5^{(a)}(A_{2g}, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{1288} - \frac{5\sqrt{9338}\mathbb{M}_5^{(a)}(B_{1g})\mathbb{T}_{1,2}^{(b)}(E_u)}{9338} + \frac{39\sqrt{9338}\mathbb{M}_5^{(a)}(B_{2g})\mathbb{T}_{1,1}^{(b)}(E_u)}{18676} \\
\text{z871} \quad \mathbb{Q}_{1,1}^{(1,-1;c)}(E_u) &= -\frac{\sqrt{2}\mathbb{M}_1^{(1,-1;a)}(A_{2g})\mathbb{T}_{1,2}^{(b)}(E_u)}{2} \\
\text{z872} \quad \mathbb{Q}_{1,2}^{(1,-1;c)}(E_u) &= \frac{\sqrt{2}\mathbb{M}_1^{(1,-1;a)}(A_{2g})\mathbb{T}_{1,1}^{(b)}(E_u)}{2} \\
\text{z873} \quad \mathbb{Q}_{3,1}^{(1,-1;c)}(E_u, 1) &= \frac{\sqrt{3}\mathbb{M}_3^{(1,-1;a)}(A_{2g})\mathbb{T}_{1,2}^{(b)}(E_u)}{4} - \frac{\sqrt{5}\mathbb{M}_3^{(1,-1;a)}(B_{2g})\mathbb{T}_{1,2}^{(b)}(E_u)}{4} \\
\text{z874} \quad \mathbb{Q}_{3,2}^{(1,-1;c)}(E_u, 1) &= -\frac{\sqrt{3}\mathbb{M}_3^{(1,-1;a)}(A_{2g})\mathbb{T}_{1,1}^{(b)}(E_u)}{4} - \frac{\sqrt{5}\mathbb{M}_3^{(1,-1;a)}(B_{2g})\mathbb{T}_{1,1}^{(b)}(E_u)}{4} \\
\text{z875} \quad \mathbb{Q}_{3,1}^{(1,-1;c)}(E_u, 2) &= \frac{\sqrt{165}\mathbb{M}_3^{(1,-1;a)}(A_{2g})\mathbb{T}_{1,2}^{(b)}(E_u)}{44} + \frac{2\sqrt{11}\mathbb{M}_3^{(1,-1;a)}(B_{1g})\mathbb{T}_{1,1}^{(b)}(E_u)}{11} + \frac{3\sqrt{11}\mathbb{M}_3^{(1,-1;a)}(B_{2g})\mathbb{T}_{1,2}^{(b)}(E_u)}{44} \\
\text{z876} \quad \mathbb{Q}_{3,2}^{(1,-1;c)}(E_u, 2) &= -\frac{\sqrt{165}\mathbb{M}_3^{(1,-1;a)}(A_{2g})\mathbb{T}_{1,1}^{(b)}(E_u)}{44} - \frac{2\sqrt{11}\mathbb{M}_3^{(1,-1;a)}(B_{1g})\mathbb{T}_{1,2}^{(b)}(E_u)}{11} + \frac{3\sqrt{11}\mathbb{M}_3^{(1,-1;a)}(B_{2g})\mathbb{T}_{1,1}^{(b)}(E_u)}{44} \\
\text{z877} \quad \mathbb{Q}_{5,1}^{(1,-1;c)}(E_u, 1) &= -\frac{\sqrt{30}\mathbb{M}_5^{(1,-1;a)}(A_{2g}, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{16} - \frac{\sqrt{42}\mathbb{M}_5^{(1,-1;a)}(A_{2g}, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{16} + \frac{\sqrt{14}\mathbb{M}_5^{(1,-1;a)}(B_{2g})\mathbb{T}_{1,2}^{(b)}(E_u)}{8}
\end{aligned}$$

$$\begin{aligned}
\boxed{\text{z878}} \quad \mathbb{Q}_{5,2}^{(1,-1;c)}(E_u, 1) &= \frac{\sqrt{30}\mathbb{M}_5^{(1,-1;a)}(A_{2g}, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{16} + \frac{\sqrt{42}\mathbb{M}_5^{(1,-1;a)}(A_{2g}, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{16} + \frac{\sqrt{14}\mathbb{M}_5^{(1,-1;a)}(B_{2g}, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{8} \\
\boxed{\text{z879}} \quad \mathbb{Q}_{5,1}^{(1,-1;c)}(E_u, 2) &= -\frac{\sqrt{46}\mathbb{M}_5^{(1,-1;a)}(A_{1g})\mathbb{T}_{1,1}^{(b)}(E_u)}{23} - \frac{3\sqrt{1610}\mathbb{M}_5^{(1,-1;a)}(A_{2g}, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{368} + \frac{11\sqrt{46}\mathbb{M}_5^{(1,-1;a)}(A_{2g}, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{368} \\
&\quad + \frac{\sqrt{138}\mathbb{M}_5^{(1,-1;a)}(B_{1g})\mathbb{T}_{1,1}^{(b)}(E_u)}{23} - \frac{\sqrt{138}\mathbb{M}_5^{(1,-1;a)}(B_{2g})\mathbb{T}_{1,2}^{(b)}(E_u)}{184} \\
\boxed{\text{z880}} \quad \mathbb{Q}_{5,2}^{(1,-1;c)}(E_u, 2) &= -\frac{\sqrt{46}\mathbb{M}_5^{(1,-1;a)}(A_{1g})\mathbb{T}_{1,2}^{(b)}(E_u)}{23} + \frac{3\sqrt{1610}\mathbb{M}_5^{(1,-1;a)}(A_{2g}, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{368} - \frac{11\sqrt{46}\mathbb{M}_5^{(1,-1;a)}(A_{2g}, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{368} \\
&\quad - \frac{\sqrt{138}\mathbb{M}_5^{(1,-1;a)}(B_{1g})\mathbb{T}_{1,2}^{(b)}(E_u)}{23} - \frac{\sqrt{138}\mathbb{M}_5^{(1,-1;a)}(B_{2g})\mathbb{T}_{1,1}^{(b)}(E_u)}{184} \\
\boxed{\text{z948}} \quad \mathbb{Q}_{5,1}^{(1,-1;c)}(E_u, 3) &= \frac{\sqrt{28014}\mathbb{M}_5^{(1,-1;a)}(A_{1g})\mathbb{T}_{1,1}^{(b)}(E_u)}{322} - \frac{7\sqrt{20010}\mathbb{M}_5^{(1,-1;a)}(A_{2g}, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{5336} + \frac{3\sqrt{28014}\mathbb{M}_5^{(1,-1;a)}(A_{2g}, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{1288} \\
&\quad + \frac{5\sqrt{9338}\mathbb{M}_5^{(1,-1;a)}(B_{1g})\mathbb{T}_{1,1}^{(b)}(E_u)}{9338} + \frac{39\sqrt{9338}\mathbb{M}_5^{(1,-1;a)}(B_{2g})\mathbb{T}_{1,2}^{(b)}(E_u)}{18676} \\
\boxed{\text{z949}} \quad \mathbb{Q}_{5,2}^{(1,-1;c)}(E_u, 3) &= \frac{\sqrt{28014}\mathbb{M}_5^{(1,-1;a)}(A_{1g})\mathbb{T}_{1,2}^{(b)}(E_u)}{322} + \frac{7\sqrt{20010}\mathbb{M}_5^{(1,-1;a)}(A_{2g}, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{5336} - \frac{3\sqrt{28014}\mathbb{M}_5^{(1,-1;a)}(A_{2g}, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{1288} \\
&\quad - \frac{5\sqrt{9338}\mathbb{M}_5^{(1,-1;a)}(B_{1g})\mathbb{T}_{1,2}^{(b)}(E_u)}{9338} + \frac{39\sqrt{9338}\mathbb{M}_5^{(1,-1;a)}(B_{2g})\mathbb{T}_{1,1}^{(b)}(E_u)}{18676} \\
\boxed{\text{z950}} \quad \mathbb{Q}_{7,1}^{(1,-1;c)}(E_u, 1) &= \frac{5\sqrt{14}\mathbb{M}_7^{(1,-1;a)}(A_{2g}, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{64} + \frac{3\sqrt{66}\mathbb{M}_7^{(1,-1;a)}(A_{2g}, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{64} - \frac{\sqrt{429}\mathbb{M}_7^{(1,-1;a)}(B_{2g}, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{64} - \frac{15\sqrt{3}\mathbb{M}_7^{(1,-1;a)}(B_{2g}, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{64} \\
\boxed{\text{z951}} \quad \mathbb{Q}_{7,2}^{(1,-1;c)}(E_u, 1) &= -\frac{5\sqrt{14}\mathbb{M}_7^{(1,-1;a)}(A_{2g}, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{64} - \frac{3\sqrt{66}\mathbb{M}_7^{(1,-1;a)}(A_{2g}, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{64} - \frac{\sqrt{429}\mathbb{M}_7^{(1,-1;a)}(B_{2g}, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{64} - \frac{15\sqrt{3}\mathbb{M}_7^{(1,-1;a)}(B_{2g}, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{64} \\
\boxed{\text{z952}} \quad \mathbb{Q}_{7,1}^{(1,-1;c)}(E_u, 2) &= -\frac{\sqrt{2}\mathbb{M}_7^{(1,-1;a)}(A_{1g})\mathbb{T}_{1,1}^{(b)}(E_u)}{6} + \frac{\sqrt{462}\mathbb{M}_7^{(1,-1;a)}(A_{2g}, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{64} - \frac{43\sqrt{2}\mathbb{M}_7^{(1,-1;a)}(A_{2g}, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{192} \\
&\quad + \frac{\sqrt{6}\mathbb{M}_7^{(1,-1;a)}(B_{1g}, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{6} + \frac{3\sqrt{13}\mathbb{M}_7^{(1,-1;a)}(B_{2g}, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{64} - \frac{11\sqrt{11}\mathbb{M}_7^{(1,-1;a)}(B_{2g}, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{192} \\
\boxed{\text{z953}} \quad \mathbb{Q}_{7,2}^{(1,-1;c)}(E_u, 2) &= -\frac{\sqrt{2}\mathbb{M}_7^{(1,-1;a)}(A_{1g})\mathbb{T}_{1,2}^{(b)}(E_u)}{6} - \frac{\sqrt{462}\mathbb{M}_7^{(1,-1;a)}(A_{2g}, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{64} + \frac{43\sqrt{2}\mathbb{M}_7^{(1,-1;a)}(A_{2g}, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{192} \\
&\quad - \frac{\sqrt{6}\mathbb{M}_7^{(1,-1;a)}(B_{1g}, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{6} + \frac{3\sqrt{13}\mathbb{M}_7^{(1,-1;a)}(B_{2g}, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{64} - \frac{11\sqrt{11}\mathbb{M}_7^{(1,-1;a)}(B_{2g}, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{192}
\end{aligned}$$

$$\begin{aligned}
\boxed{\text{z954}} \quad \mathbb{Q}_{7,1}^{(1,-1;c)}(E_u, 3) &= \frac{\sqrt{9230}\mathbb{M}_7^{(1,-1;a)}(A_{1g})\mathbb{T}_{1,1}^{(b)}(E_u)}{213} + \frac{3\sqrt{2132130}\mathbb{M}_7^{(1,-1;a)}(A_{2g}, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{22720} - \frac{13\sqrt{9230}\mathbb{M}_7^{(1,-1;a)}(A_{2g}, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{13632} + \frac{\sqrt{23430}\mathbb{M}_7^{(1,-1;a)}(B_{1g}, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{355} \\
&+ \frac{\sqrt{27690}\mathbb{M}_7^{(1,-1;a)}(B_{1g}, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{1065} - \frac{31\sqrt{355}\mathbb{M}_7^{(1,-1;a)}(B_{2g}, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{4544} + \frac{47\sqrt{50765}\mathbb{M}_7^{(1,-1;a)}(B_{2g}, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{68160} \\
\boxed{\text{z955}} \quad \mathbb{Q}_{7,2}^{(1,-1;c)}(E_u, 3) &= \frac{\sqrt{9230}\mathbb{M}_7^{(1,-1;a)}(A_{1g})\mathbb{T}_{1,2}^{(b)}(E_u)}{213} - \frac{3\sqrt{2132130}\mathbb{M}_7^{(1,-1;a)}(A_{2g}, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{22720} + \frac{13\sqrt{9230}\mathbb{M}_7^{(1,-1;a)}(A_{2g}, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{13632} - \frac{\sqrt{23430}\mathbb{M}_7^{(1,-1;a)}(B_{1g}, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{355} \\
&- \frac{\sqrt{27690}\mathbb{M}_7^{(1,-1;a)}(B_{1g}, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{1065} - \frac{31\sqrt{355}\mathbb{M}_7^{(1,-1;a)}(B_{2g}, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{4544} + \frac{47\sqrt{50765}\mathbb{M}_7^{(1,-1;a)}(B_{2g}, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{68160} \\
\boxed{\text{z956}} \quad \mathbb{Q}_{7,1}^{(1,-1;c)}(E_u, 4) &= -\frac{77\sqrt{206894}\mathbb{M}_7^{(1,-1;a)}(A_{1g})\mathbb{T}_{1,1}^{(b)}(E_u)}{620682} + \frac{\sqrt{47792514}\mathbb{M}_7^{(1,-1;a)}(A_{2g}, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{49984} + \frac{4015\sqrt{206894}\mathbb{M}_7^{(1,-1;a)}(A_{2g}, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{19861824} \\
&+ \frac{41\sqrt{88757526}\mathbb{M}_7^{(1,-1;a)}(B_{1g}, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{1137917} - \frac{271\sqrt{620682}\mathbb{M}_7^{(1,-1;a)}(B_{1g}, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{620682} \\
&+ \frac{55\sqrt{1344811}\mathbb{M}_7^{(1,-1;a)}(B_{2g}, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{140864} - \frac{1157\sqrt{1137917}\mathbb{M}_7^{(1,-1;a)}(B_{2g}, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{7047744} \\
\boxed{\text{z957}} \quad \mathbb{Q}_{7,2}^{(1,-1;c)}(E_u, 4) &= -\frac{77\sqrt{206894}\mathbb{M}_7^{(1,-1;a)}(A_{1g})\mathbb{T}_{1,2}^{(b)}(E_u)}{620682} - \frac{\sqrt{47792514}\mathbb{M}_7^{(1,-1;a)}(A_{2g}, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{49984} - \frac{4015\sqrt{206894}\mathbb{M}_7^{(1,-1;a)}(A_{2g}, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{19861824} \\
&- \frac{41\sqrt{88757526}\mathbb{M}_7^{(1,-1;a)}(B_{1g}, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{1137917} + \frac{271\sqrt{620682}\mathbb{M}_7^{(1,-1;a)}(B_{1g}, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{620682} \\
&+ \frac{55\sqrt{1344811}\mathbb{M}_7^{(1,-1;a)}(B_{2g}, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{140864} - \frac{1157\sqrt{1137917}\mathbb{M}_7^{(1,-1;a)}(B_{2g}, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{7047744} \\
\boxed{\text{z958}} \quad \mathbb{Q}_{1,1}^{(1,0;c)}(E_u) &= -\frac{\sqrt{14}\mathbb{T}_2^{(1,0;a)}(A_{1g})\mathbb{T}_{1,1}^{(b)}(E_u)}{14} + \frac{\sqrt{42}\mathbb{T}_2^{(1,0;a)}(B_{1g})\mathbb{T}_{1,1}^{(b)}(E_u)}{14} + \frac{\sqrt{42}\mathbb{T}_2^{(1,0;a)}(B_{2g})\mathbb{T}_{1,2}^{(b)}(E_u)}{14} \\
\boxed{\text{z959}} \quad \mathbb{Q}_{1,2}^{(1,0;c)}(E_u) &= -\frac{\sqrt{14}\mathbb{T}_2^{(1,0;a)}(A_{1g})\mathbb{T}_{1,2}^{(b)}(E_u)}{14} - \frac{\sqrt{42}\mathbb{T}_2^{(1,0;a)}(B_{1g})\mathbb{T}_{1,2}^{(b)}(E_u)}{14} + \frac{\sqrt{42}\mathbb{T}_2^{(1,0;a)}(B_{2g})\mathbb{T}_{1,1}^{(b)}(E_u)}{14} \\
\boxed{\text{z960}} \quad \mathbb{Q}_{3,1}^{(1,0;c)}(E_u, 1a) &= -\frac{\sqrt{42}\mathbb{T}_2^{(1,0;a)}(A_{1g})\mathbb{T}_{1,1}^{(b)}(E_u)}{28} + \frac{3\sqrt{14}\mathbb{T}_2^{(1,0;a)}(B_{1g})\mathbb{T}_{1,1}^{(b)}(E_u)}{28} - \frac{\sqrt{14}\mathbb{T}_2^{(1,0;a)}(B_{2g})\mathbb{T}_{1,2}^{(b)}(E_u)}{7} \\
\boxed{\text{z961}} \quad \mathbb{Q}_{3,2}^{(1,0;c)}(E_u, 1a) &= -\frac{\sqrt{42}\mathbb{T}_2^{(1,0;a)}(A_{1g})\mathbb{T}_{1,2}^{(b)}(E_u)}{28} - \frac{3\sqrt{14}\mathbb{T}_2^{(1,0;a)}(B_{1g})\mathbb{T}_{1,2}^{(b)}(E_u)}{28} - \frac{\sqrt{14}\mathbb{T}_2^{(1,0;a)}(B_{2g})\mathbb{T}_{1,1}^{(b)}(E_u)}{7} \\
\boxed{\text{z962}} \quad \mathbb{Q}_{3,1}^{(1,0;c)}(E_u, 1b) &= \frac{\sqrt{273}\mathbb{T}_4^{(1,0;a)}(A_{1g}, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{39} - \frac{\sqrt{195}\mathbb{T}_4^{(1,0;a)}(A_{1g}, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{78} + \frac{\sqrt{455}\mathbb{T}_4^{(1,0;a)}(A_{2g})\mathbb{T}_{1,2}^{(b)}(E_u)}{52} + \frac{\sqrt{65}\mathbb{T}_4^{(1,0;a)}(B_{1g})\mathbb{T}_{1,1}^{(b)}(E_u)}{26} - \frac{\sqrt{65}\mathbb{T}_4^{(1,0;a)}(B_{2g})\mathbb{T}_{1,2}^{(b)}(E_u)}{52}
\end{aligned}$$

$$\boxed{\text{z963}} \quad \mathbb{Q}_{3,2}^{(1,0;c)}(E_u, 1b) = \frac{\sqrt{273}\mathbb{T}_4^{(1,0;a)}(A_{1g}, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{39} - \frac{\sqrt{195}\mathbb{T}_4^{(1,0;a)}(A_{1g}, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{78} - \frac{\sqrt{455}\mathbb{T}_4^{(1,0;a)}(A_{2g})\mathbb{T}_{1,1}^{(b)}(E_u)}{52} - \frac{\sqrt{65}\mathbb{T}_4^{(1,0;a)}(B_{1g})\mathbb{T}_{1,2}^{(b)}(E_u)}{26} - \frac{\sqrt{65}\mathbb{T}_4^{(1,0;a)}(B_{2g})\mathbb{T}_{1,1}^{(b)}(E_u)}{52}$$

$$\boxed{\text{z964}} \quad \mathbb{Q}_{3,1}^{(1,0;c)}(E_u, 2a) = -\frac{\sqrt{6}\mathbb{T}_2^{(1,0;a)}(A_{1g})\mathbb{T}_{1,1}^{(b)}(E_u)}{4} - \frac{\sqrt{2}\mathbb{T}_2^{(1,0;a)}(B_{1g})\mathbb{T}_{1,1}^{(b)}(E_u)}{4}$$

$$\boxed{\text{z965}} \quad \mathbb{Q}_{3,2}^{(1,0;c)}(E_u, 2a) = -\frac{\sqrt{6}\mathbb{T}_2^{(1,0;a)}(A_{1g})\mathbb{T}_{1,2}^{(b)}(E_u)}{4} + \frac{\sqrt{2}\mathbb{T}_2^{(1,0;a)}(B_{1g})\mathbb{T}_{1,2}^{(b)}(E_u)}{4}$$

$$\boxed{\text{z966}} \quad \mathbb{Q}_{3,1}^{(1,0;c)}(E_u, 2b) = \frac{\sqrt{5655}\mathbb{T}_4^{(1,0;a)}(A_{1g}, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{1131} + \frac{73\sqrt{7917}\mathbb{T}_4^{(1,0;a)}(A_{1g}, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{15834} - \frac{21\sqrt{377}\mathbb{T}_4^{(1,0;a)}(A_{2g})\mathbb{T}_{1,2}^{(b)}(E_u)}{1508} \\ + \frac{31\sqrt{2639}\mathbb{T}_4^{(1,0;a)}(B_{1g})\mathbb{T}_{1,1}^{(b)}(E_u)}{5278} - \frac{83\sqrt{2639}\mathbb{T}_4^{(1,0;a)}(B_{2g})\mathbb{T}_{1,2}^{(b)}(E_u)}{10556}$$

$$\boxed{\text{z967}} \quad \mathbb{Q}_{3,2}^{(1,0;c)}(E_u, 2b) = \frac{\sqrt{5655}\mathbb{T}_4^{(1,0;a)}(A_{1g}, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{1131} + \frac{73\sqrt{7917}\mathbb{T}_4^{(1,0;a)}(A_{1g}, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{15834} + \frac{21\sqrt{377}\mathbb{T}_4^{(1,0;a)}(A_{2g})\mathbb{T}_{1,1}^{(b)}(E_u)}{1508} \\ - \frac{31\sqrt{2639}\mathbb{T}_4^{(1,0;a)}(B_{1g})\mathbb{T}_{1,2}^{(b)}(E_u)}{5278} - \frac{83\sqrt{2639}\mathbb{T}_4^{(1,0;a)}(B_{2g})\mathbb{T}_{1,1}^{(b)}(E_u)}{10556}$$

$$\boxed{\text{z968}} \quad \mathbb{Q}_{5,1}^{(1,0;c)}(E_u, 1a) = \frac{5\sqrt{58}\mathbb{T}_4^{(1,0;a)}(A_{1g}, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{116} - \frac{41\sqrt{2030}\mathbb{T}_4^{(1,0;a)}(A_{1g}, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{8120} - \frac{7\sqrt{870}\mathbb{T}_4^{(1,0;a)}(A_{2g})\mathbb{T}_{1,2}^{(b)}(E_u)}{435} \\ + \frac{59\sqrt{6090}\mathbb{T}_4^{(1,0;a)}(B_{1g})\mathbb{T}_{1,1}^{(b)}(E_u)}{24360} + \frac{11\sqrt{6090}\mathbb{T}_4^{(1,0;a)}(B_{2g})\mathbb{T}_{1,2}^{(b)}(E_u)}{3045}$$

$$\boxed{\text{z969}} \quad \mathbb{Q}_{5,2}^{(1,0;c)}(E_u, 1a) = \frac{5\sqrt{58}\mathbb{T}_4^{(1,0;a)}(A_{1g}, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{116} - \frac{41\sqrt{2030}\mathbb{T}_4^{(1,0;a)}(A_{1g}, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{8120} + \frac{7\sqrt{870}\mathbb{T}_4^{(1,0;a)}(A_{2g})\mathbb{T}_{1,1}^{(b)}(E_u)}{435} \\ - \frac{59\sqrt{6090}\mathbb{T}_4^{(1,0;a)}(B_{1g})\mathbb{T}_{1,2}^{(b)}(E_u)}{24360} + \frac{11\sqrt{6090}\mathbb{T}_4^{(1,0;a)}(B_{2g})\mathbb{T}_{1,1}^{(b)}(E_u)}{3045}$$

$$\boxed{\text{z970}} \quad \mathbb{Q}_{5,1}^{(1,0;c)}(E_u, 1b) = \frac{\sqrt{57}\mathbb{T}_6^{(1,0;a)}(A_{1g}, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{38} - \frac{\sqrt{399}\mathbb{T}_6^{(1,0;a)}(A_{1g}, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{76} - \frac{\sqrt{798}\mathbb{T}_6^{(1,0;a)}(A_{2g})\mathbb{T}_{1,2}^{(b)}(E_u)}{152} \\ + \frac{3\sqrt{133}\mathbb{T}_6^{(1,0;a)}(B_{1g}, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{76} + \frac{3\sqrt{1463}\mathbb{T}_6^{(1,0;a)}(B_{2g}, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{304} + \frac{\sqrt{665}\mathbb{T}_6^{(1,0;a)}(B_{2g}, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{304}$$

$$\boxed{\text{z971}} \quad \mathbb{Q}_{5,2}^{(1,0;c)}(E_u, 1b) = \frac{\sqrt{57}\mathbb{T}_6^{(1,0;a)}(A_{1g}, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{38} - \frac{\sqrt{399}\mathbb{T}_6^{(1,0;a)}(A_{1g}, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{76} + \frac{\sqrt{798}\mathbb{T}_6^{(1,0;a)}(A_{2g})\mathbb{T}_{1,1}^{(b)}(E_u)}{152} \\ - \frac{3\sqrt{133}\mathbb{T}_6^{(1,0;a)}(B_{1g}, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{76} + \frac{3\sqrt{1463}\mathbb{T}_6^{(1,0;a)}(B_{2g}, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{304} + \frac{\sqrt{665}\mathbb{T}_6^{(1,0;a)}(B_{2g}, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{304}$$



$$\begin{aligned}
\boxed{\text{z972}} \quad \mathbb{Q}_{5,1}^{(1,0;c)}(Eu, 2a) &= \frac{5\sqrt{62}\mathbb{T}_4^{(1,0;a)}(A_{1g}, 1)\mathbb{T}_{1,1}^{(b)}(Eu)}{124} - \frac{3\sqrt{2170}\mathbb{T}_4^{(1,0;a)}(A_{1g}, 2)\mathbb{T}_{1,1}^{(b)}(Eu)}{1240} - \frac{2\sqrt{930}\mathbb{T}_4^{(1,0;a)}(A_{2g})\mathbb{T}_{1,2}^{(b)}(Eu)}{465} - \frac{23\sqrt{6510}\mathbb{T}_4^{(1,0;a)}(B_{1g})\mathbb{T}_{1,1}^{(b)}(Eu)}{3720} - \frac{2\sqrt{6510}\mathbb{T}_4^{(1,0;a)}(B_{2g})\mathbb{T}_{1,2}^{(b)}(Eu)}{465} \\
\boxed{\text{z973}} \quad \mathbb{Q}_{5,2}^{(1,0;c)}(Eu, 2a) &= \frac{5\sqrt{62}\mathbb{T}_4^{(1,0;a)}(A_{1g}, 1)\mathbb{T}_{1,2}^{(b)}(Eu)}{124} - \frac{3\sqrt{2170}\mathbb{T}_4^{(1,0;a)}(A_{1g}, 2)\mathbb{T}_{1,2}^{(b)}(Eu)}{1240} + \frac{2\sqrt{930}\mathbb{T}_4^{(1,0;a)}(A_{2g})\mathbb{T}_{1,1}^{(b)}(Eu)}{465} + \frac{23\sqrt{6510}\mathbb{T}_4^{(1,0;a)}(B_{1g})\mathbb{T}_{1,2}^{(b)}(Eu)}{3720} - \frac{2\sqrt{6510}\mathbb{T}_4^{(1,0;a)}(B_{2g})\mathbb{T}_{1,1}^{(b)}(Eu)}{465} \\
\boxed{\text{z974}} \quad \mathbb{Q}_{5,1}^{(1,0;c)}(Eu, 2b) &= -\frac{\sqrt{35}\mathbb{T}_6^{(1,0;a)}(A_{1g}, 1)\mathbb{T}_{1,1}^{(b)}(Eu)}{14} - \frac{\sqrt{5}\mathbb{T}_6^{(1,0;a)}(A_{1g}, 2)\mathbb{T}_{1,1}^{(b)}(Eu)}{28} + \frac{\sqrt{10}\mathbb{T}_6^{(1,0;a)}(A_{2g})\mathbb{T}_{1,2}^{(b)}(Eu)}{8} \\
&+ \frac{\sqrt{15}\mathbb{T}_6^{(1,0;a)}(B_{1g}, 2)\mathbb{T}_{1,1}^{(b)}(Eu)}{28} + \frac{\sqrt{165}\mathbb{T}_6^{(1,0;a)}(B_{2g}, 1)\mathbb{T}_{1,2}^{(b)}(Eu)}{112} + \frac{23\sqrt{3}\mathbb{T}_6^{(1,0;a)}(B_{2g}, 2)\mathbb{T}_{1,2}^{(b)}(Eu)}{112} \\
\boxed{\text{z975}} \quad \mathbb{Q}_{5,2}^{(1,0;c)}(Eu, 2b) &= -\frac{\sqrt{35}\mathbb{T}_6^{(1,0;a)}(A_{1g}, 1)\mathbb{T}_{1,2}^{(b)}(Eu)}{14} - \frac{\sqrt{5}\mathbb{T}_6^{(1,0;a)}(A_{1g}, 2)\mathbb{T}_{1,2}^{(b)}(Eu)}{28} - \frac{\sqrt{10}\mathbb{T}_6^{(1,0;a)}(A_{2g})\mathbb{T}_{1,1}^{(b)}(Eu)}{8} \\
&- \frac{\sqrt{15}\mathbb{T}_6^{(1,0;a)}(B_{1g}, 2)\mathbb{T}_{1,2}^{(b)}(Eu)}{28} + \frac{\sqrt{165}\mathbb{T}_6^{(1,0;a)}(B_{2g}, 1)\mathbb{T}_{1,1}^{(b)}(Eu)}{112} + \frac{23\sqrt{3}\mathbb{T}_6^{(1,0;a)}(B_{2g}, 2)\mathbb{T}_{1,1}^{(b)}(Eu)}{112} \\
\boxed{\text{z1043}} \quad \mathbb{Q}_{5,1}^{(1,0;c)}(Eu, 3a) &= \frac{\sqrt{930}\mathbb{T}_4^{(1,0;a)}(A_{1g}, 1)\mathbb{T}_{1,1}^{(b)}(Eu)}{93} + \frac{5\sqrt{1302}\mathbb{T}_4^{(1,0;a)}(A_{1g}, 2)\mathbb{T}_{1,1}^{(b)}(Eu)}{372} + \frac{\sqrt{62}\mathbb{T}_4^{(1,0;a)}(A_{2g})\mathbb{T}_{1,2}^{(b)}(Eu)}{62} - \frac{\sqrt{434}\mathbb{T}_4^{(1,0;a)}(B_{1g})\mathbb{T}_{1,1}^{(b)}(Eu)}{124} + \frac{\sqrt{434}\mathbb{T}_4^{(1,0;a)}(B_{2g})\mathbb{T}_{1,2}^{(b)}(Eu)}{62} \\
\boxed{\text{z1044}} \quad \mathbb{Q}_{5,2}^{(1,0;c)}(Eu, 3a) &= \frac{\sqrt{930}\mathbb{T}_4^{(1,0;a)}(A_{1g}, 1)\mathbb{T}_{1,2}^{(b)}(Eu)}{93} + \frac{5\sqrt{1302}\mathbb{T}_4^{(1,0;a)}(A_{1g}, 2)\mathbb{T}_{1,2}^{(b)}(Eu)}{372} - \frac{\sqrt{62}\mathbb{T}_4^{(1,0;a)}(A_{2g})\mathbb{T}_{1,1}^{(b)}(Eu)}{62} + \frac{\sqrt{434}\mathbb{T}_4^{(1,0;a)}(B_{1g})\mathbb{T}_{1,2}^{(b)}(Eu)}{124} + \frac{\sqrt{434}\mathbb{T}_4^{(1,0;a)}(B_{2g})\mathbb{T}_{1,1}^{(b)}(Eu)}{62} \\
\boxed{\text{z1045}} \quad \mathbb{Q}_{5,1}^{(1,0;c)}(Eu, 3b) &= -\frac{4\sqrt{97709115}\mathbb{T}_6^{(1,0;a)}(A_{1g}, 1)\mathbb{T}_{1,1}^{(b)}(Eu)}{6513941} - \frac{1131\sqrt{13958445}\mathbb{T}_6^{(1,0;a)}(A_{1g}, 2)\mathbb{T}_{1,1}^{(b)}(Eu)}{13027882} - \frac{3\sqrt{27916890}\mathbb{T}_6^{(1,0;a)}(A_{2g})\mathbb{T}_{1,2}^{(b)}(Eu)}{86564} - \frac{7\sqrt{10236193}\mathbb{T}_6^{(1,0;a)}(B_{1g}, 1)\mathbb{T}_{1,1}^{(b)}(Eu)}{48977} \\
&- \frac{331\sqrt{4652815}\mathbb{T}_6^{(1,0;a)}(B_{1g}, 2)\mathbb{T}_{1,1}^{(b)}(Eu)}{13027882} - \frac{3\sqrt{51180965}\mathbb{T}_6^{(1,0;a)}(B_{2g}, 1)\mathbb{T}_{1,2}^{(b)}(Eu)}{71288} + \frac{195\sqrt{930563}\mathbb{T}_6^{(1,0;a)}(B_{2g}, 2)\mathbb{T}_{1,2}^{(b)}(Eu)}{777784} \\
\boxed{\text{z1046}} \quad \mathbb{Q}_{5,2}^{(1,0;c)}(Eu, 3b) &= -\frac{4\sqrt{97709115}\mathbb{T}_6^{(1,0;a)}(A_{1g}, 1)\mathbb{T}_{1,2}^{(b)}(Eu)}{6513941} - \frac{1131\sqrt{13958445}\mathbb{T}_6^{(1,0;a)}(A_{1g}, 2)\mathbb{T}_{1,2}^{(b)}(Eu)}{13027882} + \frac{3\sqrt{27916890}\mathbb{T}_6^{(1,0;a)}(A_{2g})\mathbb{T}_{1,1}^{(b)}(Eu)}{86564} + \frac{7\sqrt{10236193}\mathbb{T}_6^{(1,0;a)}(B_{1g}, 1)\mathbb{T}_{1,2}^{(b)}(Eu)}{48977} \\
&+ \frac{331\sqrt{4652815}\mathbb{T}_6^{(1,0;a)}(B_{1g}, 2)\mathbb{T}_{1,2}^{(b)}(Eu)}{13027882} - \frac{3\sqrt{51180965}\mathbb{T}_6^{(1,0;a)}(B_{2g}, 1)\mathbb{T}_{1,1}^{(b)}(Eu)}{71288} + \frac{195\sqrt{930563}\mathbb{T}_6^{(1,0;a)}(B_{2g}, 2)\mathbb{T}_{1,1}^{(b)}(Eu)}{777784} \\
\boxed{\text{z1047}} \quad \mathbb{Q}_{7,1}^{(1,0;c)}(Eu, 1) &= \frac{2603\sqrt{830698897}\mathbb{T}_6^{(1,0;a)}(A_{1g}, 1)\mathbb{T}_{1,1}^{(b)}(Eu)}{474685084} - \frac{10901\sqrt{118671271}\mathbb{T}_6^{(1,0;a)}(A_{1g}, 2)\mathbb{T}_{1,1}^{(b)}(Eu)}{949370168} + \frac{213\sqrt{237342542}\mathbb{T}_6^{(1,0;a)}(A_{2g})\mathbb{T}_{1,2}^{(b)}(Eu)}{11039188} \\
&+ \frac{98\sqrt{19580759715}\mathbb{T}_6^{(1,0;a)}(B_{1g}, 1)\mathbb{T}_{1,1}^{(b)}(Eu)}{118671271} + \frac{18741\sqrt{356013813}\mathbb{T}_6^{(1,0;a)}(B_{1g}, 2)\mathbb{T}_{1,1}^{(b)}(Eu)}{949370168} \\
&- \frac{9\sqrt{3916151943}\mathbb{T}_6^{(1,0;a)}(B_{2g}, 1)\mathbb{T}_{1,2}^{(b)}(Eu)}{1298728} - \frac{59\sqrt{1780069065}\mathbb{T}_6^{(1,0;a)}(B_{2g}, 2)\mathbb{T}_{1,2}^{(b)}(Eu)}{14169704}
\end{aligned}$$

$$\begin{aligned}
\boxed{\text{z1048}} \quad \mathbb{Q}_{7,2}^{(1,0;c)}(E_u, 1) &= \frac{2603\sqrt{830698897}\mathbb{T}_6^{(1,0;a)}(A_{1g}, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{474685084} - \frac{10901\sqrt{118671271}\mathbb{T}_6^{(1,0;a)}(A_{1g}, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{949370168} - \frac{213\sqrt{237342542}\mathbb{T}_6^{(1,0;a)}(A_{2g})\mathbb{T}_{1,1}^{(b)}(E_u)}{11039188} \\
&\quad - \frac{98\sqrt{19580759715}\mathbb{T}_6^{(1,0;a)}(B_{1g}, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{118671271} - \frac{18741\sqrt{356013813}\mathbb{T}_6^{(1,0;a)}(B_{1g}, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{949370168} \\
&\quad - \frac{9\sqrt{3916151943}\mathbb{T}_6^{(1,0;a)}(B_{2g}, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{1298728} - \frac{59\sqrt{1780069065}\mathbb{T}_6^{(1,0;a)}(B_{2g}, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{14169704} \\
\boxed{\text{z1049}} \quad \mathbb{Q}_{7,1}^{(1,0;c)}(E_u, 2) &= -\frac{141\sqrt{7756023}\mathbb{T}_6^{(1,0;a)}(A_{1g}, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{940124} + \frac{99\sqrt{54292161}\mathbb{T}_6^{(1,0;a)}(A_{1g}, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{13161736} - \frac{269\sqrt{108584322}\mathbb{T}_6^{(1,0;a)}(A_{2g})\mathbb{T}_{1,2}^{(b)}(E_u)}{6580868} + \frac{132\sqrt{8226085}\mathbb{T}_6^{(1,0;a)}(B_{1g}, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{1645217} \\
&\quad + \frac{663\sqrt{18097387}\mathbb{T}_6^{(1,0;a)}(B_{1g}, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{13161736} - \frac{2087\sqrt{1645217}\mathbb{T}_6^{(1,0;a)}(B_{2g}, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{13161736} - \frac{39\sqrt{90486935}\mathbb{T}_6^{(1,0;a)}(B_{2g}, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{13161736} \\
\boxed{\text{z1050}} \quad \mathbb{Q}_{7,2}^{(1,0;c)}(E_u, 2) &= -\frac{141\sqrt{7756023}\mathbb{T}_6^{(1,0;a)}(A_{1g}, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{940124} + \frac{99\sqrt{54292161}\mathbb{T}_6^{(1,0;a)}(A_{1g}, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{13161736} + \frac{269\sqrt{108584322}\mathbb{T}_6^{(1,0;a)}(A_{2g})\mathbb{T}_{1,1}^{(b)}(E_u)}{6580868} - \frac{132\sqrt{8226085}\mathbb{T}_6^{(1,0;a)}(B_{1g}, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{1645217} \\
&\quad - \frac{663\sqrt{18097387}\mathbb{T}_6^{(1,0;a)}(B_{1g}, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{13161736} - \frac{2087\sqrt{1645217}\mathbb{T}_6^{(1,0;a)}(B_{2g}, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{13161736} - \frac{39\sqrt{90486935}\mathbb{T}_6^{(1,0;a)}(B_{2g}, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{13161736} \\
\boxed{\text{z1051}} \quad \mathbb{Q}_{7,1}^{(1,0;c)}(E_u, 3) &= \frac{8\sqrt{7727214}\mathbb{T}_6^{(1,0;a)}(A_{1g}, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{117079} - \frac{435\sqrt{54090498}\mathbb{T}_6^{(1,0;a)}(A_{1g}, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{13112848} - \frac{8\sqrt{27045249}\mathbb{T}_6^{(1,0;a)}(A_{2g})\mathbb{T}_{1,2}^{(b)}(E_u)}{819553} + \frac{1075\sqrt{8195530}\mathbb{T}_6^{(1,0;a)}(B_{1g}, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{6556424} \\
&\quad - \frac{691\sqrt{18030166}\mathbb{T}_6^{(1,0;a)}(B_{1g}, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{13112848} - \frac{66\sqrt{1639106}\mathbb{T}_6^{(1,0;a)}(B_{2g}, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{819553} + \frac{30\sqrt{90150830}\mathbb{T}_6^{(1,0;a)}(B_{2g}, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{819553} \\
\boxed{\text{z1052}} \quad \mathbb{Q}_{7,2}^{(1,0;c)}(E_u, 3) &= \frac{8\sqrt{7727214}\mathbb{T}_6^{(1,0;a)}(A_{1g}, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{117079} - \frac{435\sqrt{54090498}\mathbb{T}_6^{(1,0;a)}(A_{1g}, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{13112848} + \frac{8\sqrt{27045249}\mathbb{T}_6^{(1,0;a)}(A_{2g})\mathbb{T}_{1,1}^{(b)}(E_u)}{819553} - \frac{1075\sqrt{8195530}\mathbb{T}_6^{(1,0;a)}(B_{1g}, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{6556424} \\
&\quad + \frac{691\sqrt{18030166}\mathbb{T}_6^{(1,0;a)}(B_{1g}, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{13112848} - \frac{66\sqrt{1639106}\mathbb{T}_6^{(1,0;a)}(B_{2g}, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{819553} + \frac{30\sqrt{90150830}\mathbb{T}_6^{(1,0;a)}(B_{2g}, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{819553} \\
\boxed{\text{z1053}} \quad \mathbb{Q}_{7,1}^{(1,0;c)}(E_u, 4) &= -\frac{2\sqrt{16898}\mathbb{T}_6^{(1,0;a)}(A_{1g}, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{1207} - \frac{193\sqrt{2414}\mathbb{T}_6^{(1,0;a)}(A_{1g}, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{19312} + \frac{2\sqrt{1207}\mathbb{T}_6^{(1,0;a)}(A_{2g})\mathbb{T}_{1,2}^{(b)}(E_u)}{1207} + \frac{\sqrt{398310}\mathbb{T}_6^{(1,0;a)}(B_{1g}, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{9656} \\
&\quad - \frac{43\sqrt{7242}\mathbb{T}_6^{(1,0;a)}(B_{1g}, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{19312} + \frac{\sqrt{79662}\mathbb{T}_6^{(1,0;a)}(B_{2g}, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{2414} - \frac{5\sqrt{36210}\mathbb{T}_6^{(1,0;a)}(B_{2g}, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{2414} \\
\boxed{\text{z1054}} \quad \mathbb{Q}_{7,2}^{(1,0;c)}(E_u, 4) &= -\frac{2\sqrt{16898}\mathbb{T}_6^{(1,0;a)}(A_{1g}, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{1207} - \frac{193\sqrt{2414}\mathbb{T}_6^{(1,0;a)}(A_{1g}, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{19312} - \frac{2\sqrt{1207}\mathbb{T}_6^{(1,0;a)}(A_{2g})\mathbb{T}_{1,1}^{(b)}(E_u)}{1207} - \frac{\sqrt{398310}\mathbb{T}_6^{(1,0;a)}(B_{1g}, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{9656} \\
&\quad + \frac{43\sqrt{7242}\mathbb{T}_6^{(1,0;a)}(B_{1g}, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{19312} + \frac{\sqrt{79662}\mathbb{T}_6^{(1,0;a)}(B_{2g}, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{2414} - \frac{5\sqrt{36210}\mathbb{T}_6^{(1,0;a)}(B_{2g}, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{2414} \\
\boxed{\text{z1055}} \quad \mathbb{Q}_{1,1}^{(1,1;c)}(E_u) &= -\frac{\sqrt{2}\mathbb{M}_1^{(1,1;a)}(A_{2g})\mathbb{T}_{1,2}^{(b)}(E_u)}{2}
\end{aligned}$$

$$\begin{aligned}
\boxed{\text{z1056}} \quad \mathbb{Q}_{1,2}^{(1,1;c)}(E_u) &= \frac{\sqrt{2}\mathbb{M}_1^{(1,1;a)}(A_{2g})\mathbb{T}_{1,1}^{(b)}(E_u)}{2} \\
\boxed{\text{z1057}} \quad \mathbb{Q}_{3,1}^{(1,1;c)}(E_u, 1) &= \frac{\sqrt{3}\mathbb{M}_3^{(1,1;a)}(A_{2g})\mathbb{T}_{1,2}^{(b)}(E_u)}{4} - \frac{\sqrt{5}\mathbb{M}_3^{(1,1;a)}(B_{2g})\mathbb{T}_{1,2}^{(b)}(E_u)}{4} \\
\boxed{\text{z1058}} \quad \mathbb{Q}_{3,2}^{(1,1;c)}(E_u, 1) &= -\frac{\sqrt{3}\mathbb{M}_3^{(1,1;a)}(A_{2g})\mathbb{T}_{1,1}^{(b)}(E_u)}{4} - \frac{\sqrt{5}\mathbb{M}_3^{(1,1;a)}(B_{2g})\mathbb{T}_{1,1}^{(b)}(E_u)}{4} \\
\boxed{\text{z1059}} \quad \mathbb{Q}_{3,1}^{(1,1;c)}(E_u, 2) &= \frac{\sqrt{165}\mathbb{M}_3^{(1,1;a)}(A_{2g})\mathbb{T}_{1,2}^{(b)}(E_u)}{44} + \frac{2\sqrt{11}\mathbb{M}_3^{(1,1;a)}(B_{1g})\mathbb{T}_{1,1}^{(b)}(E_u)}{11} + \frac{3\sqrt{11}\mathbb{M}_3^{(1,1;a)}(B_{2g})\mathbb{T}_{1,2}^{(b)}(E_u)}{44} \\
\boxed{\text{z1060}} \quad \mathbb{Q}_{3,2}^{(1,1;c)}(E_u, 2) &= -\frac{\sqrt{165}\mathbb{M}_3^{(1,1;a)}(A_{2g})\mathbb{T}_{1,1}^{(b)}(E_u)}{44} - \frac{2\sqrt{11}\mathbb{M}_3^{(1,1;a)}(B_{1g})\mathbb{T}_{1,2}^{(b)}(E_u)}{11} + \frac{3\sqrt{11}\mathbb{M}_3^{(1,1;a)}(B_{2g})\mathbb{T}_{1,1}^{(b)}(E_u)}{44} \\
\boxed{\text{z1061}} \quad \mathbb{Q}_{5,1}^{(1,1;c)}(E_u, 1) &= -\frac{\sqrt{30}\mathbb{M}_5^{(1,1;a)}(A_{2g}, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{16} - \frac{\sqrt{42}\mathbb{M}_5^{(1,1;a)}(A_{2g}, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{16} + \frac{\sqrt{14}\mathbb{M}_5^{(1,1;a)}(B_{2g})\mathbb{T}_{1,2}^{(b)}(E_u)}{8} \\
\boxed{\text{z1062}} \quad \mathbb{Q}_{5,2}^{(1,1;c)}(E_u, 1) &= \frac{\sqrt{30}\mathbb{M}_5^{(1,1;a)}(A_{2g}, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{16} + \frac{\sqrt{42}\mathbb{M}_5^{(1,1;a)}(A_{2g}, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{16} + \frac{\sqrt{14}\mathbb{M}_5^{(1,1;a)}(B_{2g})\mathbb{T}_{1,1}^{(b)}(E_u)}{8} \\
\boxed{\text{z1063}} \quad \mathbb{Q}_{5,1}^{(1,1;c)}(E_u, 2) &= -\frac{\sqrt{46}\mathbb{M}_5^{(1,1;a)}(A_{1g})\mathbb{T}_{1,1}^{(b)}(E_u)}{23} - \frac{3\sqrt{1610}\mathbb{M}_5^{(1,1;a)}(A_{2g}, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{368} + \frac{11\sqrt{46}\mathbb{M}_5^{(1,1;a)}(A_{2g}, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{368} + \frac{\sqrt{138}\mathbb{M}_5^{(1,1;a)}(B_{1g})\mathbb{T}_{1,1}^{(b)}(E_u)}{23} - \frac{\sqrt{138}\mathbb{M}_5^{(1,1;a)}(B_{2g})\mathbb{T}_{1,2}^{(b)}(E_u)}{184} \\
\boxed{\text{z1064}} \quad \mathbb{Q}_{5,2}^{(1,1;c)}(E_u, 2) &= -\frac{\sqrt{46}\mathbb{M}_5^{(1,1;a)}(A_{1g})\mathbb{T}_{1,2}^{(b)}(E_u)}{23} + \frac{3\sqrt{1610}\mathbb{M}_5^{(1,1;a)}(A_{2g}, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{368} - \frac{11\sqrt{46}\mathbb{M}_5^{(1,1;a)}(A_{2g}, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{368} - \frac{\sqrt{138}\mathbb{M}_5^{(1,1;a)}(B_{1g})\mathbb{T}_{1,2}^{(b)}(E_u)}{23} - \frac{\sqrt{138}\mathbb{M}_5^{(1,1;a)}(B_{2g})\mathbb{T}_{1,1}^{(b)}(E_u)}{184} \\
\boxed{\text{z1065}} \quad \mathbb{Q}_{5,1}^{(1,1;c)}(E_u, 3) &= \frac{\sqrt{28014}\mathbb{M}_5^{(1,1;a)}(A_{1g})\mathbb{T}_{1,1}^{(b)}(E_u)}{322} - \frac{7\sqrt{20010}\mathbb{M}_5^{(1,1;a)}(A_{2g}, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{5336} + \frac{3\sqrt{28014}\mathbb{M}_5^{(1,1;a)}(A_{2g}, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{1288} \\
&\quad + \frac{5\sqrt{9338}\mathbb{M}_5^{(1,1;a)}(B_{1g})\mathbb{T}_{1,1}^{(b)}(E_u)}{9338} + \frac{39\sqrt{9338}\mathbb{M}_5^{(1,1;a)}(B_{2g})\mathbb{T}_{1,2}^{(b)}(E_u)}{18676} \\
\boxed{\text{z1066}} \quad \mathbb{Q}_{5,2}^{(1,1;c)}(E_u, 3) &= \frac{\sqrt{28014}\mathbb{M}_5^{(1,1;a)}(A_{1g})\mathbb{T}_{1,2}^{(b)}(E_u)}{322} + \frac{7\sqrt{20010}\mathbb{M}_5^{(1,1;a)}(A_{2g}, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{5336} - \frac{3\sqrt{28014}\mathbb{M}_5^{(1,1;a)}(A_{2g}, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{1288} \\
&\quad - \frac{5\sqrt{9338}\mathbb{M}_5^{(1,1;a)}(B_{1g})\mathbb{T}_{1,2}^{(b)}(E_u)}{9338} + \frac{39\sqrt{9338}\mathbb{M}_5^{(1,1;a)}(B_{2g})\mathbb{T}_{1,1}^{(b)}(E_u)}{18676} \\
\boxed{\text{z1067}} \quad \mathbb{G}_5^{(1,0;c)}(A_{1g}) &= \mathbb{G}_5^{(1,0;a)}(A_{1g})\mathbb{Q}_0^{(b)}(A_{1g})
\end{aligned}$$

$$\boxed{\text{z1068}} \quad \mathbb{G}_0^{(c)}(A_{1u}) = \frac{\sqrt{2}\mathbb{M}_{1,1}^{(a)}(E_g)\mathbb{T}_{1,1}^{(b)}(E_u)}{2} - \frac{\sqrt{2}\mathbb{M}_{1,2}^{(a)}(E_g)\mathbb{T}_{1,2}^{(b)}(E_u)}{2}$$

$$\boxed{\text{z1069}} \quad \mathbb{G}_2^{(c)}(A_{1u}) = -\frac{\sqrt{3}\mathbb{M}_{3,1}^{(a)}(E_g,1)\mathbb{T}_{1,1}^{(b)}(E_u)}{4} - \frac{\sqrt{5}\mathbb{M}_{3,1}^{(a)}(E_g,2)\mathbb{T}_{1,1}^{(b)}(E_u)}{4} + \frac{\sqrt{3}\mathbb{M}_{3,2}^{(a)}(E_g,1)\mathbb{T}_{1,2}^{(b)}(E_u)}{4} + \frac{\sqrt{5}\mathbb{M}_{3,2}^{(a)}(E_g,2)\mathbb{T}_{1,2}^{(b)}(E_u)}{4}$$

$$\boxed{\text{z1070}} \quad \mathbb{G}_4^{(c)}(A_{1u},1a) = \frac{7\sqrt{170}\mathbb{M}_{5,1}^{(a)}(E_g,1)\mathbb{T}_{1,1}^{(b)}(E_u)}{136} + \frac{9\sqrt{238}\mathbb{M}_{5,1}^{(a)}(E_g,2)\mathbb{T}_{1,1}^{(b)}(E_u)}{952} + \frac{3\sqrt{714}\mathbb{M}_{5,1}^{(a)}(E_g,3)\mathbb{T}_{1,1}^{(b)}(E_u)}{476} \\ - \frac{7\sqrt{170}\mathbb{M}_{5,2}^{(a)}(E_g,1)\mathbb{T}_{1,2}^{(b)}(E_u)}{136} - \frac{9\sqrt{238}\mathbb{M}_{5,2}^{(a)}(E_g,2)\mathbb{T}_{1,2}^{(b)}(E_u)}{952} - \frac{3\sqrt{714}\mathbb{M}_{5,2}^{(a)}(E_g,3)\mathbb{T}_{1,2}^{(b)}(E_u)}{476}$$

$$\boxed{\text{z1331}} \quad \mathbb{G}_4^{(c)}(A_{1u},1b) = \frac{\sqrt{5}\mathbb{M}_{3,1}^{(a)}(E_g,1)\mathbb{T}_{1,1}^{(b)}(E_u)}{4} - \frac{\sqrt{3}\mathbb{M}_{3,1}^{(a)}(E_g,2)\mathbb{T}_{1,1}^{(b)}(E_u)}{4} - \frac{\sqrt{5}\mathbb{M}_{3,2}^{(a)}(E_g,1)\mathbb{T}_{1,2}^{(b)}(E_u)}{4} + \frac{\sqrt{3}\mathbb{M}_{3,2}^{(a)}(E_g,2)\mathbb{T}_{1,2}^{(b)}(E_u)}{4}$$

$$\boxed{\text{z1332}} \quad \mathbb{G}_4^{(c)}(A_{1u},2) = -\frac{3\sqrt{102}\mathbb{M}_{5,1}^{(a)}(E_g,1)\mathbb{T}_{1,1}^{(b)}(E_u)}{136} + \frac{\sqrt{3570}\mathbb{M}_{5,1}^{(a)}(E_g,2)\mathbb{T}_{1,1}^{(b)}(E_u)}{136} + \frac{\sqrt{1190}\mathbb{M}_{5,1}^{(a)}(E_g,3)\mathbb{T}_{1,1}^{(b)}(E_u)}{68} \\ + \frac{3\sqrt{102}\mathbb{M}_{5,2}^{(a)}(E_g,1)\mathbb{T}_{1,2}^{(b)}(E_u)}{136} - \frac{\sqrt{3570}\mathbb{M}_{5,2}^{(a)}(E_g,2)\mathbb{T}_{1,2}^{(b)}(E_u)}{136} - \frac{\sqrt{1190}\mathbb{M}_{5,2}^{(a)}(E_g,3)\mathbb{T}_{1,2}^{(b)}(E_u)}{68}$$

$$\boxed{\text{z1333}} \quad \mathbb{G}_0^{(1,-1;c)}(A_{1u}) = \frac{\sqrt{2}\mathbb{M}_{1,1}^{(1,-1;a)}(E_g)\mathbb{T}_{1,1}^{(b)}(E_u)}{2} - \frac{\sqrt{2}\mathbb{M}_{1,2}^{(1,-1;a)}(E_g)\mathbb{T}_{1,2}^{(b)}(E_u)}{2}$$

$$\boxed{\text{z1334}} \quad \mathbb{G}_2^{(1,-1;c)}(A_{1u}) = -\frac{\sqrt{3}\mathbb{M}_{3,1}^{(1,-1;a)}(E_g,1)\mathbb{T}_{1,1}^{(b)}(E_u)}{4} - \frac{\sqrt{5}\mathbb{M}_{3,1}^{(1,-1;a)}(E_g,2)\mathbb{T}_{1,1}^{(b)}(E_u)}{4} + \frac{\sqrt{3}\mathbb{M}_{3,2}^{(1,-1;a)}(E_g,1)\mathbb{T}_{1,2}^{(b)}(E_u)}{4} + \frac{\sqrt{5}\mathbb{M}_{3,2}^{(1,-1;a)}(E_g,2)\mathbb{T}_{1,2}^{(b)}(E_u)}{4}$$

$$\boxed{\text{z1335}} \quad \mathbb{G}_4^{(1,-1;c)}(A_{1u},1a) = \frac{7\sqrt{170}\mathbb{M}_{5,1}^{(1,-1;a)}(E_g,1)\mathbb{T}_{1,1}^{(b)}(E_u)}{136} + \frac{9\sqrt{238}\mathbb{M}_{5,1}^{(1,-1;a)}(E_g,2)\mathbb{T}_{1,1}^{(b)}(E_u)}{952} + \frac{3\sqrt{714}\mathbb{M}_{5,1}^{(1,-1;a)}(E_g,3)\mathbb{T}_{1,1}^{(b)}(E_u)}{476} \\ - \frac{7\sqrt{170}\mathbb{M}_{5,2}^{(1,-1;a)}(E_g,1)\mathbb{T}_{1,2}^{(b)}(E_u)}{136} - \frac{9\sqrt{238}\mathbb{M}_{5,2}^{(1,-1;a)}(E_g,2)\mathbb{T}_{1,2}^{(b)}(E_u)}{952} - \frac{3\sqrt{714}\mathbb{M}_{5,2}^{(1,-1;a)}(E_g,3)\mathbb{T}_{1,2}^{(b)}(E_u)}{476}$$

$$\boxed{\text{z1336}} \quad \mathbb{G}_4^{(1,-1;c)}(A_{1u},1b) = \frac{\sqrt{5}\mathbb{M}_{3,1}^{(1,-1;a)}(E_g,1)\mathbb{T}_{1,1}^{(b)}(E_u)}{4} - \frac{\sqrt{3}\mathbb{M}_{3,1}^{(1,-1;a)}(E_g,2)\mathbb{T}_{1,1}^{(b)}(E_u)}{4} - \frac{\sqrt{5}\mathbb{M}_{3,2}^{(1,-1;a)}(E_g,1)\mathbb{T}_{1,2}^{(b)}(E_u)}{4} + \frac{\sqrt{3}\mathbb{M}_{3,2}^{(1,-1;a)}(E_g,2)\mathbb{T}_{1,2}^{(b)}(E_u)}{4}$$

$$\boxed{\text{z1337}} \quad \mathbb{G}_4^{(1,-1;c)}(A_{1u},2) = -\frac{3\sqrt{102}\mathbb{M}_{5,1}^{(1,-1;a)}(E_g,1)\mathbb{T}_{1,1}^{(b)}(E_u)}{136} + \frac{\sqrt{3570}\mathbb{M}_{5,1}^{(1,-1;a)}(E_g,2)\mathbb{T}_{1,1}^{(b)}(E_u)}{136} + \frac{\sqrt{1190}\mathbb{M}_{5,1}^{(1,-1;a)}(E_g,3)\mathbb{T}_{1,1}^{(b)}(E_u)}{68} \\ + \frac{3\sqrt{102}\mathbb{M}_{5,2}^{(1,-1;a)}(E_g,1)\mathbb{T}_{1,2}^{(b)}(E_u)}{136} - \frac{\sqrt{3570}\mathbb{M}_{5,2}^{(1,-1;a)}(E_g,2)\mathbb{T}_{1,2}^{(b)}(E_u)}{136} - \frac{\sqrt{1190}\mathbb{M}_{5,2}^{(1,-1;a)}(E_g,3)\mathbb{T}_{1,2}^{(b)}(E_u)}{68}$$

$$\begin{aligned}
\boxed{\text{z1338}} \quad \mathbb{G}_6^{(1,-1;c)}(A_{1u}, 1) &= \frac{\sqrt{11690}\mathbb{M}_{7,1}^{(1,-1;a)}(E_g, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{334} - \frac{2\sqrt{55110}\mathbb{M}_{7,1}^{(1,-1;a)}(E_g, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{835} - \frac{3\sqrt{358215}\mathbb{M}_{7,1}^{(1,-1;a)}(E_g, 3)\mathbb{T}_{1,1}^{(b)}(E_u)}{6680} + \frac{11\sqrt{2505}\mathbb{M}_{7,1}^{(1,-1;a)}(E_g, 4)\mathbb{T}_{1,1}^{(b)}(E_u)}{6680} \\
&\quad - \frac{\sqrt{11690}\mathbb{M}_{7,2}^{(1,-1;a)}(E_g, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{334} + \frac{2\sqrt{55110}\mathbb{M}_{7,2}^{(1,-1;a)}(E_g, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{835} + \frac{3\sqrt{358215}\mathbb{M}_{7,2}^{(1,-1;a)}(E_g, 3)\mathbb{T}_{1,2}^{(b)}(E_u)}{6680} - \frac{11\sqrt{2505}\mathbb{M}_{7,2}^{(1,-1;a)}(E_g, 4)\mathbb{T}_{1,2}^{(b)}(E_u)}{6680} \\
\boxed{\text{z1339}} \quad \mathbb{G}_6^{(1,-1;c)}(A_{1u}, 2) &= -\frac{55\sqrt{7014}\mathbb{M}_{7,1}^{(1,-1;a)}(E_g, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{10688} - \frac{35\sqrt{3674}\mathbb{M}_{7,1}^{(1,-1;a)}(E_g, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{10688} - \frac{17\sqrt{23881}\mathbb{M}_{7,1}^{(1,-1;a)}(E_g, 3)\mathbb{T}_{1,1}^{(b)}(E_u)}{10688} - \frac{383\sqrt{167}\mathbb{M}_{7,1}^{(1,-1;a)}(E_g, 4)\mathbb{T}_{1,1}^{(b)}(E_u)}{10688} \\
&\quad + \frac{55\sqrt{7014}\mathbb{M}_{7,2}^{(1,-1;a)}(E_g, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{10688} + \frac{35\sqrt{3674}\mathbb{M}_{7,2}^{(1,-1;a)}(E_g, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{10688} + \frac{17\sqrt{23881}\mathbb{M}_{7,2}^{(1,-1;a)}(E_g, 3)\mathbb{T}_{1,2}^{(b)}(E_u)}{10688} + \frac{383\sqrt{167}\mathbb{M}_{7,2}^{(1,-1;a)}(E_g, 4)\mathbb{T}_{1,2}^{(b)}(E_u)}{10688} \\
\boxed{\text{z1340}} \quad \mathbb{G}_8^{(1,-1;c)}(A_{1u}, 1) &= \frac{\sqrt{858}\mathbb{M}_{7,1}^{(1,-1;a)}(E_g, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{64} + \frac{\sqrt{182}\mathbb{M}_{7,1}^{(1,-1;a)}(E_g, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{64} - \frac{\sqrt{7}\mathbb{M}_{7,1}^{(1,-1;a)}(E_g, 3)\mathbb{T}_{1,1}^{(b)}(E_u)}{64} - \frac{\sqrt{1001}\mathbb{M}_{7,1}^{(1,-1;a)}(E_g, 4)\mathbb{T}_{1,1}^{(b)}(E_u)}{64} \\
&\quad - \frac{\sqrt{858}\mathbb{M}_{7,2}^{(1,-1;a)}(E_g, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{64} - \frac{\sqrt{182}\mathbb{M}_{7,2}^{(1,-1;a)}(E_g, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{64} + \frac{\sqrt{7}\mathbb{M}_{7,2}^{(1,-1;a)}(E_g, 3)\mathbb{T}_{1,2}^{(b)}(E_u)}{64} + \frac{\sqrt{1001}\mathbb{M}_{7,2}^{(1,-1;a)}(E_g, 4)\mathbb{T}_{1,2}^{(b)}(E_u)}{64} \\
\boxed{\text{z1341}} \quad \mathbb{G}_2^{(1,0;c)}(A_{1u}) &= -\frac{\sqrt{2}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{T}_{1,1}^{(b)}(E_u)}{2} + \frac{\sqrt{2}\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{T}_{1,2}^{(b)}(E_u)}{2} \\
\boxed{\text{z1342}} \quad \mathbb{G}_4^{(1,0;c)}(A_{1u}, 1) &= \frac{\sqrt{7}\mathbb{T}_{4,1}^{(1,0;a)}(E_g, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{4} + \frac{\mathbb{T}_{4,1}^{(1,0;a)}(E_g, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{4} - \frac{\sqrt{7}\mathbb{T}_{4,2}^{(1,0;a)}(E_g, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{4} - \frac{\mathbb{T}_{4,2}^{(1,0;a)}(E_g, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{4} \\
\boxed{\text{z1343}} \quad \mathbb{G}_6^{(1,0;c)}(A_{1u}, 1) &= -\frac{\sqrt{6}\mathbb{T}_{6,1}^{(1,0;a)}(E_g, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{8} - \frac{3\sqrt{11}\mathbb{T}_{6,1}^{(1,0;a)}(E_g, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{16} - \frac{\sqrt{5}\mathbb{T}_{6,1}^{(1,0;a)}(E_g, 3)\mathbb{T}_{1,1}^{(b)}(E_u)}{16} \\
&\quad + \frac{\sqrt{6}\mathbb{T}_{6,2}^{(1,0;a)}(E_g, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{8} + \frac{3\sqrt{11}\mathbb{T}_{6,2}^{(1,0;a)}(E_g, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{16} + \frac{\sqrt{5}\mathbb{T}_{6,2}^{(1,0;a)}(E_g, 3)\mathbb{T}_{1,2}^{(b)}(E_u)}{16} \\
\boxed{\text{z1344}} \quad \mathbb{G}_0^{(1,1;c)}(A_{1u}) &= \frac{\sqrt{2}\mathbb{M}_{1,1}^{(1,1;a)}(E_g)\mathbb{T}_{1,1}^{(b)}(E_u)}{2} - \frac{\sqrt{2}\mathbb{M}_{1,2}^{(1,1;a)}(E_g)\mathbb{T}_{1,2}^{(b)}(E_u)}{2} \\
\boxed{\text{z1345}} \quad \mathbb{G}_2^{(1,1;c)}(A_{1u}) &= -\frac{\sqrt{3}\mathbb{M}_{3,1}^{(1,1;a)}(E_g, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{4} - \frac{\sqrt{5}\mathbb{M}_{3,1}^{(1,1;a)}(E_g, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{4} + \frac{\sqrt{3}\mathbb{M}_{3,2}^{(1,1;a)}(E_g, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{4} + \frac{\sqrt{5}\mathbb{M}_{3,2}^{(1,1;a)}(E_g, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{4} \\
\boxed{\text{z1346}} \quad \mathbb{G}_4^{(1,1;c)}(A_{1u}, 1a) &= \frac{7\sqrt{170}\mathbb{M}_{5,1}^{(1,1;a)}(E_g, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{136} + \frac{9\sqrt{238}\mathbb{M}_{5,1}^{(1,1;a)}(E_g, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{952} + \frac{3\sqrt{714}\mathbb{M}_{5,1}^{(1,1;a)}(E_g, 3)\mathbb{T}_{1,1}^{(b)}(E_u)}{476} \\
&\quad - \frac{7\sqrt{170}\mathbb{M}_{5,2}^{(1,1;a)}(E_g, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{136} - \frac{9\sqrt{238}\mathbb{M}_{5,2}^{(1,1;a)}(E_g, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{952} - \frac{3\sqrt{714}\mathbb{M}_{5,2}^{(1,1;a)}(E_g, 3)\mathbb{T}_{1,2}^{(b)}(E_u)}{476} \\
\boxed{\text{z1347}} \quad \mathbb{G}_4^{(1,1;c)}(A_{1u}, 1b) &= \frac{\sqrt{5}\mathbb{M}_{3,1}^{(1,1;a)}(E_g, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{4} - \frac{\sqrt{3}\mathbb{M}_{3,1}^{(1,1;a)}(E_g, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{4} - \frac{\sqrt{5}\mathbb{M}_{3,2}^{(1,1;a)}(E_g, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{4} + \frac{\sqrt{3}\mathbb{M}_{3,2}^{(1,1;a)}(E_g, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{4}
\end{aligned}$$

$$\boxed{\text{z1348}} \quad \mathbb{G}_4^{(1,1;c)}(A_{1u}, 2) = -\frac{3\sqrt{102}\mathbb{M}_{5,1}^{(1,1;a)}(E_g, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{136} + \frac{\sqrt{3570}\mathbb{M}_{5,1}^{(1,1;a)}(E_g, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{136} + \frac{\sqrt{1190}\mathbb{M}_{5,1}^{(1,1;a)}(E_g, 3)\mathbb{T}_{1,1}^{(b)}(E_u)}{68} \\ + \frac{3\sqrt{102}\mathbb{M}_{5,2}^{(1,1;a)}(E_g, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{136} - \frac{\sqrt{3570}\mathbb{M}_{5,2}^{(1,1;a)}(E_g, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{136} - \frac{\sqrt{1190}\mathbb{M}_{5,2}^{(1,1;a)}(E_g, 3)\mathbb{T}_{1,2}^{(b)}(E_u)}{68}$$

$$\boxed{\text{z1349}} \quad \mathbb{G}_1^{(1,0;c)}(A_{2g}) = \mathbb{G}_1^{(1,0;a)}(A_{2g})\mathbb{Q}_0^{(b)}(A_{1g})$$

$$\boxed{\text{z1350}} \quad \mathbb{G}_3^{(1,0;c)}(A_{2g}) = \mathbb{G}_3^{(1,0;a)}(A_{2g})\mathbb{Q}_0^{(b)}(A_{1g})$$

$$\boxed{\text{z1351}} \quad \mathbb{G}_5^{(1,0;c)}(A_{2g}, 1) = \mathbb{G}_5^{(1,0;a)}(A_{2g}, 1)\mathbb{Q}_0^{(b)}(A_{1g})$$

$$\boxed{\text{z1352}} \quad \mathbb{G}_5^{(1,0;c)}(A_{2g}, 2) = \mathbb{G}_5^{(1,0;a)}(A_{2g}, 2)\mathbb{Q}_0^{(b)}(A_{1g})$$

$$\boxed{\text{z1353}} \quad \mathbb{G}_4^{(c)}(A_{2u}, a) = -\frac{\sqrt{2}\mathbb{M}_{5,1}^{(a)}(E_g, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{8} - \frac{3\sqrt{70}\mathbb{M}_{5,1}^{(a)}(E_g, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{56} + \frac{\sqrt{210}\mathbb{M}_{5,1}^{(a)}(E_g, 3)\mathbb{T}_{1,2}^{(b)}(E_u)}{28} \\ - \frac{\sqrt{2}\mathbb{M}_{5,2}^{(a)}(E_g, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{8} - \frac{3\sqrt{70}\mathbb{M}_{5,2}^{(a)}(E_g, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{56} + \frac{\sqrt{210}\mathbb{M}_{5,2}^{(a)}(E_g, 3)\mathbb{T}_{1,1}^{(b)}(E_u)}{28}$$

$$\boxed{\text{z1354}} \quad \mathbb{G}_4^{(c)}(A_{2u}, b) = \frac{\sqrt{5}\mathbb{M}_{3,1}^{(a)}(E_g, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{4} - \frac{\sqrt{3}\mathbb{M}_{3,1}^{(a)}(E_g, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{4} + \frac{\sqrt{5}\mathbb{M}_{3,2}^{(a)}(E_g, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{4} - \frac{\sqrt{3}\mathbb{M}_{3,2}^{(a)}(E_g, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{4}$$

$$\boxed{\text{z1355}} \quad \mathbb{G}_4^{(1,-1;c)}(A_{2u}, a) = -\frac{\sqrt{2}\mathbb{M}_{5,1}^{(1,-1;a)}(E_g, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{8} - \frac{3\sqrt{70}\mathbb{M}_{5,1}^{(1,-1;a)}(E_g, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{56} + \frac{\sqrt{210}\mathbb{M}_{5,1}^{(1,-1;a)}(E_g, 3)\mathbb{T}_{1,2}^{(b)}(E_u)}{28} \\ - \frac{\sqrt{2}\mathbb{M}_{5,2}^{(1,-1;a)}(E_g, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{8} - \frac{3\sqrt{70}\mathbb{M}_{5,2}^{(1,-1;a)}(E_g, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{56} + \frac{\sqrt{210}\mathbb{M}_{5,2}^{(1,-1;a)}(E_g, 3)\mathbb{T}_{1,1}^{(b)}(E_u)}{28}$$

$$\boxed{\text{z1356}} \quad \mathbb{G}_4^{(1,-1;c)}(A_{2u}, b) = \frac{\sqrt{5}\mathbb{M}_{3,1}^{(1,-1;a)}(E_g, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{4} - \frac{\sqrt{3}\mathbb{M}_{3,1}^{(1,-1;a)}(E_g, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{4} + \frac{\sqrt{5}\mathbb{M}_{3,2}^{(1,-1;a)}(E_g, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{4} - \frac{\sqrt{3}\mathbb{M}_{3,2}^{(1,-1;a)}(E_g, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{4}$$

$$\boxed{\text{z1357}} \quad \mathbb{G}_6^{(1,-1;c)}(A_{2u}) = \frac{\sqrt{210}\mathbb{M}_{7,1}^{(1,-1;a)}(E_g, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{320} - \frac{11\sqrt{110}\mathbb{M}_{7,1}^{(1,-1;a)}(E_g, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{320} + \frac{7\sqrt{715}\mathbb{M}_{7,1}^{(1,-1;a)}(E_g, 3)\mathbb{T}_{1,2}^{(b)}(E_u)}{320} - \frac{23\sqrt{5}\mathbb{M}_{7,1}^{(1,-1;a)}(E_g, 4)\mathbb{T}_{1,2}^{(b)}(E_u)}{320} \\ + \frac{\sqrt{210}\mathbb{M}_{7,2}^{(1,-1;a)}(E_g, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{320} - \frac{11\sqrt{110}\mathbb{M}_{7,2}^{(1,-1;a)}(E_g, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{320} + \frac{7\sqrt{715}\mathbb{M}_{7,2}^{(1,-1;a)}(E_g, 3)\mathbb{T}_{1,1}^{(b)}(E_u)}{320} - \frac{23\sqrt{5}\mathbb{M}_{7,2}^{(1,-1;a)}(E_g, 4)\mathbb{T}_{1,1}^{(b)}(E_u)}{320}$$

$$\boxed{\text{z1358}} \quad \mathbb{G}_8^{(1,-1;c)}(A_{2u}, 1) = \frac{\sqrt{858}\mathbb{M}_{7,1}^{(1,-1;a)}(E_g, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{64} + \frac{\sqrt{182}\mathbb{M}_{7,1}^{(1,-1;a)}(E_g, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{64} - \frac{\sqrt{7}\mathbb{M}_{7,1}^{(1,-1;a)}(E_g, 3)\mathbb{T}_{1,2}^{(b)}(E_u)}{64} - \frac{\sqrt{1001}\mathbb{M}_{7,1}^{(1,-1;a)}(E_g, 4)\mathbb{T}_{1,2}^{(b)}(E_u)}{64} \\ + \frac{\sqrt{858}\mathbb{M}_{7,2}^{(1,-1;a)}(E_g, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{64} + \frac{\sqrt{182}\mathbb{M}_{7,2}^{(1,-1;a)}(E_g, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{64} - \frac{\sqrt{7}\mathbb{M}_{7,2}^{(1,-1;a)}(E_g, 3)\mathbb{T}_{1,1}^{(b)}(E_u)}{64} - \frac{\sqrt{1001}\mathbb{M}_{7,2}^{(1,-1;a)}(E_g, 4)\mathbb{T}_{1,1}^{(b)}(E_u)}{64}$$

$$\begin{aligned}
\text{z1359} \quad \mathbb{G}_4^{(1,1;c)}(A_{2u}, a) &= -\frac{\sqrt{2}\mathbb{M}_{5,1}^{(1,1;a)}(E_g, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{8} - \frac{3\sqrt{70}\mathbb{M}_{5,1}^{(1,1;a)}(E_g, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{56} + \frac{\sqrt{210}\mathbb{M}_{5,1}^{(1,1;a)}(E_g, 3)\mathbb{T}_{1,2}^{(b)}(E_u)}{28} \\
&\quad - \frac{\sqrt{2}\mathbb{M}_{5,2}^{(1,1;a)}(E_g, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{8} - \frac{3\sqrt{70}\mathbb{M}_{5,2}^{(1,1;a)}(E_g, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{56} + \frac{\sqrt{210}\mathbb{M}_{5,2}^{(1,1;a)}(E_g, 3)\mathbb{T}_{1,1}^{(b)}(E_u)}{28} \\
\text{z1360} \quad \mathbb{G}_4^{(1,1;c)}(A_{2u}, b) &= \frac{\sqrt{5}\mathbb{M}_{3,1}^{(1,1;a)}(E_g, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{4} - \frac{\sqrt{3}\mathbb{M}_{3,1}^{(1,1;a)}(E_g, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{4} + \frac{\sqrt{5}\mathbb{M}_{3,2}^{(1,1;a)}(E_g, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{4} - \frac{\sqrt{3}\mathbb{M}_{3,2}^{(1,1;a)}(E_g, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{4} \\
\text{z1361} \quad \mathbb{G}_3^{(1,0;c)}(B_{1g}) &= \mathbb{G}_3^{(1,0;a)}(B_{1g})\mathbb{Q}_0^{(b)}(A_{1g}) \\
\text{z1362} \quad \mathbb{G}_5^{(1,0;c)}(B_{1g}) &= \mathbb{G}_5^{(1,0;a)}(B_{1g})\mathbb{Q}_0^{(b)}(A_{1g}) \\
\text{z1363} \quad \mathbb{G}_2^{(c)}(B_{1u}, a) &= \frac{\sqrt{2}\mathbb{M}_{1,1}^{(a)}(E_g)\mathbb{T}_{1,1}^{(b)}(E_u)}{2} + \frac{\sqrt{2}\mathbb{M}_{1,2}^{(a)}(E_g)\mathbb{T}_{1,2}^{(b)}(E_u)}{2} \\
\text{z1364} \quad \mathbb{G}_2^{(c)}(B_{1u}, b) &= \frac{\sqrt{2}\mathbb{M}_{3,1}^{(a)}(E_g, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{2} + \frac{\sqrt{2}\mathbb{M}_{3,2}^{(a)}(E_g, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{2} \\
\text{z1365} \quad \mathbb{G}_4^{(c)}(B_{1u}) &= \frac{\sqrt{65}\mathbb{M}_{5,1}^{(a)}(E_g, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{16} - \frac{3\sqrt{91}\mathbb{M}_{5,1}^{(a)}(E_g, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{208} + \frac{3\sqrt{273}\mathbb{M}_{5,1}^{(a)}(E_g, 3)\mathbb{T}_{1,1}^{(b)}(E_u)}{104} \\
&\quad + \frac{\sqrt{65}\mathbb{M}_{5,2}^{(a)}(E_g, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{16} - \frac{3\sqrt{91}\mathbb{M}_{5,2}^{(a)}(E_g, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{208} + \frac{3\sqrt{273}\mathbb{M}_{5,2}^{(a)}(E_g, 3)\mathbb{T}_{1,2}^{(b)}(E_u)}{104} \\
\text{z1366} \quad \mathbb{G}_6^{(c)}(B_{1u}, 1) &= \frac{3\sqrt{7}\mathbb{M}_{5,1}^{(a)}(E_g, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{16} + \frac{\sqrt{5}\mathbb{M}_{5,1}^{(a)}(E_g, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{16} - \frac{\sqrt{15}\mathbb{M}_{5,1}^{(a)}(E_g, 3)\mathbb{T}_{1,1}^{(b)}(E_u)}{8} + \frac{3\sqrt{7}\mathbb{M}_{5,2}^{(a)}(E_g, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{16} \\
&\quad + \frac{\sqrt{5}\mathbb{M}_{5,2}^{(a)}(E_g, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{16} - \frac{\sqrt{15}\mathbb{M}_{5,2}^{(a)}(E_g, 3)\mathbb{T}_{1,2}^{(b)}(E_u)}{8} \\
\text{z1367} \quad \mathbb{G}_2^{(1,-1;c)}(B_{1u}, a) &= \frac{\sqrt{2}\mathbb{M}_{1,1}^{(1,-1;a)}(E_g)\mathbb{T}_{1,1}^{(b)}(E_u)}{2} + \frac{\sqrt{2}\mathbb{M}_{1,2}^{(1,-1;a)}(E_g)\mathbb{T}_{1,2}^{(b)}(E_u)}{2} \\
\text{z1368} \quad \mathbb{G}_2^{(1,-1;c)}(B_{1u}, b) &= \frac{\sqrt{2}\mathbb{M}_{3,1}^{(1,-1;a)}(E_g, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{2} + \frac{\sqrt{2}\mathbb{M}_{3,2}^{(1,-1;a)}(E_g, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{2} \\
\text{z1369} \quad \mathbb{G}_4^{(1,-1;c)}(B_{1u}) &= \frac{\sqrt{65}\mathbb{M}_{5,1}^{(1,-1;a)}(E_g, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{16} - \frac{3\sqrt{91}\mathbb{M}_{5,1}^{(1,-1;a)}(E_g, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{208} + \frac{3\sqrt{273}\mathbb{M}_{5,1}^{(1,-1;a)}(E_g, 3)\mathbb{T}_{1,1}^{(b)}(E_u)}{104} \\
&\quad + \frac{\sqrt{65}\mathbb{M}_{5,2}^{(1,-1;a)}(E_g, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{16} - \frac{3\sqrt{91}\mathbb{M}_{5,2}^{(1,-1;a)}(E_g, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{208} + \frac{3\sqrt{273}\mathbb{M}_{5,2}^{(1,-1;a)}(E_g, 3)\mathbb{T}_{1,2}^{(b)}(E_u)}{104} \\
\text{z1370} \quad \mathbb{G}_6^{(1,-1;c)}(B_{1u}, 1a) &= \frac{3\sqrt{7}\mathbb{M}_{5,1}^{(1,-1;a)}(E_g, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{16} + \frac{\sqrt{5}\mathbb{M}_{5,1}^{(1,-1;a)}(E_g, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{16} - \frac{\sqrt{15}\mathbb{M}_{5,1}^{(1,-1;a)}(E_g, 3)\mathbb{T}_{1,1}^{(b)}(E_u)}{8} \\
&\quad + \frac{3\sqrt{7}\mathbb{M}_{5,2}^{(1,-1;a)}(E_g, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{16} + \frac{\sqrt{5}\mathbb{M}_{5,2}^{(1,-1;a)}(E_g, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{16} - \frac{\sqrt{15}\mathbb{M}_{5,2}^{(1,-1;a)}(E_g, 3)\mathbb{T}_{1,2}^{(b)}(E_u)}{8}
\end{aligned}$$

$$\boxed{\text{z1371}} \quad \mathbb{G}_6^{(1,-1;c)}(B_{1u}, 1b) = -\frac{3\sqrt{130}\mathbb{M}_{7,1}^{(1,-1;a)}(E_g, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{130} + \frac{\sqrt{5}\mathbb{M}_{7,1}^{(1,-1;a)}(E_g, 3)\mathbb{T}_{1,1}^{(b)}(E_u)}{10} - \frac{3\sqrt{715}\mathbb{M}_{7,1}^{(1,-1;a)}(E_g, 4)\mathbb{T}_{1,1}^{(b)}(E_u)}{130} \\ - \frac{3\sqrt{130}\mathbb{M}_{7,2}^{(1,-1;a)}(E_g, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{130} + \frac{\sqrt{5}\mathbb{M}_{7,2}^{(1,-1;a)}(E_g, 3)\mathbb{T}_{1,2}^{(b)}(E_u)}{10} - \frac{3\sqrt{715}\mathbb{M}_{7,2}^{(1,-1;a)}(E_g, 4)\mathbb{T}_{1,2}^{(b)}(E_u)}{130}$$

$$\boxed{\text{z1372}} \quad \mathbb{G}_6^{(1,-1;c)}(B_{1u}, 2) = \frac{\sqrt{2}\mathbb{M}_{7,1}^{(1,-1;a)}(E_g, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{2} + \frac{\sqrt{2}\mathbb{M}_{7,2}^{(1,-1;a)}(E_g, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{2}$$

$$\boxed{\text{z1373}} \quad \mathbb{G}_2^{(1,1;c)}(B_{1u}, a) = \frac{\sqrt{2}\mathbb{M}_{1,1}^{(1,1;a)}(E_g)\mathbb{T}_{1,1}^{(b)}(E_u)}{2} + \frac{\sqrt{2}\mathbb{M}_{1,2}^{(1,1;a)}(E_g)\mathbb{T}_{1,2}^{(b)}(E_u)}{2}$$

$$\boxed{\text{z1374}} \quad \mathbb{G}_2^{(1,1;c)}(B_{1u}, b) = \frac{\sqrt{2}\mathbb{M}_{3,1}^{(1,1;a)}(E_g, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{2} + \frac{\sqrt{2}\mathbb{M}_{3,2}^{(1,1;a)}(E_g, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{2}$$

$$\boxed{\text{z1375}} \quad \mathbb{G}_4^{(1,1;c)}(B_{1u}) = \frac{\sqrt{65}\mathbb{M}_{5,1}^{(1,1;a)}(E_g, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{16} - \frac{3\sqrt{91}\mathbb{M}_{5,1}^{(1,1;a)}(E_g, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{208} + \frac{3\sqrt{273}\mathbb{M}_{5,1}^{(1,1;a)}(E_g, 3)\mathbb{T}_{1,1}^{(b)}(E_u)}{104} \\ + \frac{\sqrt{65}\mathbb{M}_{5,2}^{(1,1;a)}(E_g, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{16} - \frac{3\sqrt{91}\mathbb{M}_{5,2}^{(1,1;a)}(E_g, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{208} + \frac{3\sqrt{273}\mathbb{M}_{5,2}^{(1,1;a)}(E_g, 3)\mathbb{T}_{1,2}^{(b)}(E_u)}{104}$$

$$\boxed{\text{z1376}} \quad \mathbb{G}_6^{(1,1;c)}(B_{1u}, 1) = \frac{3\sqrt{7}\mathbb{M}_{5,1}^{(1,1;a)}(E_g, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{16} + \frac{\sqrt{5}\mathbb{M}_{5,1}^{(1,1;a)}(E_g, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{16} - \frac{\sqrt{15}\mathbb{M}_{5,1}^{(1,1;a)}(E_g, 3)\mathbb{T}_{1,1}^{(b)}(E_u)}{8} \\ + \frac{3\sqrt{7}\mathbb{M}_{5,2}^{(1,1;a)}(E_g, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{16} + \frac{\sqrt{5}\mathbb{M}_{5,2}^{(1,1;a)}(E_g, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{16} - \frac{\sqrt{15}\mathbb{M}_{5,2}^{(1,1;a)}(E_g, 3)\mathbb{T}_{1,2}^{(b)}(E_u)}{8}$$

$$\boxed{\text{z1377}} \quad \mathbb{G}_3^{(1,0;c)}(B_{2g}) = \mathbb{G}_3^{(1,0;a)}(B_{2g})\mathbb{Q}_0^{(b)}(A_{1g})$$

$$\boxed{\text{z1378}} \quad \mathbb{G}_5^{(1,0;c)}(B_{2g}) = \mathbb{G}_5^{(1,0;a)}(B_{2g})\mathbb{Q}_0^{(b)}(A_{1g})$$

$$\boxed{\text{z1379}} \quad \mathbb{G}_2^{(c)}(B_{2u}, a) = \frac{\sqrt{2}\mathbb{M}_{1,1}^{(a)}(E_g)\mathbb{T}_{1,2}^{(b)}(E_u)}{2} - \frac{\sqrt{2}\mathbb{M}_{1,2}^{(a)}(E_g)\mathbb{T}_{1,1}^{(b)}(E_u)}{2}$$

$$\boxed{\text{z1380}} \quad \mathbb{G}_2^{(c)}(B_{2u}, b) = -\frac{\sqrt{2}\mathbb{M}_{3,1}^{(a)}(E_g, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{8} + \frac{\sqrt{30}\mathbb{M}_{3,1}^{(a)}(E_g, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{8} + \frac{\sqrt{2}\mathbb{M}_{3,2}^{(a)}(E_g, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{8} - \frac{\sqrt{30}\mathbb{M}_{3,2}^{(a)}(E_g, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{8}$$

$$\boxed{\text{z1381}} \quad \mathbb{G}_4^{(c)}(B_{2u}) = \frac{\sqrt{65}\mathbb{M}_{5,1}^{(a)}(E_g, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{208} - \frac{15\sqrt{91}\mathbb{M}_{5,1}^{(a)}(E_g, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{208} - \frac{\sqrt{273}\mathbb{M}_{5,1}^{(a)}(E_g, 3)\mathbb{T}_{1,2}^{(b)}(E_u)}{104} \\ - \frac{\sqrt{65}\mathbb{M}_{5,2}^{(a)}(E_g, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{208} + \frac{15\sqrt{91}\mathbb{M}_{5,2}^{(a)}(E_g, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{208} + \frac{\sqrt{273}\mathbb{M}_{5,2}^{(a)}(E_g, 3)\mathbb{T}_{1,1}^{(b)}(E_u)}{104}$$



$$\begin{aligned}
\boxed{\text{z1382}} \quad \mathbb{G}_6^{(c)}(B_{2u}, 1) &= \frac{3\sqrt{7}\mathbb{M}_{5,1}^{(a)}(E_g, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{16} + \frac{\sqrt{5}\mathbb{M}_{5,1}^{(a)}(E_g, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{16} - \frac{\sqrt{15}\mathbb{M}_{5,1}^{(a)}(E_g, 3)\mathbb{T}_{1,2}^{(b)}(E_u)}{8} - \frac{3\sqrt{7}\mathbb{M}_{5,2}^{(a)}(E_g, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{16} - \frac{\sqrt{5}\mathbb{M}_{5,2}^{(a)}(E_g, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{16} + \frac{\sqrt{15}\mathbb{M}_{5,2}^{(a)}(E_g, 3)\mathbb{T}_{1,1}^{(b)}(E_u)}{8} \\
\boxed{\text{z1383}} \quad \mathbb{G}_2^{(1,-1;c)}(B_{2u}, a) &= \frac{\sqrt{2}\mathbb{M}_{1,1}^{(1,-1;a)}(E_g)\mathbb{T}_{1,2}^{(b)}(E_u)}{2} - \frac{\sqrt{2}\mathbb{M}_{1,2}^{(1,-1;a)}(E_g)\mathbb{T}_{1,1}^{(b)}(E_u)}{2} \\
\boxed{\text{z1384}} \quad \mathbb{G}_2^{(1,-1;c)}(B_{2u}, b) &= -\frac{\sqrt{2}\mathbb{M}_{3,1}^{(1,-1;a)}(E_g, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{8} + \frac{\sqrt{30}\mathbb{M}_{3,1}^{(1,-1;a)}(E_g, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{8} + \frac{\sqrt{2}\mathbb{M}_{3,2}^{(1,-1;a)}(E_g, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{8} - \frac{\sqrt{30}\mathbb{M}_{3,2}^{(1,-1;a)}(E_g, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{8} \\
\boxed{\text{z1385}} \quad \mathbb{G}_4^{(1,-1;c)}(B_{2u}) &= \frac{\sqrt{65}\mathbb{M}_{5,1}^{(1,-1;a)}(E_g, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{208} - \frac{15\sqrt{91}\mathbb{M}_{5,1}^{(1,-1;a)}(E_g, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{208} - \frac{\sqrt{273}\mathbb{M}_{5,1}^{(1,-1;a)}(E_g, 3)\mathbb{T}_{1,2}^{(b)}(E_u)}{104} \\
&\quad - \frac{\sqrt{65}\mathbb{M}_{5,2}^{(1,-1;a)}(E_g, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{208} + \frac{15\sqrt{91}\mathbb{M}_{5,2}^{(1,-1;a)}(E_g, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{208} + \frac{\sqrt{273}\mathbb{M}_{5,2}^{(1,-1;a)}(E_g, 3)\mathbb{T}_{1,1}^{(b)}(E_u)}{104} \\
\boxed{\text{z1386}} \quad \mathbb{G}_6^{(1,-1;c)}(B_{2u}, 1a) &= \frac{3\sqrt{7}\mathbb{M}_{5,1}^{(1,-1;a)}(E_g, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{16} + \frac{\sqrt{5}\mathbb{M}_{5,1}^{(1,-1;a)}(E_g, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{16} - \frac{\sqrt{15}\mathbb{M}_{5,1}^{(1,-1;a)}(E_g, 3)\mathbb{T}_{1,2}^{(b)}(E_u)}{8} \\
&\quad - \frac{3\sqrt{7}\mathbb{M}_{5,2}^{(1,-1;a)}(E_g, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{16} - \frac{\sqrt{5}\mathbb{M}_{5,2}^{(1,-1;a)}(E_g, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{16} + \frac{\sqrt{15}\mathbb{M}_{5,2}^{(1,-1;a)}(E_g, 3)\mathbb{T}_{1,1}^{(b)}(E_u)}{8} \\
\boxed{\text{z1387}} \quad \mathbb{G}_6^{(1,-1;c)}(B_{2u}, 1b) &= -\frac{3\sqrt{330}\mathbb{M}_{7,1}^{(1,-1;a)}(E_g, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{320} - \frac{19\sqrt{70}\mathbb{M}_{7,1}^{(1,-1;a)}(E_g, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{320} + \frac{3\sqrt{455}\mathbb{M}_{7,1}^{(1,-1;a)}(E_g, 3)\mathbb{T}_{1,2}^{(b)}(E_u)}{320} + \frac{7\sqrt{385}\mathbb{M}_{7,1}^{(1,-1;a)}(E_g, 4)\mathbb{T}_{1,2}^{(b)}(E_u)}{320} \\
&\quad + \frac{3\sqrt{330}\mathbb{M}_{7,2}^{(1,-1;a)}(E_g, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{320} + \frac{19\sqrt{70}\mathbb{M}_{7,2}^{(1,-1;a)}(E_g, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{320} - \frac{3\sqrt{455}\mathbb{M}_{7,2}^{(1,-1;a)}(E_g, 3)\mathbb{T}_{1,1}^{(b)}(E_u)}{320} - \frac{7\sqrt{385}\mathbb{M}_{7,2}^{(1,-1;a)}(E_g, 4)\mathbb{T}_{1,1}^{(b)}(E_u)}{320} \\
\boxed{\text{z1388}} \quad \mathbb{G}_6^{(1,-1;c)}(B_{2u}, 2) &= -\frac{\sqrt{182}\mathbb{M}_{7,1}^{(1,-1;a)}(E_g, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{832} + \frac{9\sqrt{858}\mathbb{M}_{7,1}^{(1,-1;a)}(E_g, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{832} + \frac{7\sqrt{33}\mathbb{M}_{7,1}^{(1,-1;a)}(E_g, 3)\mathbb{T}_{1,2}^{(b)}(E_u)}{64} + \frac{9\sqrt{39}\mathbb{M}_{7,1}^{(1,-1;a)}(E_g, 4)\mathbb{T}_{1,2}^{(b)}(E_u)}{832} \\
&\quad + \frac{\sqrt{182}\mathbb{M}_{7,2}^{(1,-1;a)}(E_g, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{832} - \frac{9\sqrt{858}\mathbb{M}_{7,2}^{(1,-1;a)}(E_g, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{832} - \frac{7\sqrt{33}\mathbb{M}_{7,2}^{(1,-1;a)}(E_g, 3)\mathbb{T}_{1,1}^{(b)}(E_u)}{64} - \frac{9\sqrt{39}\mathbb{M}_{7,2}^{(1,-1;a)}(E_g, 4)\mathbb{T}_{1,1}^{(b)}(E_u)}{832} \\
\boxed{\text{z1389}} \quad \mathbb{G}_2^{(1,1;c)}(B_{2u}, a) &= \frac{\sqrt{2}\mathbb{M}_{1,1}^{(1,1;a)}(E_g)\mathbb{T}_{1,2}^{(b)}(E_u)}{2} - \frac{\sqrt{2}\mathbb{M}_{1,2}^{(1,1;a)}(E_g)\mathbb{T}_{1,1}^{(b)}(E_u)}{2} \\
\boxed{\text{z1390}} \quad \mathbb{G}_2^{(1,1;c)}(B_{2u}, b) &= -\frac{\sqrt{2}\mathbb{M}_{3,1}^{(1,1;a)}(E_g, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{8} + \frac{\sqrt{30}\mathbb{M}_{3,1}^{(1,1;a)}(E_g, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{8} + \frac{\sqrt{2}\mathbb{M}_{3,2}^{(1,1;a)}(E_g, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{8} - \frac{\sqrt{30}\mathbb{M}_{3,2}^{(1,1;a)}(E_g, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{8} \\
\boxed{\text{z1391}} \quad \mathbb{G}_4^{(1,1;c)}(B_{2u}) &= \frac{\sqrt{65}\mathbb{M}_{5,1}^{(1,1;a)}(E_g, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{208} - \frac{15\sqrt{91}\mathbb{M}_{5,1}^{(1,1;a)}(E_g, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{208} - \frac{\sqrt{273}\mathbb{M}_{5,1}^{(1,1;a)}(E_g, 3)\mathbb{T}_{1,2}^{(b)}(E_u)}{104} \\
&\quad - \frac{\sqrt{65}\mathbb{M}_{5,2}^{(1,1;a)}(E_g, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{208} + \frac{15\sqrt{91}\mathbb{M}_{5,2}^{(1,1;a)}(E_g, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{208} + \frac{\sqrt{273}\mathbb{M}_{5,2}^{(1,1;a)}(E_g, 3)\mathbb{T}_{1,1}^{(b)}(E_u)}{104}
\end{aligned}$$

$$\boxed{\text{z1392}} \quad \mathbb{G}_6^{(1,1;c)}(B_{2u}, 1) = \frac{3\sqrt{7}\mathbb{M}_{5,1}^{(1,1;a)}(E_g, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{16} + \frac{\sqrt{5}\mathbb{M}_{5,1}^{(1,1;a)}(E_g, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{16} - \frac{\sqrt{15}\mathbb{M}_{5,1}^{(1,1;a)}(E_g, 3)\mathbb{T}_{1,2}^{(b)}(E_u)}{8} \\ - \frac{3\sqrt{7}\mathbb{M}_{5,2}^{(1,1;a)}(E_g, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{16} - \frac{\sqrt{5}\mathbb{M}_{5,2}^{(1,1;a)}(E_g, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{16} + \frac{\sqrt{15}\mathbb{M}_{5,2}^{(1,1;a)}(E_g, 3)\mathbb{T}_{1,1}^{(b)}(E_u)}{8}$$

$$\boxed{\text{z1393}} \quad \mathbb{G}_{1,1}^{(1,0;c)}(E_g) = \frac{\sqrt{2}\mathbb{G}_{1,1}^{(1,0;a)}(E_g)\mathbb{Q}_0^{(b)}(A_{1g})}{2}$$

$$\boxed{\text{z1394}} \quad \mathbb{G}_{1,2}^{(1,0;c)}(E_g) = \frac{\sqrt{2}\mathbb{G}_{1,2}^{(1,0;a)}(E_g)\mathbb{Q}_0^{(b)}(A_{1g})}{2}$$

$$\boxed{\text{z1395}} \quad \mathbb{G}_{3,1}^{(1,0;c)}(E_g, 1) = \frac{\sqrt{2}\mathbb{G}_{3,1}^{(1,0;a)}(E_g, 1)\mathbb{Q}_0^{(b)}(A_{1g})}{2}$$

$$\boxed{\text{z1396}} \quad \mathbb{G}_{3,2}^{(1,0;c)}(E_g, 1) = \frac{\sqrt{2}\mathbb{G}_{3,2}^{(1,0;a)}(E_g, 1)\mathbb{Q}_0^{(b)}(A_{1g})}{2}$$

$$\boxed{\text{z1397}} \quad \mathbb{G}_{3,1}^{(1,0;c)}(E_g, 2) = \frac{\sqrt{2}\mathbb{G}_{3,1}^{(1,0;a)}(E_g, 2)\mathbb{Q}_0^{(b)}(A_{1g})}{2}$$

$$\boxed{\text{z1398}} \quad \mathbb{G}_{3,2}^{(1,0;c)}(E_g, 2) = \frac{\sqrt{2}\mathbb{G}_{3,2}^{(1,0;a)}(E_g, 2)\mathbb{Q}_0^{(b)}(A_{1g})}{2}$$

$$\boxed{\text{z1399}} \quad \mathbb{G}_{5,1}^{(1,0;c)}(E_g, 1) = \frac{\sqrt{2}\mathbb{G}_{5,1}^{(1,0;a)}(E_g, 1)\mathbb{Q}_0^{(b)}(A_{1g})}{2}$$

$$\boxed{\text{z1400}} \quad \mathbb{G}_{5,2}^{(1,0;c)}(E_g, 1) = \frac{\sqrt{2}\mathbb{G}_{5,2}^{(1,0;a)}(E_g, 1)\mathbb{Q}_0^{(b)}(A_{1g})}{2}$$

$$\boxed{\text{z1401}} \quad \mathbb{G}_{5,1}^{(1,0;c)}(E_g, 2) = \frac{\sqrt{2}\mathbb{G}_{5,1}^{(1,0;a)}(E_g, 2)\mathbb{Q}_0^{(b)}(A_{1g})}{2}$$

$$\boxed{\text{z1402}} \quad \mathbb{G}_{5,2}^{(1,0;c)}(E_g, 2) = \frac{\sqrt{2}\mathbb{G}_{5,2}^{(1,0;a)}(E_g, 2)\mathbb{Q}_0^{(b)}(A_{1g})}{2}$$

$$\boxed{\text{z1403}} \quad \mathbb{G}_{5,1}^{(1,0;c)}(E_g, 3) = \frac{\sqrt{2}\mathbb{G}_{5,1}^{(1,0;a)}(E_g, 3)\mathbb{Q}_0^{(b)}(A_{1g})}{2}$$

$$\boxed{\text{z1404}} \quad \mathbb{G}_{5,2}^{(1,0;c)}(E_g, 3) = \frac{\sqrt{2}\mathbb{G}_{5,2}^{(1,0;a)}(E_g, 3)\mathbb{Q}_0^{(b)}(A_{1g})}{2}$$

$$\boxed{\text{z1405}} \quad \mathbb{G}_{2,1}^{(c)}(E_u) = -\frac{\sqrt{110}\mathbb{M}_3^{(a)}(A_{2g})\mathbb{T}_{1,2}^{(b)}(E_u)}{22} + \frac{\sqrt{66}\mathbb{M}_3^{(a)}(B_{1g})\mathbb{T}_{1,1}^{(b)}(E_u)}{22} - \frac{\sqrt{66}\mathbb{M}_3^{(a)}(B_{2g})\mathbb{T}_{1,2}^{(b)}(E_u)}{22}$$

$$\boxed{\text{z1406}} \quad \mathbb{G}_{2,2}^{(c)}(E_u) = \frac{\sqrt{110}\mathbb{M}_3^{(a)}(A_{2g})\mathbb{T}_{1,1}^{(b)}(E_u)}{22} - \frac{\sqrt{66}\mathbb{M}_3^{(a)}(B_{1g})\mathbb{T}_{1,2}^{(b)}(E_u)}{22} - \frac{\sqrt{66}\mathbb{M}_3^{(a)}(B_{2g})\mathbb{T}_{1,1}^{(b)}(E_u)}{22}$$

$$\boxed{\text{z1407}} \quad \mathbb{G}_{4,1}^{(c)}(E_u, 1) = -\frac{3\sqrt{100282}\mathbb{M}_5^{(a)}(A_{1g})\mathbb{T}_{1,1}^{(b)}(E_u)}{6916} + \frac{49\sqrt{71630}\mathbb{M}_5^{(a)}(A_{2g}, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{28652} + \frac{3\sqrt{100282}\mathbb{M}_5^{(a)}(A_{2g}, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{6916} \\ + \frac{79\sqrt{300846}\mathbb{M}_5^{(a)}(B_{1g})\mathbb{T}_{1,1}^{(b)}(E_u)}{200564} + \frac{83\sqrt{300846}\mathbb{M}_5^{(a)}(B_{2g})\mathbb{T}_{1,2}^{(b)}(E_u)}{100282}$$

$$\boxed{\text{z1408}} \quad \mathbb{G}_{4,2}^{(c)}(E_u, 1) = -\frac{3\sqrt{100282}\mathbb{M}_5^{(a)}(A_{1g})\mathbb{T}_{1,2}^{(b)}(E_u)}{6916} - \frac{49\sqrt{71630}\mathbb{M}_5^{(a)}(A_{2g}, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{28652} - \frac{3\sqrt{100282}\mathbb{M}_5^{(a)}(A_{2g}, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{6916} \\ - \frac{79\sqrt{300846}\mathbb{M}_5^{(a)}(B_{1g})\mathbb{T}_{1,2}^{(b)}(E_u)}{200564} + \frac{83\sqrt{300846}\mathbb{M}_5^{(a)}(B_{2g})\mathbb{T}_{1,1}^{(b)}(E_u)}{100282}$$

$$\boxed{\text{z1409}} \quad \mathbb{G}_{4,1}^{(c)}(E_u, 2) = \frac{7\sqrt{2470}\mathbb{M}_5^{(a)}(A_{1g})\mathbb{T}_{1,1}^{(b)}(E_u)}{988} + \frac{3\sqrt{3458}\mathbb{M}_5^{(a)}(A_{2g}, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{988} - \frac{7\sqrt{2470}\mathbb{M}_5^{(a)}(A_{2g}, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{988} + \frac{5\sqrt{7410}\mathbb{M}_5^{(a)}(B_{1g})\mathbb{T}_{1,1}^{(b)}(E_u)}{988} - \frac{\sqrt{7410}\mathbb{M}_5^{(a)}(B_{2g})\mathbb{T}_{1,2}^{(b)}(E_u)}{494}$$

$$\boxed{\text{z1410}} \quad \mathbb{G}_{4,2}^{(c)}(E_u, 2) = \frac{7\sqrt{2470}\mathbb{M}_5^{(a)}(A_{1g})\mathbb{T}_{1,2}^{(b)}(E_u)}{988} - \frac{3\sqrt{3458}\mathbb{M}_5^{(a)}(A_{2g}, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{988} + \frac{7\sqrt{2470}\mathbb{M}_5^{(a)}(A_{2g}, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{988} - \frac{5\sqrt{7410}\mathbb{M}_5^{(a)}(B_{1g})\mathbb{T}_{1,2}^{(b)}(E_u)}{988} - \frac{\sqrt{7410}\mathbb{M}_5^{(a)}(B_{2g})\mathbb{T}_{1,1}^{(b)}(E_u)}{494}$$

$$\boxed{\text{z1411}} \quad \mathbb{G}_{2,1}^{(1,-1;c)}(E_u) = -\frac{\sqrt{110}\mathbb{M}_3^{(1,-1;a)}(A_{2g})\mathbb{T}_{1,2}^{(b)}(E_u)}{22} + \frac{\sqrt{66}\mathbb{M}_3^{(1,-1;a)}(B_{1g})\mathbb{T}_{1,1}^{(b)}(E_u)}{22} - \frac{\sqrt{66}\mathbb{M}_3^{(1,-1;a)}(B_{2g})\mathbb{T}_{1,2}^{(b)}(E_u)}{22}$$

$$\boxed{\text{z1412}} \quad \mathbb{G}_{2,2}^{(1,-1;c)}(E_u) = \frac{\sqrt{110}\mathbb{M}_3^{(1,-1;a)}(A_{2g})\mathbb{T}_{1,1}^{(b)}(E_u)}{22} - \frac{\sqrt{66}\mathbb{M}_3^{(1,-1;a)}(B_{1g})\mathbb{T}_{1,2}^{(b)}(E_u)}{22} - \frac{\sqrt{66}\mathbb{M}_3^{(1,-1;a)}(B_{2g})\mathbb{T}_{1,1}^{(b)}(E_u)}{22}$$

$$\boxed{\text{z1413}} \quad \mathbb{G}_{4,1}^{(1,-1;c)}(E_u, 1) = -\frac{3\sqrt{100282}\mathbb{M}_5^{(1,-1;a)}(A_{1g})\mathbb{T}_{1,1}^{(b)}(E_u)}{6916} + \frac{49\sqrt{71630}\mathbb{M}_5^{(1,-1;a)}(A_{2g}, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{28652} + \frac{3\sqrt{100282}\mathbb{M}_5^{(1,-1;a)}(A_{2g}, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{6916} \\ + \frac{79\sqrt{300846}\mathbb{M}_5^{(1,-1;a)}(B_{1g})\mathbb{T}_{1,1}^{(b)}(E_u)}{200564} + \frac{83\sqrt{300846}\mathbb{M}_5^{(1,-1;a)}(B_{2g})\mathbb{T}_{1,2}^{(b)}(E_u)}{100282}$$

$$\boxed{\text{z1414}} \quad \mathbb{G}_{4,2}^{(1,-1;c)}(E_u, 1) = -\frac{3\sqrt{100282}\mathbb{M}_5^{(1,-1;a)}(A_{1g})\mathbb{T}_{1,2}^{(b)}(E_u)}{6916} - \frac{49\sqrt{71630}\mathbb{M}_5^{(1,-1;a)}(A_{2g}, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{28652} - \frac{3\sqrt{100282}\mathbb{M}_5^{(1,-1;a)}(A_{2g}, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{6916} \\ - \frac{79\sqrt{300846}\mathbb{M}_5^{(1,-1;a)}(B_{1g})\mathbb{T}_{1,2}^{(b)}(E_u)}{200564} + \frac{83\sqrt{300846}\mathbb{M}_5^{(1,-1;a)}(B_{2g})\mathbb{T}_{1,1}^{(b)}(E_u)}{100282}$$

$$\boxed{\text{z1415}} \quad \mathbb{G}_{4,1}^{(1,-1;c)}(E_u, 2) = \frac{7\sqrt{2470}\mathbb{M}_5^{(1,-1;a)}(A_{1g})\mathbb{T}_{1,1}^{(b)}(E_u)}{988} + \frac{3\sqrt{3458}\mathbb{M}_5^{(1,-1;a)}(A_{2g}, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{988} \\ - \frac{7\sqrt{2470}\mathbb{M}_5^{(1,-1;a)}(A_{2g}, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{988} + \frac{5\sqrt{7410}\mathbb{M}_5^{(1,-1;a)}(B_{1g})\mathbb{T}_{1,1}^{(b)}(E_u)}{988} - \frac{\sqrt{7410}\mathbb{M}_5^{(1,-1;a)}(B_{2g})\mathbb{T}_{1,2}^{(b)}(E_u)}{494}$$

$$\boxed{\text{z1416}} \quad \mathbb{G}_{4,2}^{(1,-1;c)}(E_u, 2) = \frac{7\sqrt{2470}\mathbb{M}_5^{(1,-1;a)}(A_{1g})\mathbb{T}_{1,2}^{(b)}(E_u)}{988} - \frac{3\sqrt{3458}\mathbb{M}_5^{(1,-1;a)}(A_{2g}, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{988} \\ + \frac{7\sqrt{2470}\mathbb{M}_5^{(1,-1;a)}(A_{2g}, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{988} - \frac{5\sqrt{7410}\mathbb{M}_5^{(1,-1;a)}(B_{1g})\mathbb{T}_{1,2}^{(b)}(E_u)}{988} - \frac{\sqrt{7410}\mathbb{M}_5^{(1,-1;a)}(B_{2g})\mathbb{T}_{1,1}^{(b)}(E_u)}{494}$$

$$\boxed{\text{z1417}} \quad \mathbb{G}_{6,1}^{(1,-1;c)}(E_u, 1) = -\frac{451\sqrt{305970}\mathbb{M}_7^{(1,-1;a)}(A_{1g})\mathbb{T}_{1,1}^{(b)}(E_u)}{4773132} - \frac{3\sqrt{160270}\mathbb{M}_7^{(1,-1;a)}(A_{2g}, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{5720} + \frac{121\sqrt{305970}\mathbb{M}_7^{(1,-1;a)}(A_{2g}, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{151528} \\ + \frac{311\sqrt{14584570}\mathbb{M}_7^{(1,-1;a)}(B_{1g}, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{9375795} + \frac{31973\sqrt{101990}\mathbb{M}_7^{(1,-1;a)}(B_{1g}, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{23865660} \\ + \frac{11\sqrt{1988805}\mathbb{M}_7^{(1,-1;a)}(B_{2g}, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{67704} + \frac{1051\sqrt{1682835}\mathbb{M}_7^{(1,-1;a)}(B_{2g}, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{16936920}$$

$$\boxed{\text{z1418}} \quad \mathbb{G}_{6,2}^{(1,-1;c)}(E_u, 1) = -\frac{451\sqrt{305970}\mathbb{M}_7^{(1,-1;a)}(A_{1g})\mathbb{T}_{1,2}^{(b)}(E_u)}{4773132} + \frac{3\sqrt{160270}\mathbb{M}_7^{(1,-1;a)}(A_{2g}, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{5720} - \frac{121\sqrt{305970}\mathbb{M}_7^{(1,-1;a)}(A_{2g}, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{151528} \\ - \frac{311\sqrt{14584570}\mathbb{M}_7^{(1,-1;a)}(B_{1g}, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{9375795} - \frac{31973\sqrt{101990}\mathbb{M}_7^{(1,-1;a)}(B_{1g}, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{23865660} \\ + \frac{11\sqrt{1988805}\mathbb{M}_7^{(1,-1;a)}(B_{2g}, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{67704} + \frac{1051\sqrt{1682835}\mathbb{M}_7^{(1,-1;a)}(B_{2g}, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{16936920}$$

$$\boxed{\text{z1419}} \quad \mathbb{G}_{6,1}^{(1,-1;c)}(E_u, 2) = \frac{36493\sqrt{772653}\mathbb{M}_7^{(1,-1;a)}(A_{1g})\mathbb{T}_{1,1}^{(b)}(E_u)}{241067736} - \frac{5259\sqrt{404723}\mathbb{M}_7^{(1,-1;a)}(A_{2g}, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{7652944} - \frac{1753\sqrt{772653}\mathbb{M}_7^{(1,-1;a)}(A_{2g}, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{7652944} \\ + \frac{407\sqrt{36829793}\mathbb{M}_7^{(1,-1;a)}(B_{1g}, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{17219124} + \frac{36749\sqrt{257551}\mathbb{M}_7^{(1,-1;a)}(B_{1g}, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{241067736} \\ - \frac{2881\sqrt{20088978}\mathbb{M}_7^{(1,-1;a)}(B_{2g}, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{321423648} - \frac{110311\sqrt{16998366}\mathbb{M}_7^{(1,-1;a)}(B_{2g}, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{964270944}$$

$$\boxed{\text{z1420}} \quad \mathbb{G}_{6,2}^{(1,-1;c)}(E_u, 2) = \frac{36493\sqrt{772653}\mathbb{M}_7^{(1,-1;a)}(A_{1g})\mathbb{T}_{1,2}^{(b)}(E_u)}{241067736} + \frac{5259\sqrt{404723}\mathbb{M}_7^{(1,-1;a)}(A_{2g}, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{7652944} + \frac{1753\sqrt{772653}\mathbb{M}_7^{(1,-1;a)}(A_{2g}, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{7652944} \\ - \frac{407\sqrt{36829793}\mathbb{M}_7^{(1,-1;a)}(B_{1g}, 1)\mathbb{T}_{1,2}^{(b)}(E_u)}{17219124} - \frac{36749\sqrt{257551}\mathbb{M}_7^{(1,-1;a)}(B_{1g}, 2)\mathbb{T}_{1,2}^{(b)}(E_u)}{241067736} \\ - \frac{2881\sqrt{20088978}\mathbb{M}_7^{(1,-1;a)}(B_{2g}, 1)\mathbb{T}_{1,1}^{(b)}(E_u)}{321423648} - \frac{110311\sqrt{16998366}\mathbb{M}_7^{(1,-1;a)}(B_{2g}, 2)\mathbb{T}_{1,1}^{(b)}(E_u)}{964270944}$$

$$\boxed{\text{z1421}} \quad \mathbb{G}_{6,1}^{(1,-1;c)}(Eu, 3) = -\frac{75\sqrt{3348163}\mathbb{M}_7^{(1,-1;a)}(A_{1g})\mathbb{T}_{1,1}^{(b)}(Eu)}{294344} - \frac{15\sqrt{15784197}\mathbb{M}_7^{(1,-1;a)}(A_{2g}, 1)\mathbb{T}_{1,2}^{(b)}(Eu)}{588688} - \frac{15\sqrt{3348163}\mathbb{M}_7^{(1,-1;a)}(A_{2g}, 2)\mathbb{T}_{1,2}^{(b)}(Eu)}{588688} \\ + \frac{61\sqrt{8499183}\mathbb{M}_7^{(1,-1;a)}(B_{1g}, 1)\mathbb{T}_{1,1}^{(b)}(Eu)}{441516} - \frac{11\sqrt{10044489}\mathbb{M}_7^{(1,-1;a)}(B_{1g}, 2)\mathbb{T}_{1,1}^{(b)}(Eu)}{883032} \\ - \frac{495\sqrt{515102}\mathbb{M}_7^{(1,-1;a)}(B_{2g}, 1)\mathbb{T}_{1,2}^{(b)}(Eu)}{1177376} + \frac{17\sqrt{73659586}\mathbb{M}_7^{(1,-1;a)}(B_{2g}, 2)\mathbb{T}_{1,2}^{(b)}(Eu)}{1177376}$$

$$\boxed{\text{z1422}} \quad \mathbb{G}_{6,2}^{(1,-1;c)}(Eu, 3) = -\frac{75\sqrt{3348163}\mathbb{M}_7^{(1,-1;a)}(A_{1g})\mathbb{T}_{1,2}^{(b)}(Eu)}{294344} + \frac{15\sqrt{15784197}\mathbb{M}_7^{(1,-1;a)}(A_{2g}, 1)\mathbb{T}_{1,1}^{(b)}(Eu)}{588688} + \frac{15\sqrt{3348163}\mathbb{M}_7^{(1,-1;a)}(A_{2g}, 2)\mathbb{T}_{1,1}^{(b)}(Eu)}{588688} \\ - \frac{61\sqrt{8499183}\mathbb{M}_7^{(1,-1;a)}(B_{1g}, 1)\mathbb{T}_{1,2}^{(b)}(Eu)}{441516} + \frac{11\sqrt{10044489}\mathbb{M}_7^{(1,-1;a)}(B_{1g}, 2)\mathbb{T}_{1,2}^{(b)}(Eu)}{883032} \\ - \frac{495\sqrt{515102}\mathbb{M}_7^{(1,-1;a)}(B_{2g}, 1)\mathbb{T}_{1,1}^{(b)}(Eu)}{1177376} + \frac{17\sqrt{73659586}\mathbb{M}_7^{(1,-1;a)}(B_{2g}, 2)\mathbb{T}_{1,1}^{(b)}(Eu)}{1177376}$$

$$\boxed{\text{z1423}} \quad \mathbb{G}_{2,1}^{(1,1;c)}(Eu) = -\frac{\sqrt{110}\mathbb{M}_3^{(1,1;a)}(A_{2g})\mathbb{T}_{1,2}^{(b)}(Eu)}{22} + \frac{\sqrt{66}\mathbb{M}_3^{(1,1;a)}(B_{1g})\mathbb{T}_{1,1}^{(b)}(Eu)}{22} - \frac{\sqrt{66}\mathbb{M}_3^{(1,1;a)}(B_{2g})\mathbb{T}_{1,2}^{(b)}(Eu)}{22}$$

$$\boxed{\text{z1424}} \quad \mathbb{G}_{2,2}^{(1,1;c)}(Eu) = \frac{\sqrt{110}\mathbb{M}_3^{(1,1;a)}(A_{2g})\mathbb{T}_{1,1}^{(b)}(Eu)}{22} - \frac{\sqrt{66}\mathbb{M}_3^{(1,1;a)}(B_{1g})\mathbb{T}_{1,2}^{(b)}(Eu)}{22} - \frac{\sqrt{66}\mathbb{M}_3^{(1,1;a)}(B_{2g})\mathbb{T}_{1,1}^{(b)}(Eu)}{22}$$

$$\boxed{\text{z1425}} \quad \mathbb{G}_{4,1}^{(1,1;c)}(Eu, 1) = -\frac{3\sqrt{100282}\mathbb{M}_5^{(1,1;a)}(A_{1g})\mathbb{T}_{1,1}^{(b)}(Eu)}{6916} + \frac{49\sqrt{71630}\mathbb{M}_5^{(1,1;a)}(A_{2g}, 1)\mathbb{T}_{1,2}^{(b)}(Eu)}{28652} + \frac{3\sqrt{100282}\mathbb{M}_5^{(1,1;a)}(A_{2g}, 2)\mathbb{T}_{1,2}^{(b)}(Eu)}{6916} \\ + \frac{79\sqrt{300846}\mathbb{M}_5^{(1,1;a)}(B_{1g})\mathbb{T}_{1,1}^{(b)}(Eu)}{200564} + \frac{83\sqrt{300846}\mathbb{M}_5^{(1,1;a)}(B_{2g})\mathbb{T}_{1,2}^{(b)}(Eu)}{100282}$$

$$\boxed{\text{z1426}} \quad \mathbb{G}_{4,2}^{(1,1;c)}(Eu, 1) = -\frac{3\sqrt{100282}\mathbb{M}_5^{(1,1;a)}(A_{1g})\mathbb{T}_{1,2}^{(b)}(Eu)}{6916} - \frac{49\sqrt{71630}\mathbb{M}_5^{(1,1;a)}(A_{2g}, 1)\mathbb{T}_{1,1}^{(b)}(Eu)}{28652} - \frac{3\sqrt{100282}\mathbb{M}_5^{(1,1;a)}(A_{2g}, 2)\mathbb{T}_{1,1}^{(b)}(Eu)}{6916} \\ - \frac{79\sqrt{300846}\mathbb{M}_5^{(1,1;a)}(B_{1g})\mathbb{T}_{1,2}^{(b)}(Eu)}{200564} + \frac{83\sqrt{300846}\mathbb{M}_5^{(1,1;a)}(B_{2g})\mathbb{T}_{1,1}^{(b)}(Eu)}{100282}$$

$$\boxed{\text{z1427}} \quad \mathbb{G}_{4,1}^{(1,1;c)}(Eu, 2) = \frac{7\sqrt{2470}\mathbb{M}_5^{(1,1;a)}(A_{1g})\mathbb{T}_{1,1}^{(b)}(Eu)}{988} + \frac{3\sqrt{3458}\mathbb{M}_5^{(1,1;a)}(A_{2g}, 1)\mathbb{T}_{1,2}^{(b)}(Eu)}{988} \\ - \frac{7\sqrt{2470}\mathbb{M}_5^{(1,1;a)}(A_{2g}, 2)\mathbb{T}_{1,2}^{(b)}(Eu)}{988} + \frac{5\sqrt{7410}\mathbb{M}_5^{(1,1;a)}(B_{1g})\mathbb{T}_{1,1}^{(b)}(Eu)}{988} - \frac{\sqrt{7410}\mathbb{M}_5^{(1,1;a)}(B_{2g})\mathbb{T}_{1,2}^{(b)}(Eu)}{494}$$

$$\boxed{\text{z1428}} \quad \mathbb{G}_{4,2}^{(1,1;c)}(Eu, 2) = \frac{7\sqrt{2470}\mathbb{M}_5^{(1,1;a)}(A_{1g})\mathbb{T}_{1,2}^{(b)}(Eu)}{988} - \frac{3\sqrt{3458}\mathbb{M}_5^{(1,1;a)}(A_{2g}, 1)\mathbb{T}_{1,1}^{(b)}(Eu)}{988} \\ + \frac{7\sqrt{2470}\mathbb{M}_5^{(1,1;a)}(A_{2g}, 2)\mathbb{T}_{1,1}^{(b)}(Eu)}{988} - \frac{5\sqrt{7410}\mathbb{M}_5^{(1,1;a)}(B_{1g})\mathbb{T}_{1,2}^{(b)}(Eu)}{988} - \frac{\sqrt{7410}\mathbb{M}_5^{(1,1;a)}(B_{2g})\mathbb{T}_{1,1}^{(b)}(Eu)}{494}$$

- bra:  $\langle \frac{3}{2}, \frac{3}{2}; d |, \langle \frac{3}{2}, \frac{1}{2}; d |, \langle \frac{3}{2}, -\frac{1}{2}; d |, \langle \frac{3}{2}, -\frac{3}{2}; d |, \langle \frac{5}{2}, \frac{5}{2}; d |, \langle \frac{5}{2}, \frac{3}{2}; d |, \langle \frac{5}{2}, \frac{1}{2}; d |, \langle \frac{5}{2}, -\frac{1}{2}; d |, \langle \frac{5}{2}, -\frac{3}{2}; d |, \langle \frac{5}{2}, -\frac{5}{2}; d |$
- ket:  $|\frac{3}{2}, \frac{3}{2}; d\rangle, |\frac{3}{2}, \frac{1}{2}; d\rangle, |\frac{3}{2}, -\frac{1}{2}; d\rangle, |\frac{3}{2}, -\frac{3}{2}; d\rangle, |\frac{5}{2}, \frac{5}{2}; d\rangle, |\frac{5}{2}, \frac{3}{2}; d\rangle, |\frac{5}{2}, \frac{1}{2}; d\rangle, |\frac{5}{2}, -\frac{1}{2}; d\rangle, |\frac{5}{2}, -\frac{3}{2}; d\rangle, |\frac{5}{2}, -\frac{5}{2}; d\rangle$

$$\boxed{\text{x1}} \quad \mathbb{Q}_0^{(a)}(A_{1g}) = \begin{bmatrix} \frac{\sqrt{10}}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{10}}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{10}}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{10}}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{10}}{10} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{10}}{10} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{10}}{10} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{10}}{10} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{10}}{10} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{10}}{10} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{10}}{10} \end{bmatrix}$$

$$\boxed{\text{x2}} \quad \mathbb{Q}_2^{(a)}(A_{1g}) = \begin{bmatrix} -\frac{\sqrt{7}}{10} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{7}}{35} & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{7}}{10} & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}}{70} & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{7}}{10} & 0 & 0 & 0 & 0 & \frac{\sqrt{42}}{70} & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{7}}{10} & 0 & 0 & 0 & 0 & \frac{3\sqrt{7}}{35} & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{7}}{7} & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{3\sqrt{7}}{35} & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{35} & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{42}}{70} & 0 & 0 & 0 & 0 & \frac{4\sqrt{7}}{35} & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{42}}{70} & 0 & 0 & 0 & 0 & \frac{4\sqrt{7}}{35} & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{3\sqrt{7}}{35} & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{35} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}}{7} & 0 \end{bmatrix}$$

$$\boxed{\text{x3}} \quad \mathbb{Q}_4^{(a)}(A_{1g}, 1) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{30} & 0 & 0 & 0 & \frac{\sqrt{3}}{6} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}}{10} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{10}}{10} & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{6} & 0 & 0 & 0 & -\frac{\sqrt{15}}{30} & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{3}}{6} & \frac{\sqrt{15}}{60} & 0 & 0 & 0 & \frac{\sqrt{3}}{12} & 0 \\ \frac{\sqrt{15}}{30} & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{20} & 0 & 0 & 0 & \frac{\sqrt{3}}{12} \\ 0 & -\frac{\sqrt{10}}{10} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{30} & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{10}}{10} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{30} & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{15}}{30} & \frac{\sqrt{3}}{12} & 0 & 0 & 0 & -\frac{\sqrt{15}}{20} & 0 \\ \frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{12} & 0 & 0 & 0 & \frac{\sqrt{15}}{60} \end{bmatrix}$$

$$\boxed{\text{x4}} \quad \mathbb{Q}_4^{(a)}(A_{1g}, 2) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{42} & 0 & 0 & 0 & -\frac{\sqrt{105}}{30} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}}{14} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}}{14} & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{105}}{30} & 0 & 0 & 0 & -\frac{\sqrt{21}}{42} & 0 \\ 0 & 0 & 0 & \frac{\sqrt{105}}{30} & \frac{\sqrt{21}}{84} & 0 & 0 & 0 & -\frac{\sqrt{105}}{60} & 0 \\ \frac{\sqrt{21}}{42} & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}}{28} & 0 & 0 & 0 & -\frac{\sqrt{105}}{60} \\ 0 & -\frac{\sqrt{14}}{14} & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{42} & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{14}}{14} & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{42} & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{21}}{42} & -\frac{\sqrt{105}}{60} & 0 & 0 & 0 & -\frac{\sqrt{21}}{28} & 0 \\ -\frac{\sqrt{105}}{30} & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{60} & 0 & 0 & 0 & \frac{\sqrt{21}}{84} \end{bmatrix}$$

$$\boxed{\text{x5}} \quad \mathbb{Q}_4^{(a)}(A_{2g}) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{5} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{5} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{5}i}{5} & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{10} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{10} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{5}i}{10} & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{5}i}{5} & 0 & 0 & 0 & 0 & \frac{\sqrt{5}i}{10} & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x6}} \quad \mathbb{Q}_2^{(a)}(B_{1g}) = \begin{bmatrix} 0 & 0 & -\frac{\sqrt{7}}{10} & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}}{70} & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{7}}{10} & \frac{\sqrt{35}}{35} & 0 & 0 & 0 & -\frac{2\sqrt{7}}{35} & 0 \\ -\frac{\sqrt{7}}{10} & 0 & 0 & 0 & 0 & \frac{2\sqrt{7}}{35} & 0 & 0 & 0 & -\frac{\sqrt{35}}{35} \\ 0 & -\frac{\sqrt{7}}{10} & 0 & 0 & 0 & 0 & \frac{\sqrt{42}}{70} & 0 & 0 & 0 \\ 0 & \frac{\sqrt{35}}{35} & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}}{70} & 0 & 0 & 0 \\ 0 & 0 & \frac{2\sqrt{7}}{35} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{42}}{70} & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{42}}{70} & -\frac{\sqrt{210}}{70} & 0 & 0 & 0 & -\frac{3\sqrt{42}}{70} & 0 \\ -\frac{\sqrt{42}}{70} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{42}}{70} & 0 & 0 & 0 & -\frac{\sqrt{210}}{70} \\ 0 & -\frac{2\sqrt{7}}{35} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{42}}{70} & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{35}}{35} & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}}{70} & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x7}} \quad \mathbb{Q}_4^{(a)}(B_{1g}) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}}{14} & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{105}}{70} & 0 & 0 & 0 & \frac{\sqrt{21}}{14} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}}{14} & 0 & 0 & 0 & -\frac{\sqrt{105}}{70} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}}{14} & 0 & 0 & 0 \\ 0 & \frac{\sqrt{105}}{70} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{70}}{140} & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{21}}{14} & 0 & 0 & 0 & 0 & \frac{\sqrt{14}}{28} & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{14}}{14} & -\frac{3\sqrt{70}}{140} & 0 & 0 & 0 & \frac{\sqrt{14}}{28} & 0 \\ -\frac{\sqrt{14}}{14} & 0 & 0 & 0 & 0 & \frac{\sqrt{14}}{28} & 0 & 0 & 0 & -\frac{3\sqrt{70}}{140} \\ 0 & \frac{\sqrt{21}}{14} & 0 & 0 & 0 & 0 & \frac{\sqrt{14}}{28} & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{105}}{70} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{70}}{140} & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x8}} \quad \mathbb{Q}_2^{(a)}(B_{2g}) = \begin{bmatrix} 0 & 0 & \frac{\sqrt{7}i}{10} & 0 & 0 & 0 & 0 & \frac{\sqrt{42}i}{70} & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{7}i}{10} & \frac{\sqrt{35}i}{35} & 0 & 0 & 0 & \frac{2\sqrt{7}i}{35} & 0 \\ -\frac{\sqrt{7}i}{10} & 0 & 0 & 0 & 0 & \frac{2\sqrt{7}i}{35} & 0 & 0 & 0 & \frac{\sqrt{35}i}{35} \\ 0 & -\frac{\sqrt{7}i}{10} & 0 & 0 & 0 & 0 & \frac{\sqrt{42}i}{70} & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{35}i}{35} & 0 & 0 & 0 & 0 & \frac{\sqrt{210}i}{70} & 0 & 0 & 0 \\ 0 & 0 & -\frac{2\sqrt{7}i}{35} & 0 & 0 & 0 & 0 & \frac{3\sqrt{42}i}{70} & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{42}i}{70} & -\frac{\sqrt{210}i}{70} & 0 & 0 & 0 & \frac{3\sqrt{42}i}{70} & 0 \\ -\frac{\sqrt{42}i}{70} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{42}i}{70} & 0 & 0 & 0 & \frac{\sqrt{210}i}{70} \\ 0 & -\frac{2\sqrt{7}i}{35} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{42}i}{70} & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{35}i}{35} & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}i}{70} & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x9}} \quad \mathbb{Q}_4^{(a)}(B_{2g}) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}i}{14} & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{105}i}{70} & 0 & 0 & 0 & \frac{\sqrt{21}i}{14} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}i}{14} & 0 & 0 & 0 & -\frac{\sqrt{105}i}{70} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}i}{14} & 0 & 0 & 0 \\ 0 & \frac{\sqrt{105}i}{70} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{70}i}{140} & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{21}i}{14} & 0 & 0 & 0 & 0 & \frac{\sqrt{14}i}{28} & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{14}i}{14} & \frac{3\sqrt{70}i}{140} & 0 & 0 & 0 & \frac{\sqrt{14}i}{28} & 0 \\ \frac{\sqrt{14}i}{14} & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}i}{28} & 0 & 0 & 0 & -\frac{3\sqrt{70}i}{140} \\ 0 & -\frac{\sqrt{21}i}{14} & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}i}{28} & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{105}i}{70} & 0 & 0 & 0 & 0 & \frac{3\sqrt{70}i}{140} & 0 & 0 \end{bmatrix}$$



$$\boxed{\text{x10}} \quad \mathbb{Q}_{2,1}^{(a)}(E_g) = \begin{bmatrix} 0 & \frac{\sqrt{7}i}{10} & 0 & 0 & \frac{\sqrt{105}i}{70} & 0 & \frac{3\sqrt{42}i}{140} & 0 & 0 & 0 \\ -\frac{\sqrt{7}i}{10} & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}i}{70} & 0 & \frac{\sqrt{14}i}{28} & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{7}i}{10} & 0 & 0 & -\frac{\sqrt{14}i}{28} & 0 & \frac{\sqrt{7}i}{70} & 0 \\ 0 & 0 & \frac{\sqrt{7}i}{10} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{42}i}{140} & 0 & -\frac{\sqrt{105}i}{70} \\ -\frac{\sqrt{105}i}{70} & 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{35} & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{7}i}{70} & 0 & 0 & -\frac{\sqrt{105}i}{35} & 0 & \frac{\sqrt{42}i}{35} & 0 & 0 & 0 \\ -\frac{3\sqrt{42}i}{140} & 0 & \frac{\sqrt{14}i}{28} & 0 & 0 & -\frac{\sqrt{42}i}{35} & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{14}i}{28} & 0 & \frac{3\sqrt{42}i}{140} & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}i}{35} & 0 \\ 0 & 0 & -\frac{\sqrt{7}i}{70} & 0 & 0 & 0 & 0 & \frac{\sqrt{42}i}{35} & 0 & -\frac{\sqrt{105}i}{35} \\ 0 & 0 & 0 & \frac{\sqrt{105}i}{70} & 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{35} & 0 \end{bmatrix}$$

$$\boxed{\text{x11}} \quad \mathbb{Q}_{2,2}^{(a)}(E_g) = \begin{bmatrix} 0 & -\frac{\sqrt{7}}{10} & 0 & 0 & \frac{\sqrt{105}}{70} & 0 & -\frac{3\sqrt{42}}{140} & 0 & 0 & 0 \\ -\frac{\sqrt{7}}{10} & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}}{70} & 0 & -\frac{\sqrt{14}}{28} & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{7}}{10} & 0 & 0 & -\frac{\sqrt{14}}{28} & 0 & -\frac{\sqrt{7}}{70} & 0 \\ 0 & 0 & \frac{\sqrt{7}}{10} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{42}}{140} & 0 & \frac{\sqrt{105}}{70} \\ \frac{\sqrt{105}}{70} & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{35} & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{7}}{70} & 0 & 0 & -\frac{\sqrt{105}}{35} & 0 & -\frac{\sqrt{42}}{35} & 0 & 0 & 0 \\ -\frac{3\sqrt{42}}{140} & 0 & -\frac{\sqrt{14}}{28} & 0 & 0 & -\frac{\sqrt{42}}{35} & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{14}}{28} & 0 & -\frac{3\sqrt{42}}{140} & 0 & 0 & 0 & 0 & \frac{\sqrt{42}}{35} & 0 \\ 0 & 0 & -\frac{\sqrt{7}}{70} & 0 & 0 & 0 & 0 & \frac{\sqrt{42}}{35} & 0 & \frac{\sqrt{105}}{35} \\ 0 & 0 & 0 & \frac{\sqrt{105}}{70} & 0 & 0 & 0 & 0 & \frac{\sqrt{105}}{35} & 0 \end{bmatrix}$$

$$\boxed{\text{x12}} \quad \mathbb{Q}_{4,1}^{(a)}(E_g, 1) = \begin{bmatrix} 0 & 0 & 0 & 0 & \frac{\sqrt{5}i}{40} & 0 & \frac{\sqrt{2}i}{8} & 0 & \frac{i}{8} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{8} & 0 & -\frac{\sqrt{6}i}{8} & 0 & -\frac{\sqrt{15}i}{40} \\ 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{40} & 0 & \frac{\sqrt{6}i}{8} & 0 & \frac{\sqrt{3}i}{8} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{i}{8} & 0 & -\frac{\sqrt{2}i}{8} & 0 & -\frac{\sqrt{5}i}{40} \\ -\frac{\sqrt{5}i}{40} & 0 & -\frac{\sqrt{15}i}{40} & 0 & 0 & \frac{\sqrt{5}i}{20} & 0 & \frac{\sqrt{10}i}{40} & 0 & 0 \\ 0 & \frac{\sqrt{3}i}{8} & 0 & \frac{i}{8} & -\frac{\sqrt{5}i}{20} & 0 & -\frac{\sqrt{2}i}{8} & 0 & 0 & 0 \\ -\frac{\sqrt{2}i}{8} & 0 & -\frac{\sqrt{6}i}{8} & 0 & 0 & \frac{\sqrt{2}i}{8} & 0 & 0 & 0 & -\frac{\sqrt{10}i}{40} \\ 0 & \frac{\sqrt{6}i}{8} & 0 & \frac{\sqrt{2}i}{8} & -\frac{\sqrt{10}i}{40} & 0 & 0 & 0 & \frac{\sqrt{2}i}{8} & 0 \\ -\frac{i}{8} & 0 & -\frac{\sqrt{3}i}{8} & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{8} & 0 & -\frac{\sqrt{5}i}{20} \\ 0 & \frac{\sqrt{15}i}{40} & 0 & \frac{\sqrt{5}i}{40} & 0 & 0 & \frac{\sqrt{10}i}{40} & 0 & \frac{\sqrt{5}i}{20} & 0 \end{bmatrix}$$

$$\boxed{\text{x13}} \quad \mathbb{Q}_{4,2}^{(a)}(E_g, 1) = \begin{bmatrix} 0 & 0 & 0 & 0 & \frac{\sqrt{5}}{40} & 0 & -\frac{\sqrt{2}}{8} & 0 & \frac{1}{8} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{8} & 0 & \frac{\sqrt{6}}{8} & 0 & -\frac{\sqrt{15}}{40} \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{40} & 0 & \frac{\sqrt{6}}{8} & 0 & -\frac{\sqrt{3}}{8} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{1}{8} & 0 & -\frac{\sqrt{2}}{8} & 0 & \frac{\sqrt{5}}{40} \\ \frac{\sqrt{5}}{40} & 0 & -\frac{\sqrt{15}}{40} & 0 & 0 & -\frac{\sqrt{5}}{20} & 0 & \frac{\sqrt{10}}{40} & 0 & 0 \\ 0 & -\frac{\sqrt{3}}{8} & 0 & \frac{1}{8} & -\frac{\sqrt{5}}{20} & 0 & \frac{\sqrt{2}}{8} & 0 & 0 & 0 \\ -\frac{\sqrt{2}}{8} & 0 & \frac{\sqrt{6}}{8} & 0 & 0 & \frac{\sqrt{2}}{8} & 0 & 0 & 0 & -\frac{\sqrt{10}}{40} \\ 0 & \frac{\sqrt{6}}{8} & 0 & -\frac{\sqrt{2}}{8} & \frac{\sqrt{10}}{40} & 0 & 0 & 0 & -\frac{\sqrt{2}}{8} & 0 \\ \frac{1}{8} & 0 & -\frac{\sqrt{3}}{8} & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}}{8} & 0 & \frac{\sqrt{5}}{20} \\ 0 & -\frac{\sqrt{15}}{40} & 0 & \frac{\sqrt{5}}{40} & 0 & 0 & -\frac{\sqrt{10}}{40} & 0 & \frac{\sqrt{5}}{20} & 0 \end{bmatrix}$$

$$\boxed{\text{x14}} \quad \mathbb{Q}_{4,1}^{(a)}(E_g, 2) = \begin{bmatrix} 0 & 0 & 0 & 0 & \frac{\sqrt{35}i}{280} & 0 & \frac{\sqrt{14}i}{56} & 0 & -\frac{\sqrt{7}i}{8} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}i}{56} & 0 & -\frac{\sqrt{42}i}{56} & 0 & \frac{\sqrt{105}i}{40} \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{105}i}{40} & 0 & \frac{\sqrt{42}i}{56} & 0 & \frac{\sqrt{21}i}{56} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}i}{8} & 0 & -\frac{\sqrt{14}i}{56} & 0 & -\frac{\sqrt{35}i}{280} \\ -\frac{\sqrt{35}i}{280} & 0 & \frac{\sqrt{105}i}{40} & 0 & 0 & \frac{\sqrt{35}i}{140} & 0 & -\frac{\sqrt{70}i}{40} & 0 & 0 \\ 0 & \frac{\sqrt{21}i}{56} & 0 & -\frac{\sqrt{7}i}{8} & -\frac{\sqrt{35}i}{140} & 0 & -\frac{\sqrt{14}i}{56} & 0 & 0 & 0 \\ -\frac{\sqrt{14}i}{56} & 0 & -\frac{\sqrt{42}i}{56} & 0 & 0 & \frac{\sqrt{14}i}{56} & 0 & 0 & 0 & \frac{\sqrt{70}i}{40} \\ 0 & \frac{\sqrt{42}i}{56} & 0 & \frac{\sqrt{14}i}{56} & \frac{\sqrt{70}i}{40} & 0 & 0 & 0 & \frac{\sqrt{14}i}{56} & 0 \\ \frac{\sqrt{7}i}{8} & 0 & -\frac{\sqrt{21}i}{56} & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}i}{56} & 0 & -\frac{\sqrt{35}i}{140} \\ 0 & -\frac{\sqrt{105}i}{40} & 0 & \frac{\sqrt{35}i}{280} & 0 & 0 & -\frac{\sqrt{70}i}{40} & 0 & \frac{\sqrt{35}i}{140} & 0 \end{bmatrix}$$

$$\boxed{\text{x15}} \quad \mathbb{Q}_{4,2}^{(a)}(E_g, 2) = \begin{bmatrix} 0 & 0 & 0 & 0 & \frac{\sqrt{35}}{280} & 0 & -\frac{\sqrt{14}}{56} & 0 & -\frac{\sqrt{7}}{8} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}}{56} & 0 & \frac{\sqrt{42}}{56} & 0 & \frac{\sqrt{105}}{40} \\ 0 & 0 & 0 & 0 & \frac{\sqrt{105}}{40} & 0 & \frac{\sqrt{42}}{56} & 0 & -\frac{\sqrt{21}}{56} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}}{8} & 0 & -\frac{\sqrt{14}}{56} & 0 & \frac{\sqrt{35}}{280} \\ \frac{\sqrt{35}}{280} & 0 & \frac{\sqrt{105}}{40} & 0 & 0 & -\frac{\sqrt{35}}{140} & 0 & -\frac{\sqrt{70}}{40} & 0 & 0 \\ 0 & -\frac{\sqrt{21}}{56} & 0 & -\frac{\sqrt{7}}{8} & -\frac{\sqrt{35}}{140} & 0 & \frac{\sqrt{14}}{56} & 0 & 0 & 0 \\ -\frac{\sqrt{14}}{56} & 0 & \frac{\sqrt{42}}{56} & 0 & 0 & \frac{\sqrt{14}}{56} & 0 & 0 & 0 & \frac{\sqrt{70}}{40} \\ 0 & \frac{\sqrt{42}}{56} & 0 & -\frac{\sqrt{14}}{56} & -\frac{\sqrt{70}}{40} & 0 & 0 & 0 & -\frac{\sqrt{14}}{56} & 0 \\ -\frac{\sqrt{7}}{8} & 0 & -\frac{\sqrt{21}}{56} & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}}{56} & 0 & \frac{\sqrt{35}}{140} \\ 0 & \frac{\sqrt{105}}{40} & 0 & \frac{\sqrt{35}}{280} & 0 & 0 & \frac{\sqrt{70}}{40} & 0 & \frac{\sqrt{35}}{140} & 0 \end{bmatrix}$$

$$\boxed{\text{x16}} \quad \mathbb{Q}_2^{(1,-1;a)}(A_{1g}) = \begin{bmatrix} -\frac{\sqrt{30}}{50} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{30}}{50} & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{30}}{50} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{5}}{50} & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{30}}{50} & 0 & 0 & 0 & 0 & \frac{3\sqrt{5}}{50} & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{30}}{50} & 0 & 0 & 0 & 0 & \frac{3\sqrt{30}}{50} & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{15} & 0 & 0 & 0 & 0 & 0 \\ -\frac{3\sqrt{30}}{50} & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}}{75} & 0 & 0 & 0 & 0 \\ 0 & -\frac{3\sqrt{5}}{50} & 0 & 0 & 0 & 0 & -\frac{4\sqrt{30}}{75} & 0 & 0 & 0 \\ 0 & 0 & \frac{3\sqrt{5}}{50} & 0 & 0 & 0 & 0 & -\frac{4\sqrt{30}}{75} & 0 & 0 \\ 0 & 0 & 0 & \frac{3\sqrt{30}}{50} & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}}{75} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{15} \end{bmatrix}$$

$$\boxed{\text{x17}} \quad \mathbb{Q}_4^{(1,-1;a)}(A_{1g}, 1) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{60} & 0 & 0 & 0 & \frac{\sqrt{3}}{12} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}}{20} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{10}}{20} & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{12} & 0 & 0 & 0 & -\frac{\sqrt{15}}{60} & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{3}}{12} & -\frac{\sqrt{15}}{30} & 0 & 0 & 0 & -\frac{\sqrt{3}}{6} & 0 \\ \frac{\sqrt{15}}{60} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{10} & 0 & 0 & 0 & -\frac{\sqrt{3}}{6} \\ 0 & -\frac{\sqrt{10}}{20} & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{15} & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{10}}{20} & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{15} & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{15}}{60} & -\frac{\sqrt{3}}{6} & 0 & 0 & 0 & \frac{\sqrt{15}}{10} & 0 \\ \frac{\sqrt{3}}{12} & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{6} & 0 & 0 & 0 & -\frac{\sqrt{15}}{30} \end{bmatrix}$$

$$\boxed{\text{x18}} \quad \mathbb{Q}_4^{(1,-1;a)}(A_{1g}, 2) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{84} & 0 & 0 & 0 & -\frac{\sqrt{105}}{60} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}}{28} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}}{28} & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{105}}{60} & 0 & 0 & 0 & -\frac{\sqrt{21}}{84} & 0 \\ 0 & 0 & 0 & \frac{\sqrt{105}}{60} & -\frac{\sqrt{21}}{42} & 0 & 0 & 0 & \frac{\sqrt{105}}{30} & 0 \\ \frac{\sqrt{21}}{84} & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{14} & 0 & 0 & 0 & \frac{\sqrt{105}}{30} \\ 0 & -\frac{\sqrt{14}}{28} & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}}{21} & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{14}}{28} & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}}{21} & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{21}}{84} & \frac{\sqrt{105}}{30} & 0 & 0 & 0 & \frac{\sqrt{21}}{14} & 0 \\ -\frac{\sqrt{105}}{60} & 0 & 0 & 0 & 0 & \frac{\sqrt{105}}{30} & 0 & 0 & 0 & -\frac{\sqrt{21}}{42} \end{bmatrix}$$

$$\boxed{\text{x19}} \quad \mathbb{Q}_4^{(1,-1;a)}(A_{2g}) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{10} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{10} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{5}i}{10} & 0 & 0 & 0 & 0 & \frac{\sqrt{5}i}{5} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}i}{5} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{5} & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{5}i}{10} & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{5} & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x20}} \quad \mathbb{Q}_2^{(1,-1;a)}(B_{1g}) = \begin{bmatrix} 0 & 0 & -\frac{\sqrt{30}}{50} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{5}}{50} & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{30}}{50} & \frac{\sqrt{6}}{10} & 0 & 0 & 0 & -\frac{\sqrt{30}}{25} & 0 \\ -\frac{\sqrt{30}}{50} & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{25} & 0 & 0 & 0 & -\frac{\sqrt{6}}{10} \\ 0 & -\frac{\sqrt{30}}{50} & 0 & 0 & 0 & 0 & \frac{3\sqrt{5}}{50} & 0 & 0 & 0 \\ 0 & \frac{\sqrt{6}}{10} & 0 & 0 & 0 & 0 & \frac{1}{5} & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{30}}{25} & 0 & 0 & 0 & 0 & \frac{3\sqrt{5}}{25} & 0 & 0 \\ 0 & 0 & 0 & \frac{3\sqrt{5}}{50} & \frac{1}{5} & 0 & 0 & 0 & \frac{3\sqrt{5}}{25} & 0 \\ -\frac{3\sqrt{5}}{50} & 0 & 0 & 0 & 0 & \frac{3\sqrt{5}}{25} & 0 & 0 & 0 & \frac{1}{5} \\ 0 & -\frac{\sqrt{30}}{25} & 0 & 0 & 0 & 0 & \frac{3\sqrt{5}}{25} & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{6}}{10} & 0 & 0 & 0 & 0 & \frac{1}{5} & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x21}} \quad \mathbb{Q}_4^{(1,-1;a)}(B_{1g}) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}}{28} & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{105}}{140} & 0 & 0 & 0 & \frac{\sqrt{21}}{28} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}}{28} & 0 & 0 & 0 & -\frac{\sqrt{105}}{140} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}}{28} & 0 & 0 & 0 \\ 0 & \frac{\sqrt{105}}{140} & 0 & 0 & 0 & 0 & \frac{3\sqrt{70}}{70} & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{21}}{28} & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}}{14} & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{14}}{28} & \frac{3\sqrt{70}}{70} & 0 & 0 & 0 & -\frac{\sqrt{14}}{14} & 0 \\ -\frac{\sqrt{14}}{28} & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}}{14} & 0 & 0 & 0 & \frac{3\sqrt{70}}{70} \\ 0 & \frac{\sqrt{21}}{28} & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}}{14} & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{105}}{140} & 0 & 0 & 0 & 0 & \frac{3\sqrt{70}}{70} & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x22}} \quad \mathbb{Q}_2^{(1,-1;a)}(B_{2g}) = \begin{bmatrix} 0 & 0 & \frac{\sqrt{30}i}{50} & 0 & 0 & 0 & 0 & \frac{3\sqrt{5}i}{50} & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{30}i}{50} & \frac{\sqrt{6}i}{10} & 0 & 0 & 0 & \frac{\sqrt{30}i}{25} & 0 \\ -\frac{\sqrt{30}i}{50} & 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{25} & 0 & 0 & 0 & \frac{\sqrt{6}i}{10} \\ 0 & -\frac{\sqrt{30}i}{50} & 0 & 0 & 0 & 0 & \frac{3\sqrt{5}i}{50} & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{6}i}{10} & 0 & 0 & 0 & 0 & -\frac{i}{5} & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{30}i}{25} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{5}i}{25} & 0 & 0 \\ 0 & 0 & 0 & -\frac{3\sqrt{5}i}{50} & \frac{i}{5} & 0 & 0 & 0 & -\frac{3\sqrt{5}i}{25} & 0 \\ -\frac{3\sqrt{5}i}{50} & 0 & 0 & 0 & 0 & \frac{3\sqrt{5}i}{25} & 0 & 0 & 0 & -\frac{i}{5} \\ 0 & -\frac{\sqrt{30}i}{25} & 0 & 0 & 0 & 0 & \frac{3\sqrt{5}i}{25} & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{6}i}{10} & 0 & 0 & 0 & 0 & \frac{i}{5} & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x23}} \quad \mathbb{Q}_4^{(1,-1;a)}(B_{2g}) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}i}{28} & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{105}i}{140} & 0 & 0 & 0 & \frac{\sqrt{21}i}{28} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}i}{28} & 0 & 0 & 0 & -\frac{\sqrt{105}i}{140} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}i}{28} & 0 & 0 & 0 \\ 0 & \frac{\sqrt{105}i}{140} & 0 & 0 & 0 & 0 & \frac{3\sqrt{70}i}{70} & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{21}i}{28} & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}i}{14} & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{14}i}{28} & -\frac{3\sqrt{70}i}{70} & 0 & 0 & 0 & -\frac{\sqrt{14}i}{14} & 0 \\ \frac{\sqrt{14}i}{28} & 0 & 0 & 0 & 0 & \frac{\sqrt{14}i}{14} & 0 & 0 & 0 & \frac{3\sqrt{70}i}{70} \\ 0 & -\frac{\sqrt{21}i}{28} & 0 & 0 & 0 & 0 & \frac{\sqrt{14}i}{14} & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{105}i}{140} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{70}i}{70} & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x24}} \quad \mathbb{Q}_{2,1}^{(1,-1;a)}(E_g) = \begin{bmatrix} 0 & \frac{\sqrt{30}i}{50} & 0 & 0 & \frac{3\sqrt{2}i}{20} & 0 & \frac{9\sqrt{5}i}{100} & 0 & 0 & 0 \\ -\frac{\sqrt{30}i}{50} & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}i}{100} & 0 & \frac{\sqrt{15}i}{20} & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{30}i}{50} & 0 & 0 & -\frac{\sqrt{15}i}{20} & 0 & \frac{\sqrt{30}i}{100} & 0 \\ 0 & 0 & \frac{\sqrt{30}i}{50} & 0 & 0 & 0 & 0 & -\frac{9\sqrt{5}i}{100} & 0 & -\frac{3\sqrt{2}i}{20} \\ -\frac{3\sqrt{2}i}{20} & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{5} & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{30}i}{100} & 0 & 0 & \frac{\sqrt{2}i}{5} & 0 & -\frac{2\sqrt{5}i}{25} & 0 & 0 & 0 \\ -\frac{9\sqrt{5}i}{100} & 0 & \frac{\sqrt{15}i}{20} & 0 & 0 & \frac{2\sqrt{5}i}{25} & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{15}i}{20} & 0 & \frac{9\sqrt{5}i}{100} & 0 & 0 & 0 & 0 & \frac{2\sqrt{5}i}{25} & 0 \\ 0 & 0 & -\frac{\sqrt{30}i}{100} & 0 & 0 & 0 & 0 & -\frac{2\sqrt{5}i}{25} & 0 & \frac{\sqrt{2}i}{5} \\ 0 & 0 & 0 & \frac{3\sqrt{2}i}{20} & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{5} & 0 \end{bmatrix}$$

$$\boxed{\text{x25}} \quad \mathbb{Q}_{2,2}^{(1,-1;a)}(E_g) = \begin{bmatrix} 0 & -\frac{\sqrt{30}}{50} & 0 & 0 & \frac{3\sqrt{2}}{20} & 0 & -\frac{9\sqrt{5}}{100} & 0 & 0 & 0 \\ -\frac{\sqrt{30}}{50} & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}}{100} & 0 & -\frac{\sqrt{15}}{20} & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{30}}{50} & 0 & 0 & -\frac{\sqrt{15}}{20} & 0 & -\frac{\sqrt{30}}{100} & 0 \\ 0 & 0 & \frac{\sqrt{30}}{50} & 0 & 0 & 0 & 0 & -\frac{9\sqrt{5}}{100} & 0 & \frac{3\sqrt{2}}{20} \\ \frac{3\sqrt{2}}{20} & 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{5} & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{30}}{100} & 0 & 0 & \frac{\sqrt{2}}{5} & 0 & \frac{2\sqrt{5}}{25} & 0 & 0 & 0 \\ -\frac{9\sqrt{5}}{100} & 0 & -\frac{\sqrt{15}}{20} & 0 & 0 & \frac{2\sqrt{5}}{25} & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{15}}{20} & 0 & -\frac{9\sqrt{5}}{100} & 0 & 0 & 0 & 0 & -\frac{2\sqrt{5}}{25} & 0 \\ 0 & 0 & -\frac{\sqrt{30}}{100} & 0 & 0 & 0 & 0 & -\frac{2\sqrt{5}}{25} & 0 & -\frac{\sqrt{2}}{5} \\ 0 & 0 & 0 & \frac{3\sqrt{2}}{20} & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}}{5} & 0 \end{bmatrix}$$

$$\boxed{\text{x26}} \quad \mathbb{Q}_{4,1}^{(1,-1;a)}(E_g, 1) = \begin{bmatrix} 0 & 0 & 0 & 0 & \frac{\sqrt{5}i}{80} & 0 & \frac{\sqrt{2}i}{16} & 0 & \frac{i}{16} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{16} & 0 & -\frac{\sqrt{6}i}{16} & 0 & -\frac{\sqrt{15}i}{80} \\ 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{80} & 0 & \frac{\sqrt{6}i}{16} & 0 & \frac{\sqrt{3}i}{16} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{i}{16} & 0 & -\frac{\sqrt{2}i}{16} & 0 & -\frac{\sqrt{5}i}{80} \\ -\frac{\sqrt{5}i}{80} & 0 & -\frac{\sqrt{15}i}{80} & 0 & 0 & -\frac{\sqrt{5}i}{10} & 0 & -\frac{\sqrt{10}i}{20} & 0 & 0 \\ 0 & \frac{\sqrt{3}i}{16} & 0 & \frac{i}{16} & \frac{\sqrt{5}i}{10} & 0 & \frac{\sqrt{2}i}{4} & 0 & 0 & 0 \\ -\frac{\sqrt{2}i}{16} & 0 & -\frac{\sqrt{6}i}{16} & 0 & 0 & -\frac{\sqrt{2}i}{4} & 0 & 0 & 0 & \frac{\sqrt{10}i}{20} \\ 0 & \frac{\sqrt{6}i}{16} & 0 & \frac{\sqrt{2}i}{16} & \frac{\sqrt{10}i}{20} & 0 & 0 & 0 & -\frac{\sqrt{2}i}{4} & 0 \\ -\frac{i}{16} & 0 & -\frac{\sqrt{3}i}{16} & 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{4} & 0 & \frac{\sqrt{5}i}{10} \\ 0 & \frac{\sqrt{15}i}{80} & 0 & \frac{\sqrt{5}i}{80} & 0 & 0 & -\frac{\sqrt{10}i}{20} & 0 & -\frac{\sqrt{5}i}{10} & 0 \end{bmatrix}$$

$$\boxed{\text{x27}} \quad \mathbb{Q}_{4,2}^{(1,-1;a)}(E_g, 1) = \begin{bmatrix} 0 & 0 & 0 & 0 & \frac{\sqrt{5}}{80} & 0 & -\frac{\sqrt{2}}{16} & 0 & \frac{1}{16} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{16} & 0 & \frac{\sqrt{6}}{16} & 0 & -\frac{\sqrt{15}}{80} \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{80} & 0 & \frac{\sqrt{6}}{16} & 0 & -\frac{\sqrt{3}}{16} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{1}{16} & 0 & -\frac{\sqrt{2}}{16} & 0 & \frac{\sqrt{5}}{80} \\ \frac{\sqrt{5}}{80} & 0 & -\frac{\sqrt{15}}{80} & 0 & 0 & \frac{\sqrt{5}}{10} & 0 & -\frac{\sqrt{10}}{20} & 0 & 0 \\ 0 & -\frac{\sqrt{3}}{16} & 0 & \frac{1}{16} & \frac{\sqrt{5}}{10} & 0 & -\frac{\sqrt{2}}{4} & 0 & 0 & 0 \\ -\frac{\sqrt{2}}{16} & 0 & \frac{\sqrt{6}}{16} & 0 & 0 & -\frac{\sqrt{2}}{4} & 0 & 0 & 0 & \frac{\sqrt{10}}{20} \\ 0 & \frac{\sqrt{6}}{16} & 0 & -\frac{\sqrt{2}}{16} & -\frac{\sqrt{10}}{20} & 0 & 0 & 0 & \frac{\sqrt{2}}{4} & 0 \\ \frac{1}{16} & 0 & -\frac{\sqrt{3}}{16} & 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{4} & 0 & -\frac{\sqrt{5}}{10} \\ 0 & -\frac{\sqrt{15}}{80} & 0 & \frac{\sqrt{5}}{80} & 0 & 0 & \frac{\sqrt{10}}{20} & 0 & -\frac{\sqrt{5}}{10} & 0 \end{bmatrix}$$

$$\boxed{\text{x28}} \quad \mathbb{Q}_{4,1}^{(1,-1;a)}(E_g, 2) = \begin{bmatrix} 0 & 0 & 0 & 0 & \frac{\sqrt{35}i}{560} & 0 & \frac{\sqrt{14}i}{112} & 0 & -\frac{\sqrt{7}i}{16} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}i}{112} & 0 & -\frac{\sqrt{42}i}{112} & 0 & \frac{\sqrt{105}i}{80} \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{105}i}{80} & 0 & \frac{\sqrt{42}i}{112} & 0 & \frac{\sqrt{21}i}{112} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}i}{16} & 0 & -\frac{\sqrt{14}i}{112} & 0 & -\frac{\sqrt{35}i}{560} \\ -\frac{\sqrt{35}i}{560} & 0 & \frac{\sqrt{105}i}{80} & 0 & 0 & -\frac{\sqrt{35}i}{70} & 0 & \frac{\sqrt{70}i}{20} & 0 & 0 \\ 0 & \frac{\sqrt{21}i}{112} & 0 & -\frac{\sqrt{7}i}{16} & \frac{\sqrt{35}i}{70} & 0 & \frac{\sqrt{14}i}{28} & 0 & 0 & 0 \\ -\frac{\sqrt{14}i}{112} & 0 & -\frac{\sqrt{42}i}{112} & 0 & 0 & -\frac{\sqrt{14}i}{28} & 0 & 0 & 0 & -\frac{\sqrt{70}i}{20} \\ 0 & \frac{\sqrt{42}i}{112} & 0 & \frac{\sqrt{14}i}{112} & -\frac{\sqrt{70}i}{20} & 0 & 0 & 0 & -\frac{\sqrt{14}i}{28} & 0 \\ \frac{\sqrt{7}i}{16} & 0 & -\frac{\sqrt{21}i}{112} & 0 & 0 & 0 & 0 & \frac{\sqrt{14}i}{28} & 0 & \frac{\sqrt{35}i}{70} \\ 0 & -\frac{\sqrt{105}i}{80} & 0 & \frac{\sqrt{35}i}{560} & 0 & 0 & \frac{\sqrt{70}i}{20} & 0 & -\frac{\sqrt{35}i}{70} & 0 \end{bmatrix}$$

$$\boxed{\text{x29}} \quad \mathbb{Q}_{4,2}^{(1,-1;a)}(E_g, 2) = \begin{bmatrix} 0 & 0 & 0 & 0 & \frac{\sqrt{35}}{560} & 0 & -\frac{\sqrt{14}}{112} & 0 & -\frac{\sqrt{7}}{16} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}}{112} & 0 & \frac{\sqrt{42}}{112} & 0 & \frac{\sqrt{105}}{80} \\ 0 & 0 & 0 & 0 & \frac{\sqrt{105}}{80} & 0 & \frac{\sqrt{42}}{112} & 0 & -\frac{\sqrt{21}}{112} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}}{16} & 0 & -\frac{\sqrt{14}}{112} & 0 & \frac{\sqrt{35}}{560} \\ \frac{\sqrt{35}}{560} & 0 & \frac{\sqrt{105}}{80} & 0 & 0 & \frac{\sqrt{35}}{70} & 0 & \frac{\sqrt{70}}{20} & 0 & 0 \\ 0 & -\frac{\sqrt{21}}{112} & 0 & -\frac{\sqrt{7}}{16} & \frac{\sqrt{35}}{70} & 0 & -\frac{\sqrt{14}}{28} & 0 & 0 & 0 \\ -\frac{\sqrt{14}}{112} & 0 & \frac{\sqrt{42}}{112} & 0 & 0 & -\frac{\sqrt{14}}{28} & 0 & 0 & 0 & -\frac{\sqrt{70}}{20} \\ 0 & \frac{\sqrt{42}}{112} & 0 & -\frac{\sqrt{14}}{112} & \frac{\sqrt{70}}{20} & 0 & 0 & 0 & \frac{\sqrt{14}}{28} & 0 \\ -\frac{\sqrt{7}}{16} & 0 & -\frac{\sqrt{21}}{112} & 0 & 0 & 0 & 0 & \frac{\sqrt{14}}{28} & 0 & -\frac{\sqrt{35}}{70} \\ 0 & \frac{\sqrt{105}}{80} & 0 & \frac{\sqrt{35}}{560} & 0 & 0 & -\frac{\sqrt{70}}{20} & 0 & -\frac{\sqrt{35}}{70} & 0 \end{bmatrix}$$

$$\boxed{\text{x30}} \quad \mathbb{Q}_0^{(1,1;a)}(A_{1g}) = \begin{bmatrix} -\frac{\sqrt{15}}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{15}}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{15}}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{15}}{10} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{15} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{15} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{15} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{15} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{15} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{15} \end{bmatrix}$$

$$\boxed{\text{x31}} \quad \mathbb{Q}_2^{(1,1;a)}(A_{1g}) = \begin{bmatrix} \frac{\sqrt{105}}{25} & 0 & 0 & 0 & 0 & -\frac{4\sqrt{105}}{175} & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{105}}{25} & 0 & 0 & 0 & 0 & -\frac{2\sqrt{70}}{175} & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{105}}{25} & 0 & 0 & 0 & 0 & \frac{2\sqrt{70}}{175} & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{105}}{25} & 0 & 0 & 0 & 0 & \frac{4\sqrt{105}}{175} & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{70} & 0 & 0 & 0 & 0 & 0 \\ -\frac{4\sqrt{105}}{175} & 0 & 0 & 0 & 0 & \frac{\sqrt{105}}{350} & 0 & 0 & 0 & 0 \\ 0 & -\frac{2\sqrt{70}}{175} & 0 & 0 & 0 & 0 & \frac{2\sqrt{105}}{175} & 0 & 0 & 0 \\ 0 & 0 & \frac{2\sqrt{70}}{175} & 0 & 0 & 0 & 0 & \frac{2\sqrt{105}}{175} & 0 & 0 \\ 0 & 0 & 0 & \frac{4\sqrt{105}}{175} & 0 & 0 & 0 & 0 & \frac{\sqrt{105}}{350} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{70} \end{bmatrix}$$

$$\boxed{\text{x32}} \quad \mathbb{Q}_2^{(1,1;a)}(B_{1g}) = \begin{bmatrix} 0 & 0 & \frac{\sqrt{105}}{25} & 0 & 0 & 0 & 0 & -\frac{2\sqrt{70}}{175} & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{105}}{25} & \frac{4\sqrt{21}}{105} & 0 & 0 & 0 & -\frac{8\sqrt{105}}{525} & 0 \\ \frac{\sqrt{105}}{25} & 0 & 0 & 0 & 0 & \frac{8\sqrt{105}}{525} & 0 & 0 & 0 & -\frac{4\sqrt{21}}{105} \\ 0 & \frac{\sqrt{105}}{25} & 0 & 0 & 0 & 0 & \frac{2\sqrt{70}}{175} & 0 & 0 & 0 \\ 0 & \frac{4\sqrt{21}}{105} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{14}}{140} & 0 & 0 & 0 \\ 0 & 0 & \frac{8\sqrt{105}}{525} & 0 & 0 & 0 & 0 & -\frac{9\sqrt{70}}{700} & 0 & 0 \\ 0 & 0 & 0 & \frac{2\sqrt{70}}{175} & -\frac{3\sqrt{14}}{140} & 0 & 0 & 0 & -\frac{9\sqrt{70}}{700} & 0 \\ -\frac{2\sqrt{70}}{175} & 0 & 0 & 0 & 0 & -\frac{9\sqrt{70}}{700} & 0 & 0 & 0 & -\frac{3\sqrt{14}}{140} \\ 0 & -\frac{8\sqrt{105}}{525} & 0 & 0 & 0 & 0 & -\frac{9\sqrt{70}}{700} & 0 & 0 & 0 \\ 0 & 0 & -\frac{4\sqrt{21}}{105} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{14}}{140} & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x33}} \quad \mathbb{Q}_2^{(1,1;a)}(B_{2g}) = \begin{bmatrix} 0 & 0 & -\frac{\sqrt{105}i}{25} & 0 & 0 & 0 & 0 & \frac{2\sqrt{70}i}{175} & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{105}i}{25} & \frac{4\sqrt{21}i}{105} & 0 & 0 & 0 & \frac{8\sqrt{105}i}{525} & 0 \\ \frac{\sqrt{105}i}{25} & 0 & 0 & 0 & 0 & \frac{8\sqrt{105}i}{525} & 0 & 0 & 0 & \frac{4\sqrt{21}i}{105} \\ 0 & \frac{\sqrt{105}i}{25} & 0 & 0 & 0 & 0 & \frac{2\sqrt{70}i}{175} & 0 & 0 & 0 \\ 0 & -\frac{4\sqrt{21}i}{105} & 0 & 0 & 0 & 0 & \frac{3\sqrt{14}i}{140} & 0 & 0 & 0 \\ 0 & 0 & -\frac{8\sqrt{105}i}{525} & 0 & 0 & 0 & 0 & \frac{9\sqrt{70}i}{700} & 0 & 0 \\ 0 & 0 & 0 & -\frac{2\sqrt{70}i}{175} & -\frac{3\sqrt{14}i}{140} & 0 & 0 & 0 & \frac{9\sqrt{70}i}{700} & 0 \\ -\frac{2\sqrt{70}i}{175} & 0 & 0 & 0 & 0 & -\frac{9\sqrt{70}i}{700} & 0 & 0 & 0 & \frac{3\sqrt{14}i}{140} \\ 0 & -\frac{8\sqrt{105}i}{525} & 0 & 0 & 0 & 0 & -\frac{9\sqrt{70}i}{700} & 0 & 0 & 0 \\ 0 & 0 & -\frac{4\sqrt{21}i}{105} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{14}i}{140} & 0 & 0 \end{bmatrix}$$



$$\boxed{\text{x34}} \quad \mathbb{Q}_{2,1}^{(1,1;a)}(E_g) = \begin{bmatrix} 0 & -\frac{\sqrt{105}i}{25} & 0 & 0 & \frac{2\sqrt{7}i}{35} & 0 & \frac{3\sqrt{70}i}{175} & 0 & 0 & 0 \\ \frac{\sqrt{105}i}{25} & 0 & 0 & 0 & 0 & -\frac{2\sqrt{105}i}{525} & 0 & \frac{\sqrt{210}i}{105} & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{105}i}{25} & 0 & 0 & -\frac{\sqrt{210}i}{105} & 0 & \frac{2\sqrt{105}i}{525} & 0 \\ 0 & 0 & -\frac{\sqrt{105}i}{25} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{70}i}{175} & 0 & -\frac{2\sqrt{7}i}{35} \\ -\frac{2\sqrt{7}i}{35} & 0 & 0 & 0 & 0 & \frac{3\sqrt{7}i}{70} & 0 & 0 & 0 & 0 \\ 0 & \frac{2\sqrt{105}i}{525} & 0 & 0 & -\frac{3\sqrt{7}i}{70} & 0 & \frac{3\sqrt{70}i}{350} & 0 & 0 & 0 \\ -\frac{3\sqrt{70}i}{175} & 0 & \frac{\sqrt{210}i}{105} & 0 & 0 & -\frac{3\sqrt{70}i}{350} & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{210}i}{105} & 0 & \frac{3\sqrt{70}i}{175} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{70}i}{350} & 0 \\ 0 & 0 & -\frac{2\sqrt{105}i}{525} & 0 & 0 & 0 & 0 & \frac{3\sqrt{70}i}{350} & 0 & -\frac{3\sqrt{7}i}{70} \\ 0 & 0 & 0 & \frac{2\sqrt{7}i}{35} & 0 & 0 & 0 & 0 & \frac{3\sqrt{7}i}{70} & 0 \end{bmatrix}$$

$$\boxed{\text{x35}} \quad \mathbb{Q}_{2,2}^{(1,1;a)}(E_g) = \begin{bmatrix} 0 & \frac{\sqrt{105}}{25} & 0 & 0 & \frac{2\sqrt{7}}{35} & 0 & -\frac{3\sqrt{70}}{175} & 0 & 0 & 0 \\ \frac{\sqrt{105}}{25} & 0 & 0 & 0 & 0 & -\frac{2\sqrt{105}}{525} & 0 & -\frac{\sqrt{210}}{105} & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{105}}{25} & 0 & 0 & -\frac{\sqrt{210}}{105} & 0 & -\frac{2\sqrt{105}}{525} & 0 \\ 0 & 0 & -\frac{\sqrt{105}}{25} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{70}}{175} & 0 & \frac{2\sqrt{7}}{35} \\ \frac{2\sqrt{7}}{35} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{7}}{70} & 0 & 0 & 0 & 0 \\ 0 & -\frac{2\sqrt{105}}{525} & 0 & 0 & -\frac{3\sqrt{7}}{70} & 0 & -\frac{3\sqrt{70}}{350} & 0 & 0 & 0 \\ -\frac{3\sqrt{70}}{175} & 0 & -\frac{\sqrt{210}}{105} & 0 & 0 & -\frac{3\sqrt{70}}{350} & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{210}}{105} & 0 & -\frac{3\sqrt{70}}{175} & 0 & 0 & 0 & 0 & \frac{3\sqrt{70}}{350} & 0 \\ 0 & 0 & -\frac{2\sqrt{105}}{525} & 0 & 0 & 0 & 0 & \frac{3\sqrt{70}}{350} & 0 & \frac{3\sqrt{7}}{70} \\ 0 & 0 & 0 & \frac{2\sqrt{7}}{35} & 0 & 0 & 0 & 0 & \frac{3\sqrt{7}}{70} & 0 \end{bmatrix}$$

$$\boxed{\text{x36}} \quad \mathbb{G}_1^{(1,0;a)}(A_{2g}) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}i}{10} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{10} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{10} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}i}{10} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{10}i}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{15}i}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{15}i}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{10}i}{10} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x37}} \quad \mathbb{G}_3^{(1,0;a)}(A_{2g}) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{10} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}i}{10} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}i}{10} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{10} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{15}i}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{10}i}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{10}i}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{15}i}{10} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x38}} \quad \mathbb{G}_3^{(1,0;a)}(B_{1g}) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{4} & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{12} & 0 & 0 & 0 & \frac{\sqrt{3}}{12} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{12} & 0 & 0 & 0 & -\frac{\sqrt{15}}{12} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}}{4} & 0 & 0 & 0 \\ 0 & \frac{\sqrt{15}}{12} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{3}}{12} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{2}}{4} & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{2}}{4} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{3}}{12} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{15}}{12} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x39}} \quad \mathbb{G}_3^{(1,0;a)}(B_{2g}) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{4} & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{12} & 0 & 0 & 0 & \frac{\sqrt{3}i}{12} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{12} & 0 & 0 & 0 & -\frac{\sqrt{15}i}{12} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{4} & 0 & 0 & 0 \\ 0 & \frac{\sqrt{15}i}{12} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{3}i}{12} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{2}i}{4} & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{2}i}{4} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{3}i}{12} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{15}i}{12} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x40}} \quad \mathbb{G}_{1,1}^{(1,0;a)}(E_g) = \begin{bmatrix} 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{4} & 0 & -\frac{\sqrt{5}i}{20} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{20} & 0 & -\frac{\sqrt{15}i}{20} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{20} & 0 & -\frac{\sqrt{30}i}{20} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}i}{20} & 0 & -\frac{\sqrt{2}i}{4} \\ -\frac{\sqrt{2}i}{4} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{30}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{5}i}{20} & 0 & -\frac{\sqrt{15}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{15}i}{20} & 0 & -\frac{\sqrt{5}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{30}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{2}i}{4} & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x41}} \quad \mathbb{G}_{1,2}^{(1,0;a)}(E_g) = \begin{bmatrix} 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{4} & 0 & \frac{\sqrt{5}}{20} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{20} & 0 & \frac{\sqrt{15}}{20} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{20} & 0 & \frac{\sqrt{30}}{20} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}}{20} & 0 & \frac{\sqrt{2}}{4} \\ \frac{\sqrt{2}}{4} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{30}}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{5}}{20} & 0 & \frac{\sqrt{15}}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{15}}{20} & 0 & \frac{\sqrt{5}}{20} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{30}}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{2}}{4} & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x42}} \quad \mathbb{G}_{3,1}^{(1,0;a)}(E_g, 1) = \begin{bmatrix} 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{16} & 0 & -\frac{3\sqrt{30}i}{80} & 0 & \frac{\sqrt{15}i}{16} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{7\sqrt{5}i}{80} & 0 & \frac{\sqrt{10}i}{80} & 0 & \frac{5i}{16} \\ 0 & 0 & 0 & 0 & -\frac{5i}{16} & 0 & -\frac{\sqrt{10}i}{80} & 0 & \frac{7\sqrt{5}i}{80} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{16} & 0 & \frac{3\sqrt{30}i}{80} & 0 & -\frac{\sqrt{3}i}{16} \\ -\frac{\sqrt{3}i}{16} & 0 & \frac{5i}{16} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{7\sqrt{5}i}{80} & 0 & \frac{\sqrt{15}i}{16} & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{3\sqrt{30}i}{80} & 0 & \frac{\sqrt{10}i}{80} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{10}i}{80} & 0 & -\frac{3\sqrt{30}i}{80} & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{15}i}{16} & 0 & -\frac{7\sqrt{5}i}{80} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{5i}{16} & 0 & \frac{\sqrt{3}i}{16} & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x43}} \quad \mathbb{G}_{3,2}^{(1,0;a)}(E_g, 1) = \begin{bmatrix} 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{16} & 0 & \frac{3\sqrt{30}}{80} & 0 & \frac{\sqrt{15}}{16} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{7\sqrt{5}}{80} & 0 & -\frac{\sqrt{10}}{80} & 0 & \frac{5}{16} \\ 0 & 0 & 0 & 0 & \frac{5}{16} & 0 & -\frac{\sqrt{10}}{80} & 0 & -\frac{7\sqrt{5}}{80} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{16} & 0 & \frac{3\sqrt{30}}{80} & 0 & \frac{\sqrt{3}}{16} \\ \frac{\sqrt{3}}{16} & 0 & \frac{5}{16} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{7\sqrt{5}}{80} & 0 & \frac{\sqrt{15}}{16} & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{3\sqrt{30}}{80} & 0 & -\frac{\sqrt{10}}{80} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{10}}{80} & 0 & \frac{3\sqrt{30}}{80} & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{15}}{16} & 0 & -\frac{7\sqrt{5}}{80} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{5}{16} & 0 & \frac{\sqrt{3}}{16} & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x44}} \quad \mathbb{G}_{3,1}^{(1,0;a)}(E_g, 2) = \begin{bmatrix} 0 & 0 & 0 & 0 & \frac{\sqrt{5}i}{16} & 0 & -\frac{3\sqrt{2}i}{16} & 0 & -\frac{3i}{16} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{7\sqrt{3}i}{48} & 0 & \frac{\sqrt{6}i}{48} & 0 & -\frac{\sqrt{15}i}{16} \\ 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{16} & 0 & -\frac{\sqrt{6}i}{48} & 0 & \frac{7\sqrt{3}i}{48} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{3i}{16} & 0 & \frac{3\sqrt{2}i}{16} & 0 & -\frac{\sqrt{5}i}{16} \\ -\frac{\sqrt{5}i}{16} & 0 & -\frac{\sqrt{15}i}{16} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{7\sqrt{3}i}{48} & 0 & -\frac{3i}{16} & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{3\sqrt{2}i}{16} & 0 & \frac{\sqrt{6}i}{48} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{6}i}{48} & 0 & -\frac{3\sqrt{2}i}{16} & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{3i}{16} & 0 & -\frac{7\sqrt{3}i}{48} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{15}i}{16} & 0 & \frac{\sqrt{5}i}{16} & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x45}} \quad \mathbb{G}_{3,2}^{(1,0;a)}(E_g, 2) = \begin{bmatrix} 0 & 0 & 0 & 0 & \frac{\sqrt{5}}{16} & 0 & \frac{3\sqrt{2}}{16} & 0 & -\frac{3}{16} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{7\sqrt{3}}{48} & 0 & -\frac{\sqrt{6}}{48} & 0 & -\frac{\sqrt{15}}{16} \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{16} & 0 & -\frac{\sqrt{6}}{48} & 0 & -\frac{7\sqrt{3}}{48} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{3}{16} & 0 & \frac{3\sqrt{2}}{16} & 0 & \frac{\sqrt{5}}{16} \\ \frac{\sqrt{5}}{16} & 0 & -\frac{\sqrt{15}}{16} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{7\sqrt{3}}{48} & 0 & -\frac{3}{16} & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{3\sqrt{2}}{16} & 0 & -\frac{\sqrt{6}}{48} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{6}}{48} & 0 & \frac{3\sqrt{2}}{16} & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{3}{16} & 0 & -\frac{7\sqrt{3}}{48} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{15}}{16} & 0 & \frac{\sqrt{5}}{16} & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x46}} \quad \mathbb{M}_1^{(a)}(A_{2g}) = \begin{bmatrix} \frac{9\sqrt{5}}{50} & 0 & 0 & 0 & 0 & \frac{\sqrt{5}}{25} & 0 & 0 & 0 & 0 \\ 0 & \frac{3\sqrt{5}}{50} & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{50} & 0 & 0 & 0 \\ 0 & 0 & -\frac{3\sqrt{5}}{50} & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{50} & 0 & 0 \\ 0 & 0 & 0 & -\frac{9\sqrt{5}}{50} & 0 & 0 & 0 & 0 & \frac{\sqrt{5}}{25} & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{5}}{5} & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{5}}{25} & 0 & 0 & 0 & 0 & \frac{3\sqrt{5}}{25} & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{30}}{50} & 0 & 0 & 0 & 0 & \frac{\sqrt{5}}{25} & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{30}}{50} & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{25} & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{5}}{25} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{5}}{25} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{5} \end{bmatrix}$$

$$\boxed{\text{x47}} \quad \mathbb{M}_3^{(a)}(A_{2g}) = \begin{bmatrix} -\frac{\sqrt{5}}{25} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{5}}{25} & 0 & 0 & 0 & 0 \\ 0 & \frac{3\sqrt{5}}{25} & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{25} & 0 & 0 & 0 \\ 0 & 0 & -\frac{3\sqrt{5}}{25} & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{25} & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{5}}{25} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{5}}{25} & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{10} & 0 & 0 & 0 & 0 & 0 \\ -\frac{3\sqrt{5}}{25} & 0 & 0 & 0 & 0 & \frac{7\sqrt{5}}{50} & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{30}}{25} & 0 & 0 & 0 & 0 & \frac{2\sqrt{5}}{25} & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{30}}{25} & 0 & 0 & 0 & 0 & -\frac{2\sqrt{5}}{25} & 0 & 0 \\ 0 & 0 & 0 & -\frac{3\sqrt{5}}{25} & 0 & 0 & 0 & 0 & -\frac{7\sqrt{5}}{50} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}}{10} \end{bmatrix}$$

$$\boxed{\text{x48}} \quad \mathbb{M}_3^{(a)}(B_{1g}) = \begin{bmatrix} 0 & 0 & \frac{i}{5} & 0 & 0 & 0 & 0 & \frac{\sqrt{6}i}{10} & 0 & 0 \\ 0 & 0 & 0 & -\frac{i}{5} & \frac{\sqrt{5}i}{10} & 0 & 0 & 0 & \frac{i}{10} & 0 \\ -\frac{i}{5} & 0 & 0 & 0 & 0 & -\frac{i}{10} & 0 & 0 & 0 & -\frac{\sqrt{5}i}{10} \\ 0 & \frac{i}{5} & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}i}{10} & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{5}i}{10} & 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{20} & 0 & 0 & 0 \\ 0 & 0 & \frac{i}{10} & 0 & 0 & 0 & 0 & \frac{\sqrt{6}i}{20} & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{6}i}{10} & -\frac{\sqrt{30}i}{20} & 0 & 0 & 0 & -\frac{\sqrt{6}i}{20} & 0 \\ -\frac{\sqrt{6}i}{10} & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}i}{20} & 0 & 0 & 0 & -\frac{\sqrt{30}i}{20} \\ 0 & -\frac{i}{10} & 0 & 0 & 0 & 0 & \frac{\sqrt{6}i}{20} & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{5}i}{10} & 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{20} & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x49}} \quad \mathbb{M}_3^{(a)}(B_{2g}) = \begin{bmatrix} 0 & 0 & -\frac{1}{5} & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{10} & 0 & 0 \\ 0 & 0 & 0 & \frac{1}{5} & \frac{\sqrt{5}}{10} & 0 & 0 & 0 & -\frac{1}{10} & 0 \\ -\frac{1}{5} & 0 & 0 & 0 & 0 & -\frac{1}{10} & 0 & 0 & 0 & \frac{\sqrt{5}}{10} \\ 0 & \frac{1}{5} & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{10} & 0 & 0 & 0 \\ 0 & \frac{\sqrt{5}}{10} & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}}{20} & 0 & 0 & 0 \\ 0 & 0 & -\frac{1}{10} & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{20} & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{6}}{10} & -\frac{\sqrt{30}}{20} & 0 & 0 & 0 & \frac{\sqrt{6}}{20} & 0 \\ -\frac{\sqrt{6}}{10} & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{20} & 0 & 0 & 0 & \frac{\sqrt{30}}{20} \\ 0 & -\frac{1}{10} & 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{20} & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{5}}{10} & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{20} & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x50}} \quad \mathbb{M}_{1,1}^{(a)}(E_g) = \begin{bmatrix} 0 & \frac{3\sqrt{15}}{50} & 0 & 0 & -\frac{1}{10} & 0 & \frac{\sqrt{10}}{100} & 0 & 0 & 0 \\ \frac{3\sqrt{15}}{50} & 0 & \frac{3\sqrt{5}}{25} & 0 & 0 & -\frac{\sqrt{15}}{50} & 0 & \frac{\sqrt{30}}{100} & 0 & 0 \\ 0 & \frac{3\sqrt{5}}{25} & 0 & \frac{3\sqrt{15}}{50} & 0 & 0 & -\frac{\sqrt{30}}{100} & 0 & \frac{\sqrt{15}}{50} & 0 \\ 0 & 0 & \frac{3\sqrt{15}}{50} & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}}{100} & 0 & \frac{1}{10} \\ -\frac{1}{10} & 0 & 0 & 0 & 0 & \frac{1}{5} & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{15}}{50} & 0 & 0 & \frac{1}{5} & 0 & \frac{2\sqrt{10}}{25} & 0 & 0 & 0 \\ \frac{\sqrt{10}}{100} & 0 & -\frac{\sqrt{30}}{100} & 0 & 0 & \frac{2\sqrt{10}}{25} & 0 & \frac{3\sqrt{5}}{25} & 0 & 0 \\ 0 & \frac{\sqrt{30}}{100} & 0 & -\frac{\sqrt{10}}{100} & 0 & 0 & \frac{3\sqrt{5}}{25} & 0 & \frac{2\sqrt{10}}{25} & 0 \\ 0 & 0 & \frac{\sqrt{15}}{50} & 0 & 0 & 0 & 0 & \frac{2\sqrt{10}}{25} & 0 & \frac{1}{5} \\ 0 & 0 & 0 & \frac{1}{10} & 0 & 0 & 0 & 0 & \frac{1}{5} & 0 \end{bmatrix}$$

$$\boxed{\text{x51}} \quad \mathbb{M}_{1,2}^{(a)}(E_g) = \begin{bmatrix} 0 & \frac{3\sqrt{15}i}{50} & 0 & 0 & \frac{i}{10} & 0 & \frac{\sqrt{10}i}{100} & 0 & 0 & 0 \\ -\frac{3\sqrt{15}i}{50} & 0 & \frac{3\sqrt{5}i}{25} & 0 & 0 & \frac{\sqrt{15}i}{50} & 0 & \frac{\sqrt{30}i}{100} & 0 & 0 \\ 0 & -\frac{3\sqrt{5}i}{25} & 0 & \frac{3\sqrt{15}i}{50} & 0 & 0 & \frac{\sqrt{30}i}{100} & 0 & \frac{\sqrt{15}i}{50} & 0 \\ 0 & 0 & -\frac{3\sqrt{15}i}{50} & 0 & 0 & 0 & 0 & \frac{\sqrt{10}i}{100} & 0 & \frac{i}{10} \\ -\frac{i}{10} & 0 & 0 & 0 & 0 & \frac{i}{5} & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{15}i}{50} & 0 & 0 & -\frac{i}{5} & 0 & \frac{2\sqrt{10}i}{25} & 0 & 0 & 0 \\ -\frac{\sqrt{10}i}{100} & 0 & -\frac{\sqrt{30}i}{100} & 0 & 0 & -\frac{2\sqrt{10}i}{25} & 0 & \frac{3\sqrt{5}i}{25} & 0 & 0 \\ 0 & -\frac{\sqrt{30}i}{100} & 0 & -\frac{\sqrt{10}i}{100} & 0 & 0 & -\frac{3\sqrt{5}i}{25} & 0 & \frac{2\sqrt{10}i}{25} & 0 \\ 0 & 0 & -\frac{\sqrt{15}i}{50} & 0 & 0 & 0 & 0 & -\frac{2\sqrt{10}i}{25} & 0 & \frac{i}{5} \\ 0 & 0 & 0 & -\frac{i}{10} & 0 & 0 & 0 & 0 & -\frac{i}{5} & 0 \end{bmatrix}$$

$$\boxed{\text{x52}} \quad \mathbb{M}_{3,1}^{(a)}(E_g, 1) = \begin{bmatrix} 0 & \frac{\sqrt{15}}{50} & 0 & -\frac{\sqrt{5}}{10} & -\frac{3}{40} & 0 & \frac{9\sqrt{10}}{200} & 0 & -\frac{3\sqrt{5}}{40} & 0 \\ \frac{\sqrt{15}}{50} & 0 & -\frac{3\sqrt{5}}{50} & 0 & 0 & \frac{7\sqrt{15}}{200} & 0 & -\frac{\sqrt{30}}{200} & 0 & -\frac{\sqrt{3}}{8} \\ 0 & -\frac{3\sqrt{5}}{50} & 0 & \frac{\sqrt{15}}{50} & \frac{\sqrt{3}}{8} & 0 & \frac{\sqrt{30}}{200} & 0 & -\frac{7\sqrt{15}}{200} & 0 \\ -\frac{\sqrt{5}}{10} & 0 & \frac{\sqrt{15}}{50} & 0 & 0 & \frac{3\sqrt{5}}{40} & 0 & -\frac{9\sqrt{10}}{200} & 0 & \frac{3}{40} \\ -\frac{3}{40} & 0 & \frac{\sqrt{3}}{8} & 0 & 0 & \frac{3}{20} & 0 & -\frac{\sqrt{2}}{8} & 0 & 0 \\ 0 & \frac{7\sqrt{15}}{200} & 0 & \frac{3\sqrt{5}}{40} & \frac{3}{20} & 0 & -\frac{3\sqrt{10}}{200} & 0 & -\frac{\sqrt{5}}{10} & 0 \\ \frac{9\sqrt{10}}{200} & 0 & \frac{\sqrt{30}}{200} & 0 & 0 & -\frac{3\sqrt{10}}{200} & 0 & -\frac{3\sqrt{5}}{50} & 0 & -\frac{\sqrt{2}}{8} \\ 0 & -\frac{\sqrt{30}}{200} & 0 & -\frac{9\sqrt{10}}{200} & -\frac{\sqrt{2}}{8} & 0 & -\frac{3\sqrt{5}}{50} & 0 & -\frac{3\sqrt{10}}{200} & 0 \\ -\frac{3\sqrt{5}}{40} & 0 & -\frac{7\sqrt{15}}{200} & 0 & 0 & -\frac{\sqrt{5}}{10} & 0 & -\frac{3\sqrt{10}}{200} & 0 & \frac{3}{20} \\ 0 & -\frac{\sqrt{3}}{8} & 0 & \frac{3}{40} & 0 & 0 & -\frac{\sqrt{2}}{8} & 0 & \frac{3}{20} & 0 \end{bmatrix}$$

$$\boxed{\text{x53}} \quad \mathbb{M}_{3,2}^{(a)}(E_g, 1) = \begin{bmatrix} 0 & \frac{\sqrt{15}i}{50} & 0 & \frac{\sqrt{5}i}{10} & \frac{3i}{40} & 0 & \frac{9\sqrt{10}i}{200} & 0 & \frac{3\sqrt{5}i}{40} & 0 \\ -\frac{\sqrt{15}i}{50} & 0 & -\frac{3\sqrt{5}i}{50} & 0 & 0 & -\frac{7\sqrt{15}i}{200} & 0 & -\frac{\sqrt{30}i}{200} & 0 & \frac{\sqrt{3}i}{8} \\ 0 & \frac{3\sqrt{5}i}{50} & 0 & \frac{\sqrt{15}i}{50} & \frac{\sqrt{3}i}{8} & 0 & -\frac{\sqrt{30}i}{200} & 0 & -\frac{7\sqrt{15}i}{200} & 0 \\ -\frac{\sqrt{5}i}{10} & 0 & -\frac{\sqrt{15}i}{50} & 0 & 0 & \frac{3\sqrt{5}i}{40} & 0 & \frac{9\sqrt{10}i}{200} & 0 & \frac{3i}{40} \\ -\frac{3i}{40} & 0 & -\frac{\sqrt{3}i}{8} & 0 & 0 & \frac{3i}{20} & 0 & \frac{\sqrt{2}i}{8} & 0 & 0 \\ 0 & \frac{7\sqrt{15}i}{200} & 0 & -\frac{3\sqrt{5}i}{40} & -\frac{3i}{20} & 0 & -\frac{3\sqrt{10}i}{200} & 0 & \frac{\sqrt{5}i}{10} & 0 \\ -\frac{9\sqrt{10}i}{200} & 0 & \frac{\sqrt{30}i}{200} & 0 & 0 & \frac{3\sqrt{10}i}{200} & 0 & -\frac{3\sqrt{5}i}{50} & 0 & \frac{\sqrt{2}i}{8} \\ 0 & \frac{\sqrt{30}i}{200} & 0 & -\frac{9\sqrt{10}i}{200} & -\frac{\sqrt{2}i}{8} & 0 & \frac{3\sqrt{5}i}{50} & 0 & -\frac{3\sqrt{10}i}{200} & 0 \\ -\frac{3\sqrt{5}i}{40} & 0 & \frac{7\sqrt{15}i}{200} & 0 & 0 & -\frac{\sqrt{5}i}{10} & 0 & \frac{3\sqrt{10}i}{200} & 0 & \frac{3i}{20} \\ 0 & -\frac{\sqrt{3}i}{8} & 0 & -\frac{3i}{40} & 0 & 0 & -\frac{\sqrt{2}i}{8} & 0 & -\frac{3i}{20} & 0 \end{bmatrix}$$

$$\boxed{\text{x54}} \quad \mathbb{M}_{3,1}^{(a)}(E_g, 2) = \begin{bmatrix} 0 & \frac{1}{10} & 0 & \frac{\sqrt{3}}{10} & -\frac{\sqrt{15}}{40} & 0 & \frac{3\sqrt{6}}{40} & 0 & \frac{3\sqrt{3}}{40} & 0 \\ \frac{1}{10} & 0 & -\frac{\sqrt{3}}{10} & 0 & 0 & \frac{7}{40} & 0 & -\frac{\sqrt{2}}{40} & 0 & \frac{3\sqrt{5}}{40} \\ 0 & -\frac{\sqrt{3}}{10} & 0 & \frac{1}{10} & -\frac{3\sqrt{5}}{40} & 0 & \frac{\sqrt{2}}{40} & 0 & -\frac{7}{40} & 0 \\ \frac{\sqrt{3}}{10} & 0 & \frac{1}{10} & 0 & 0 & -\frac{3\sqrt{3}}{40} & 0 & -\frac{3\sqrt{6}}{40} & 0 & \frac{\sqrt{15}}{40} \\ -\frac{\sqrt{15}}{40} & 0 & -\frac{3\sqrt{5}}{40} & 0 & 0 & \frac{\sqrt{15}}{20} & 0 & \frac{\sqrt{30}}{40} & 0 & 0 \\ 0 & \frac{7}{40} & 0 & -\frac{3\sqrt{3}}{40} & \frac{\sqrt{15}}{20} & 0 & -\frac{\sqrt{6}}{40} & 0 & \frac{\sqrt{3}}{10} & 0 \\ \frac{3\sqrt{6}}{40} & 0 & \frac{\sqrt{2}}{40} & 0 & 0 & -\frac{\sqrt{6}}{40} & 0 & -\frac{\sqrt{3}}{10} & 0 & \frac{\sqrt{30}}{40} \\ 0 & -\frac{\sqrt{2}}{40} & 0 & -\frac{3\sqrt{6}}{40} & \frac{\sqrt{30}}{40} & 0 & -\frac{\sqrt{3}}{10} & 0 & -\frac{\sqrt{6}}{40} & 0 \\ \frac{3\sqrt{3}}{40} & 0 & -\frac{7}{40} & 0 & 0 & \frac{\sqrt{3}}{10} & 0 & -\frac{\sqrt{6}}{40} & 0 & \frac{\sqrt{15}}{20} \\ 0 & \frac{3\sqrt{5}}{40} & 0 & \frac{\sqrt{15}}{40} & 0 & 0 & \frac{\sqrt{30}}{40} & 0 & \frac{\sqrt{15}}{20} & 0 \end{bmatrix}$$

$$\boxed{\text{x55}} \quad \mathbb{M}_{3,2}^{(a)}(E_g, 2) = \begin{bmatrix} 0 & \frac{i}{10} & 0 & -\frac{\sqrt{3}i}{10} & \frac{\sqrt{15}i}{40} & 0 & \frac{3\sqrt{6}i}{40} & 0 & -\frac{3\sqrt{3}i}{40} & 0 \\ -\frac{i}{10} & 0 & -\frac{\sqrt{3}i}{10} & 0 & 0 & -\frac{7i}{40} & 0 & -\frac{\sqrt{2}i}{40} & 0 & -\frac{3\sqrt{5}i}{40} \\ 0 & \frac{\sqrt{3}i}{10} & 0 & \frac{i}{10} & -\frac{3\sqrt{5}i}{40} & 0 & -\frac{\sqrt{2}i}{40} & 0 & -\frac{7i}{40} & 0 \\ \frac{\sqrt{3}i}{10} & 0 & -\frac{i}{10} & 0 & 0 & -\frac{3\sqrt{3}i}{40} & 0 & \frac{3\sqrt{6}i}{40} & 0 & \frac{\sqrt{15}i}{40} \\ -\frac{\sqrt{15}i}{40} & 0 & \frac{3\sqrt{5}i}{40} & 0 & 0 & \frac{\sqrt{15}i}{20} & 0 & -\frac{\sqrt{30}i}{40} & 0 & 0 \\ 0 & \frac{7i}{40} & 0 & \frac{3\sqrt{3}i}{40} & -\frac{\sqrt{15}i}{20} & 0 & -\frac{\sqrt{6}i}{40} & 0 & -\frac{\sqrt{3}i}{10} & 0 \\ -\frac{3\sqrt{6}i}{40} & 0 & \frac{\sqrt{2}i}{40} & 0 & 0 & \frac{\sqrt{6}i}{40} & 0 & -\frac{\sqrt{3}i}{10} & 0 & -\frac{\sqrt{30}i}{40} \\ 0 & \frac{\sqrt{2}i}{40} & 0 & -\frac{3\sqrt{6}i}{40} & \frac{\sqrt{30}i}{40} & 0 & \frac{\sqrt{3}i}{10} & 0 & -\frac{\sqrt{6}i}{40} & 0 \\ \frac{3\sqrt{3}i}{40} & 0 & \frac{7i}{40} & 0 & 0 & \frac{\sqrt{3}i}{10} & 0 & \frac{\sqrt{6}i}{40} & 0 & \frac{\sqrt{15}i}{20} \\ 0 & \frac{3\sqrt{5}i}{40} & 0 & -\frac{\sqrt{15}i}{40} & 0 & 0 & \frac{\sqrt{30}i}{40} & 0 & -\frac{\sqrt{15}i}{20} & 0 \end{bmatrix}$$

$$\boxed{\text{x56}} \quad \mathbb{M}_5^{(1,-1;a)}(A_{1g}) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{i}{2} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{i}{2} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{i}{2} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{i}{2} & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x57}} \quad \mathbb{M}_1^{(1,-1;a)}(A_{2g}) = \begin{bmatrix} -\frac{3\sqrt{10}}{50} & 0 & 0 & 0 & 0 & -\frac{2\sqrt{10}}{25} & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{10}}{50} & 0 & 0 & 0 & 0 & -\frac{2\sqrt{15}}{25} & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{10}}{50} & 0 & 0 & 0 & 0 & -\frac{2\sqrt{15}}{25} & 0 & 0 \\ 0 & 0 & 0 & \frac{3\sqrt{10}}{50} & 0 & 0 & 0 & 0 & -\frac{2\sqrt{10}}{25} & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{10}}{10} & 0 & 0 & 0 & 0 & 0 \\ -\frac{2\sqrt{10}}{25} & 0 & 0 & 0 & 0 & \frac{3\sqrt{10}}{50} & 0 & 0 & 0 & 0 \\ 0 & -\frac{2\sqrt{15}}{25} & 0 & 0 & 0 & 0 & \frac{\sqrt{10}}{50} & 0 & 0 & 0 \\ 0 & 0 & -\frac{2\sqrt{15}}{25} & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}}{50} & 0 & 0 \\ 0 & 0 & 0 & -\frac{2\sqrt{10}}{25} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{10}}{50} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}}{10} \end{bmatrix}$$



$$\boxed{\text{x58}} \quad \mathbb{M}_3^{(1,-1;a)}(A_{2g}) = \begin{bmatrix} \frac{\sqrt{105}}{350} & 0 & 0 & 0 & 0 & \frac{4\sqrt{105}}{175} & 0 & 0 & 0 & 0 \\ 0 & -\frac{3\sqrt{105}}{350} & 0 & 0 & 0 & 0 & -\frac{4\sqrt{70}}{175} & 0 & 0 & 0 \\ 0 & 0 & \frac{3\sqrt{105}}{350} & 0 & 0 & 0 & 0 & -\frac{4\sqrt{70}}{175} & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{105}}{350} & 0 & 0 & 0 & 0 & \frac{4\sqrt{105}}{175} & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{35} & 0 & 0 & 0 & 0 & 0 \\ \frac{4\sqrt{105}}{175} & 0 & 0 & 0 & 0 & \frac{\sqrt{105}}{25} & 0 & 0 & 0 & 0 \\ 0 & -\frac{4\sqrt{70}}{175} & 0 & 0 & 0 & 0 & \frac{4\sqrt{105}}{175} & 0 & 0 & 0 \\ 0 & 0 & -\frac{4\sqrt{70}}{175} & 0 & 0 & 0 & 0 & -\frac{4\sqrt{105}}{175} & 0 & 0 \\ 0 & 0 & 0 & \frac{4\sqrt{105}}{175} & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{25} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}}{35} \end{bmatrix}$$

$$\boxed{\text{x59}} \quad \mathbb{M}_5^{(1,-1;a)}(A_{2g}, 1) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{42} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{7}}{42} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{7}}{21} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{7}}{21} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{7}}{42} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}}{42} \end{bmatrix}$$

$$\boxed{\text{x60}} \quad \mathbb{M}_5^{(1,-1;a)}(A_{2g}, 2) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{1}{2} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{1}{2} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{1}{2} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{1}{2} & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x61}} \quad \mathbb{M}_3^{(1,-1;a)}(B_{1g}) = \begin{bmatrix} 0 & 0 & -\frac{\sqrt{21}i}{70} & 0 & 0 & 0 & 0 & -\frac{2\sqrt{14}i}{35} & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{21}i}{70} & -\frac{2\sqrt{105}i}{105} & 0 & 0 & 0 & -\frac{2\sqrt{21}i}{105} & 0 \\ \frac{\sqrt{21}i}{70} & 0 & 0 & 0 & 0 & \frac{2\sqrt{21}i}{105} & 0 & 0 & 0 & \frac{2\sqrt{105}i}{105} \\ 0 & -\frac{\sqrt{21}i}{70} & 0 & 0 & 0 & 0 & \frac{2\sqrt{14}i}{35} & 0 & 0 & 0 \\ 0 & \frac{2\sqrt{105}i}{105} & 0 & 0 & 0 & 0 & \frac{3\sqrt{70}i}{70} & 0 & 0 & 0 \\ 0 & 0 & -\frac{2\sqrt{21}i}{105} & 0 & 0 & 0 & 0 & \frac{3\sqrt{14}i}{70} & 0 & 0 \\ 0 & 0 & 0 & -\frac{2\sqrt{14}i}{35} & -\frac{3\sqrt{70}i}{70} & 0 & 0 & 0 & -\frac{3\sqrt{14}i}{70} & 0 \\ \frac{2\sqrt{14}i}{35} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{14}i}{70} & 0 & 0 & 0 & -\frac{3\sqrt{70}i}{70} \\ 0 & \frac{2\sqrt{21}i}{105} & 0 & 0 & 0 & 0 & \frac{3\sqrt{14}i}{70} & 0 & 0 & 0 \\ 0 & 0 & -\frac{2\sqrt{105}i}{105} & 0 & 0 & 0 & 0 & \frac{3\sqrt{70}i}{70} & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x62}} \quad \mathbb{M}_5^{(1,-1;a)}(B_{1g}) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}i}{12} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}i}{12} & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{6}i}{12} & 0 & 0 & 0 & \frac{\sqrt{30}i}{12} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{12} & 0 & 0 & 0 & -\frac{\sqrt{6}i}{12} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}i}{12} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}i}{12} & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x63}} \quad \mathbb{M}_3^{(1,-1;a)}(B_{2g}) = \begin{bmatrix} 0 & 0 & \frac{\sqrt{21}}{70} & 0 & 0 & 0 & 0 & \frac{2\sqrt{14}}{35} & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{21}}{70} & -\frac{2\sqrt{105}}{105} & 0 & 0 & 0 & \frac{2\sqrt{21}}{105} & 0 \\ \frac{\sqrt{21}}{70} & 0 & 0 & 0 & 0 & \frac{2\sqrt{21}}{105} & 0 & 0 & 0 & -\frac{2\sqrt{105}}{105} \\ 0 & -\frac{\sqrt{21}}{70} & 0 & 0 & 0 & 0 & \frac{2\sqrt{14}}{35} & 0 & 0 & 0 \\ 0 & -\frac{2\sqrt{105}}{105} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{70}}{70} & 0 & 0 & 0 \\ 0 & 0 & \frac{2\sqrt{21}}{105} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{14}}{70} & 0 & 0 \\ 0 & 0 & 0 & \frac{2\sqrt{14}}{35} & -\frac{3\sqrt{70}}{70} & 0 & 0 & 0 & \frac{3\sqrt{14}}{70} & 0 \\ \frac{2\sqrt{14}}{35} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{14}}{70} & 0 & 0 & 0 & \frac{3\sqrt{70}}{70} \\ 0 & \frac{2\sqrt{21}}{105} & 0 & 0 & 0 & 0 & \frac{3\sqrt{14}}{70} & 0 & 0 & 0 \\ 0 & 0 & -\frac{2\sqrt{105}}{105} & 0 & 0 & 0 & 0 & \frac{3\sqrt{70}}{70} & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x64}} \quad \mathbb{M}_5^{(1,-1;a)}(B_{2g}) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{12} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}}{12} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{12} & 0 & 0 & 0 & \frac{\sqrt{30}}{12} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}}{12} & 0 & 0 & 0 & -\frac{\sqrt{6}}{12} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{12} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{12} & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x65}} \quad \mathbb{M}_{1,1}^{(1,-1;a)}(E_g) = \begin{bmatrix} 0 & -\frac{\sqrt{30}}{50} & 0 & 0 & \frac{\sqrt{2}}{5} & 0 & -\frac{\sqrt{5}}{25} & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{30}}{50} & 0 & -\frac{\sqrt{10}}{25} & 0 & 0 & \frac{\sqrt{30}}{25} & 0 & -\frac{\sqrt{15}}{25} & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{10}}{25} & 0 & -\frac{\sqrt{30}}{50} & 0 & 0 & \frac{\sqrt{15}}{25} & 0 & -\frac{\sqrt{30}}{25} & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{30}}{50} & 0 & 0 & 0 & 0 & \frac{\sqrt{5}}{25} & 0 & -\frac{\sqrt{2}}{5} & 0 \\ \frac{\sqrt{2}}{5} & 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{10} & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{30}}{25} & 0 & 0 & \frac{\sqrt{2}}{10} & 0 & \frac{2\sqrt{5}}{25} & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{5}}{25} & 0 & \frac{\sqrt{15}}{25} & 0 & 0 & \frac{2\sqrt{5}}{25} & 0 & \frac{3\sqrt{10}}{50} & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{15}}{25} & 0 & \frac{\sqrt{5}}{25} & 0 & 0 & \frac{3\sqrt{10}}{50} & 0 & \frac{2\sqrt{5}}{25} & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{30}}{25} & 0 & 0 & 0 & 0 & \frac{2\sqrt{5}}{25} & 0 & \frac{\sqrt{2}}{10} & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{2}}{5} & 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{10} & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x66}} \quad \mathbb{M}_{1,2}^{(1,-1;a)}(E_g) = \begin{bmatrix} 0 & -\frac{\sqrt{30}i}{50} & 0 & 0 & -\frac{\sqrt{2}i}{5} & 0 & -\frac{\sqrt{5}i}{25} & 0 & 0 & 0 & 0 \\ \frac{\sqrt{30}i}{50} & 0 & -\frac{\sqrt{10}i}{25} & 0 & 0 & -\frac{\sqrt{30}i}{25} & 0 & -\frac{\sqrt{15}i}{25} & 0 & 0 & 0 \\ 0 & \frac{\sqrt{10}i}{25} & 0 & -\frac{\sqrt{30}i}{50} & 0 & 0 & -\frac{\sqrt{15}i}{25} & 0 & -\frac{\sqrt{30}i}{25} & 0 & 0 \\ 0 & 0 & \frac{\sqrt{30}i}{50} & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{25} & 0 & -\frac{\sqrt{2}i}{5} & 0 \\ \frac{\sqrt{2}i}{5} & 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{10} & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{30}i}{25} & 0 & 0 & -\frac{\sqrt{2}i}{10} & 0 & \frac{2\sqrt{5}i}{25} & 0 & 0 & 0 & 0 \\ \frac{\sqrt{5}i}{25} & 0 & \frac{\sqrt{15}i}{25} & 0 & 0 & -\frac{2\sqrt{5}i}{25} & 0 & \frac{3\sqrt{10}i}{50} & 0 & 0 & 0 \\ 0 & \frac{\sqrt{15}i}{25} & 0 & \frac{\sqrt{5}i}{25} & 0 & 0 & -\frac{3\sqrt{10}i}{50} & 0 & \frac{2\sqrt{5}i}{25} & 0 & 0 \\ 0 & 0 & \frac{\sqrt{30}i}{25} & 0 & 0 & 0 & 0 & -\frac{2\sqrt{5}i}{25} & 0 & \frac{\sqrt{2}i}{10} & 0 \\ 0 & 0 & 0 & \frac{\sqrt{2}i}{5} & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{10} & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x67}} \quad \mathbb{M}_{3,1}^{(1,-1;a)}(E_g, 1) = \begin{bmatrix} 0 & -\frac{3\sqrt{35}}{700} & 0 & \frac{\sqrt{105}}{140} & \frac{\sqrt{21}}{70} & 0 & -\frac{3\sqrt{210}}{350} & 0 & \frac{\sqrt{105}}{70} & 0 \\ -\frac{3\sqrt{35}}{700} & 0 & \frac{3\sqrt{105}}{700} & 0 & 0 & -\frac{\sqrt{35}}{50} & 0 & \frac{\sqrt{70}}{350} & 0 & \frac{\sqrt{7}}{14} \\ 0 & \frac{3\sqrt{105}}{700} & 0 & -\frac{3\sqrt{35}}{700} & -\frac{\sqrt{7}}{14} & 0 & -\frac{\sqrt{70}}{350} & 0 & \frac{\sqrt{35}}{50} & 0 \\ \frac{\sqrt{105}}{140} & 0 & -\frac{3\sqrt{35}}{700} & 0 & 0 & -\frac{\sqrt{105}}{70} & 0 & \frac{3\sqrt{210}}{350} & 0 & -\frac{\sqrt{21}}{70} \\ \frac{\sqrt{21}}{70} & 0 & -\frac{\sqrt{7}}{14} & 0 & 0 & \frac{3\sqrt{21}}{70} & 0 & -\frac{\sqrt{42}}{28} & 0 & 0 \\ 0 & -\frac{\sqrt{35}}{50} & 0 & -\frac{\sqrt{105}}{70} & \frac{3\sqrt{21}}{70} & 0 & -\frac{3\sqrt{210}}{700} & 0 & -\frac{\sqrt{105}}{35} & 0 \\ -\frac{3\sqrt{210}}{350} & 0 & -\frac{\sqrt{70}}{350} & 0 & 0 & -\frac{3\sqrt{210}}{700} & 0 & -\frac{3\sqrt{105}}{175} & 0 & -\frac{\sqrt{42}}{28} \\ 0 & \frac{\sqrt{70}}{350} & 0 & \frac{3\sqrt{210}}{350} & -\frac{\sqrt{42}}{28} & 0 & -\frac{3\sqrt{105}}{175} & 0 & -\frac{3\sqrt{210}}{700} & 0 \\ \frac{\sqrt{105}}{70} & 0 & \frac{\sqrt{35}}{50} & 0 & 0 & -\frac{\sqrt{105}}{35} & 0 & -\frac{3\sqrt{210}}{700} & 0 & \frac{3\sqrt{21}}{70} \\ 0 & \frac{\sqrt{7}}{14} & 0 & -\frac{\sqrt{21}}{70} & 0 & 0 & -\frac{\sqrt{42}}{28} & 0 & \frac{3\sqrt{21}}{70} & 0 \end{bmatrix}$$

$$\boxed{\text{x68}} \quad \mathbb{M}_{3,2}^{(1,-1;a)}(E_g, 1) = \begin{bmatrix} 0 & -\frac{3\sqrt{35}i}{700} & 0 & -\frac{\sqrt{105}i}{140} & -\frac{\sqrt{21}i}{70} & 0 & -\frac{3\sqrt{210}i}{350} & 0 & -\frac{\sqrt{105}i}{70} & 0 \\ \frac{3\sqrt{35}i}{700} & 0 & \frac{3\sqrt{105}i}{700} & 0 & 0 & \frac{\sqrt{35}i}{50} & 0 & \frac{\sqrt{70}i}{350} & 0 & -\frac{\sqrt{7}i}{14} \\ 0 & -\frac{3\sqrt{105}i}{700} & 0 & -\frac{3\sqrt{35}i}{700} & -\frac{\sqrt{7}i}{14} & 0 & \frac{\sqrt{70}i}{350} & 0 & \frac{\sqrt{35}i}{50} & 0 \\ \frac{\sqrt{105}i}{140} & 0 & \frac{3\sqrt{35}i}{700} & 0 & 0 & -\frac{\sqrt{105}i}{70} & 0 & -\frac{3\sqrt{210}i}{350} & 0 & -\frac{\sqrt{21}i}{70} \\ \frac{\sqrt{21}i}{70} & 0 & \frac{\sqrt{7}i}{14} & 0 & 0 & \frac{3\sqrt{21}i}{70} & 0 & \frac{\sqrt{42}i}{28} & 0 & 0 \\ 0 & -\frac{\sqrt{35}i}{50} & 0 & \frac{\sqrt{105}i}{70} & -\frac{3\sqrt{21}i}{70} & 0 & -\frac{3\sqrt{210}i}{700} & 0 & \frac{\sqrt{105}i}{35} & 0 \\ \frac{3\sqrt{210}i}{350} & 0 & -\frac{\sqrt{70}i}{350} & 0 & 0 & \frac{3\sqrt{210}i}{700} & 0 & -\frac{3\sqrt{105}i}{175} & 0 & \frac{\sqrt{42}i}{28} \\ 0 & -\frac{\sqrt{70}i}{350} & 0 & \frac{3\sqrt{210}i}{350} & -\frac{\sqrt{42}i}{28} & 0 & \frac{3\sqrt{105}i}{175} & 0 & -\frac{3\sqrt{210}i}{700} & 0 \\ \frac{\sqrt{105}i}{70} & 0 & -\frac{\sqrt{35}i}{50} & 0 & 0 & -\frac{\sqrt{105}i}{35} & 0 & \frac{3\sqrt{210}i}{700} & 0 & \frac{3\sqrt{21}i}{70} \\ 0 & \frac{\sqrt{7}i}{14} & 0 & \frac{\sqrt{21}i}{70} & 0 & 0 & -\frac{\sqrt{42}i}{28} & 0 & -\frac{3\sqrt{21}i}{70} & 0 \end{bmatrix}$$

$$\boxed{\text{x69}} \quad \mathbb{M}_{3,1}^{(1,-1;a)}(E_g, 2) = \begin{bmatrix} 0 & -\frac{\sqrt{21}}{140} & 0 & -\frac{3\sqrt{7}}{140} & \frac{\sqrt{35}}{70} & 0 & -\frac{3\sqrt{14}}{70} & 0 & -\frac{3\sqrt{7}}{70} & 0 \\ -\frac{\sqrt{21}}{140} & 0 & \frac{3\sqrt{7}}{140} & 0 & 0 & -\frac{\sqrt{21}}{30} & 0 & \frac{\sqrt{42}}{210} & 0 & -\frac{\sqrt{105}}{70} \\ 0 & \frac{3\sqrt{7}}{140} & 0 & -\frac{\sqrt{21}}{140} & \frac{\sqrt{105}}{70} & 0 & -\frac{\sqrt{42}}{210} & 0 & \frac{\sqrt{21}}{30} & 0 \\ -\frac{3\sqrt{7}}{140} & 0 & -\frac{\sqrt{21}}{140} & 0 & 0 & \frac{3\sqrt{7}}{70} & 0 & \frac{3\sqrt{14}}{70} & 0 & -\frac{\sqrt{35}}{70} \\ \frac{\sqrt{35}}{70} & 0 & \frac{\sqrt{105}}{70} & 0 & 0 & \frac{3\sqrt{35}}{70} & 0 & \frac{3\sqrt{70}}{140} & 0 & 0 \\ 0 & -\frac{\sqrt{21}}{30} & 0 & \frac{3\sqrt{7}}{70} & \frac{3\sqrt{35}}{70} & 0 & -\frac{3\sqrt{14}}{140} & 0 & \frac{3\sqrt{7}}{35} & 0 \\ -\frac{3\sqrt{14}}{70} & 0 & -\frac{\sqrt{42}}{210} & 0 & 0 & -\frac{3\sqrt{14}}{140} & 0 & -\frac{3\sqrt{7}}{35} & 0 & \frac{3\sqrt{70}}{140} \\ 0 & \frac{\sqrt{42}}{210} & 0 & \frac{3\sqrt{14}}{70} & \frac{3\sqrt{70}}{140} & 0 & -\frac{3\sqrt{7}}{35} & 0 & -\frac{3\sqrt{14}}{140} & 0 \\ -\frac{3\sqrt{7}}{70} & 0 & \frac{\sqrt{21}}{30} & 0 & 0 & \frac{3\sqrt{7}}{35} & 0 & -\frac{3\sqrt{14}}{140} & 0 & \frac{3\sqrt{35}}{70} \\ 0 & -\frac{\sqrt{105}}{70} & 0 & -\frac{\sqrt{35}}{70} & 0 & 0 & \frac{3\sqrt{70}}{140} & 0 & \frac{3\sqrt{35}}{70} & 0 \end{bmatrix}$$

$$\boxed{\text{x70}} \quad \mathbb{M}_{3,2}^{(1,-1;a)}(E_g, 2) = \begin{bmatrix} 0 & -\frac{\sqrt{21}i}{140} & 0 & \frac{3\sqrt{7}i}{140} & -\frac{\sqrt{35}i}{70} & 0 & -\frac{3\sqrt{14}i}{70} & 0 & \frac{3\sqrt{7}i}{70} & 0 \\ \frac{\sqrt{21}i}{140} & 0 & \frac{3\sqrt{7}i}{140} & 0 & 0 & \frac{\sqrt{21}i}{30} & 0 & \frac{\sqrt{42}i}{210} & 0 & \frac{\sqrt{105}i}{70} \\ 0 & -\frac{3\sqrt{7}i}{140} & 0 & -\frac{\sqrt{21}i}{140} & \frac{\sqrt{105}i}{70} & 0 & \frac{\sqrt{42}i}{210} & 0 & \frac{\sqrt{21}i}{30} & 0 \\ -\frac{3\sqrt{7}i}{140} & 0 & \frac{\sqrt{21}i}{140} & 0 & 0 & \frac{3\sqrt{7}i}{70} & 0 & -\frac{3\sqrt{14}i}{70} & 0 & -\frac{\sqrt{35}i}{70} \\ \frac{\sqrt{35}i}{70} & 0 & -\frac{\sqrt{105}i}{70} & 0 & 0 & \frac{3\sqrt{35}i}{70} & 0 & -\frac{3\sqrt{70}i}{140} & 0 & 0 \\ 0 & -\frac{\sqrt{21}i}{30} & 0 & -\frac{3\sqrt{7}i}{70} & -\frac{3\sqrt{35}i}{70} & 0 & -\frac{3\sqrt{14}i}{140} & 0 & -\frac{3\sqrt{7}i}{35} & 0 \\ \frac{3\sqrt{14}i}{70} & 0 & -\frac{\sqrt{42}i}{210} & 0 & 0 & \frac{3\sqrt{14}i}{140} & 0 & -\frac{3\sqrt{7}i}{35} & 0 & -\frac{3\sqrt{70}i}{140} \\ 0 & -\frac{\sqrt{42}i}{210} & 0 & \frac{3\sqrt{14}i}{70} & \frac{3\sqrt{70}i}{140} & 0 & \frac{3\sqrt{7}i}{35} & 0 & -\frac{3\sqrt{14}i}{140} & 0 \\ -\frac{3\sqrt{7}i}{70} & 0 & -\frac{\sqrt{21}i}{30} & 0 & 0 & \frac{3\sqrt{7}i}{35} & 0 & \frac{3\sqrt{14}i}{140} & 0 & \frac{3\sqrt{35}i}{70} \\ 0 & -\frac{\sqrt{105}i}{70} & 0 & \frac{\sqrt{35}i}{70} & 0 & 0 & \frac{3\sqrt{70}i}{140} & 0 & -\frac{3\sqrt{35}i}{70} & 0 \end{bmatrix}$$

$$\boxed{\text{x71}} \quad \mathbb{M}_{5,1}^{(1,-1;a)}(E_g, 1) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{35}}{112} & 0 & -\frac{\sqrt{70}}{48} & 0 & \frac{3\sqrt{7}}{16} & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{35}}{112} & 0 & -\frac{5\sqrt{14}}{112} & 0 & \frac{5\sqrt{7}}{48} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{14}}{112} & 0 & \frac{5\sqrt{7}}{56} & 0 & -\frac{\sqrt{70}}{48} & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{70}}{48} & 0 & \frac{5\sqrt{7}}{56} & 0 & -\frac{5\sqrt{14}}{112} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{7}}{48} & 0 & -\frac{5\sqrt{14}}{112} & 0 & \frac{\sqrt{35}}{112} & 0 \\ 0 & 0 & 0 & 0 & \frac{3\sqrt{7}}{16} & 0 & -\frac{\sqrt{70}}{48} & 0 & \frac{\sqrt{35}}{112} & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x72}} \quad \mathbb{M}_{5,2}^{(1,-1;a)}(E_g, 1) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{35}i}{112} & 0 & \frac{\sqrt{70}i}{48} & 0 & \frac{3\sqrt{7}i}{16} & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{35}i}{112} & 0 & -\frac{5\sqrt{14}i}{112} & 0 & -\frac{5\sqrt{7}i}{48} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{14}i}{112} & 0 & \frac{5\sqrt{7}i}{56} & 0 & \frac{\sqrt{70}i}{48} & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{70}i}{48} & 0 & -\frac{5\sqrt{7}i}{56} & 0 & -\frac{5\sqrt{14}i}{112} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{7}i}{48} & 0 & \frac{5\sqrt{14}i}{112} & 0 & \frac{\sqrt{35}i}{112} & 0 \\ 0 & 0 & 0 & 0 & -\frac{3\sqrt{7}i}{16} & 0 & -\frac{\sqrt{70}i}{48} & 0 & -\frac{\sqrt{35}i}{112} & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x73}} \quad \mathbb{M}_{5,1}^{(1,-1;a)}(E_g, 2) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{1}{16} & 0 & \frac{3\sqrt{2}}{16} & 0 & \frac{\sqrt{5}}{16} \\ 0 & 0 & 0 & 0 & \frac{1}{16} & 0 & -\frac{\sqrt{10}}{16} & 0 & -\frac{3\sqrt{5}}{16} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}}{16} & 0 & \frac{\sqrt{5}}{8} & 0 & \frac{3\sqrt{2}}{16} \\ 0 & 0 & 0 & 0 & \frac{3\sqrt{2}}{16} & 0 & \frac{\sqrt{5}}{8} & 0 & -\frac{\sqrt{10}}{16} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{5}}{16} & 0 & -\frac{\sqrt{10}}{16} & 0 & \frac{1}{16} \\ 0 & 0 & 0 & 0 & \frac{\sqrt{5}}{16} & 0 & \frac{3\sqrt{2}}{16} & 0 & \frac{1}{16} & 0 \end{bmatrix}$$

$$\boxed{\text{x74}} \quad \mathbb{M}_{5,2}^{(1,-1;a)}(E_g, 2) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{i}{16} & 0 & -\frac{3\sqrt{2}i}{16} & 0 & \frac{\sqrt{5}i}{16} \\ 0 & 0 & 0 & 0 & -\frac{i}{16} & 0 & -\frac{\sqrt{10}i}{16} & 0 & \frac{3\sqrt{5}i}{16} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{10}i}{16} & 0 & \frac{\sqrt{5}i}{8} & 0 & -\frac{3\sqrt{2}i}{16} \\ 0 & 0 & 0 & 0 & \frac{3\sqrt{2}i}{16} & 0 & -\frac{\sqrt{5}i}{8} & 0 & -\frac{\sqrt{10}i}{16} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{5}i}{16} & 0 & \frac{\sqrt{10}i}{16} & 0 & \frac{i}{16} \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{16} & 0 & \frac{3\sqrt{2}i}{16} & 0 & -\frac{i}{16} & 0 \end{bmatrix}$$

$$\boxed{\text{x75}} \quad \mathbb{M}_{5,1}^{(1,-1;a)}(E_g, 3) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{24} & 0 & -\frac{\sqrt{6}}{24} & 0 & -\frac{\sqrt{15}}{8} \\ 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{24} & 0 & -\frac{\sqrt{30}}{24} & 0 & \frac{\sqrt{15}}{24} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}}{24} & 0 & \frac{\sqrt{15}}{12} & 0 & -\frac{\sqrt{6}}{24} \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{24} & 0 & \frac{\sqrt{15}}{12} & 0 & -\frac{\sqrt{30}}{24} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{24} & 0 & -\frac{\sqrt{30}}{24} & 0 & \frac{\sqrt{3}}{24} \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{8} & 0 & -\frac{\sqrt{6}}{24} & 0 & \frac{\sqrt{3}}{24} & 0 \end{bmatrix}$$

$$\boxed{\text{x76}} \quad \mathbb{M}_{5,2}^{(1,-1;a)}(E_g, 3) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{24} & 0 & \frac{\sqrt{6}i}{24} & 0 & -\frac{\sqrt{15}i}{8} & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{24} & 0 & -\frac{\sqrt{30}i}{24} & 0 & -\frac{\sqrt{15}i}{24} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{24} & 0 & \frac{\sqrt{15}i}{12} & 0 & \frac{\sqrt{6}i}{24} & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{6}i}{24} & 0 & -\frac{\sqrt{15}i}{12} & 0 & -\frac{\sqrt{30}i}{24} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{24} & 0 & \frac{\sqrt{30}i}{24} & 0 & \frac{\sqrt{3}i}{24} & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{8} & 0 & -\frac{\sqrt{6}i}{24} & 0 & -\frac{\sqrt{3}i}{24} & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x77}} \quad \mathbb{M}_1^{(1,1;a)}(A_{2g}) = \begin{bmatrix} \frac{3\sqrt{70}}{50} & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}}{50} & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{70}}{50} & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{50} & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{70}}{50} & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{50} & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{3\sqrt{70}}{50} & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}}{50} & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{70}}{35} & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{70}}{50} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{70}}{175} & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{105}}{50} & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}}{175} & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{105}}{50} & 0 & 0 & 0 & 0 & \frac{\sqrt{70}}{175} & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{70}}{50} & 0 & 0 & 0 & 0 & \frac{3\sqrt{70}}{175} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{70}}{35} & 0 \end{bmatrix}$$

$$\boxed{\text{x78}} \quad \mathbb{M}_3^{(1,1;a)}(A_{2g}) = \begin{bmatrix} -\frac{6\sqrt{35}}{175} & 0 & 0 & 0 & 0 & \frac{9\sqrt{35}}{350} & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{18\sqrt{35}}{175} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{210}}{350} & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{18\sqrt{35}}{175} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{210}}{350} & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{6\sqrt{35}}{175} & 0 & 0 & 0 & 0 & \frac{9\sqrt{35}}{350} & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{35}}{105} & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{9\sqrt{35}}{350} & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}}{75} & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{3\sqrt{210}}{350} & 0 & 0 & 0 & 0 & -\frac{4\sqrt{35}}{525} & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{3\sqrt{210}}{350} & 0 & 0 & 0 & 0 & \frac{4\sqrt{35}}{525} & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{9\sqrt{35}}{350} & 0 & 0 & 0 & 0 & \frac{\sqrt{35}}{75} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}}{105} & 0 \end{bmatrix}$$

$$\boxed{\text{x79}} \quad \mathbb{M}_3^{(1,1;a)}(B_{1g}) = \begin{bmatrix} 0 & 0 & \frac{6\sqrt{7}i}{35} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{42}i}{140} & 0 & 0 \\ 0 & 0 & 0 & -\frac{6\sqrt{7}i}{35} & -\frac{3\sqrt{35}i}{140} & 0 & 0 & 0 & -\frac{3\sqrt{7}i}{140} & 0 \\ -\frac{6\sqrt{7}i}{35} & 0 & 0 & 0 & 0 & \frac{3\sqrt{7}i}{140} & 0 & 0 & 0 & \frac{3\sqrt{35}i}{140} \\ 0 & \frac{6\sqrt{7}i}{35} & 0 & 0 & 0 & 0 & \frac{3\sqrt{42}i}{140} & 0 & 0 & 0 \\ 0 & \frac{3\sqrt{35}i}{140} & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}i}{210} & 0 & 0 & 0 \\ 0 & 0 & -\frac{3\sqrt{7}i}{140} & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}i}{210} & 0 & 0 \\ 0 & 0 & 0 & -\frac{3\sqrt{42}i}{140} & \frac{\sqrt{210}i}{210} & 0 & 0 & 0 & \frac{\sqrt{42}i}{210} & 0 \\ \frac{3\sqrt{42}i}{140} & 0 & 0 & 0 & 0 & \frac{\sqrt{42}i}{210} & 0 & 0 & 0 & \frac{\sqrt{210}i}{210} \\ 0 & \frac{3\sqrt{7}i}{140} & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}i}{210} & 0 & 0 & 0 \\ 0 & 0 & -\frac{3\sqrt{35}i}{140} & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}i}{210} & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x80}} \quad \mathbb{M}_3^{(1,1;a)}(B_{2g}) = \begin{bmatrix} 0 & 0 & -\frac{6\sqrt{7}}{35} & 0 & 0 & 0 & 0 & \frac{3\sqrt{42}}{140} & 0 & 0 \\ 0 & 0 & 0 & \frac{6\sqrt{7}}{35} & -\frac{3\sqrt{35}}{140} & 0 & 0 & 0 & \frac{3\sqrt{7}}{140} & 0 \\ -\frac{6\sqrt{7}}{35} & 0 & 0 & 0 & 0 & \frac{3\sqrt{7}}{140} & 0 & 0 & 0 & -\frac{3\sqrt{35}}{140} \\ 0 & \frac{6\sqrt{7}}{35} & 0 & 0 & 0 & 0 & \frac{3\sqrt{42}}{140} & 0 & 0 & 0 \\ 0 & -\frac{3\sqrt{35}}{140} & 0 & 0 & 0 & 0 & \frac{\sqrt{210}}{210} & 0 & 0 & 0 \\ 0 & 0 & \frac{3\sqrt{7}}{140} & 0 & 0 & 0 & 0 & \frac{\sqrt{42}}{210} & 0 & 0 \\ 0 & 0 & 0 & \frac{3\sqrt{42}}{140} & \frac{\sqrt{210}}{210} & 0 & 0 & 0 & -\frac{\sqrt{42}}{210} & 0 \\ \frac{3\sqrt{42}}{140} & 0 & 0 & 0 & 0 & \frac{\sqrt{42}}{210} & 0 & 0 & 0 & -\frac{\sqrt{210}}{210} \\ 0 & \frac{3\sqrt{7}}{140} & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}}{210} & 0 & 0 & 0 \\ 0 & 0 & -\frac{3\sqrt{35}}{140} & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}}{210} & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x81}} \quad \mathbb{M}_{1,1}^{(1,1;a)}(E_g) = \begin{bmatrix} 0 & \frac{\sqrt{210}}{50} & 0 & 0 & \frac{\sqrt{14}}{20} & 0 & -\frac{\sqrt{35}}{100} & 0 & 0 & 0 \\ \frac{\sqrt{210}}{50} & 0 & \frac{\sqrt{70}}{25} & 0 & 0 & \frac{\sqrt{210}}{100} & 0 & -\frac{\sqrt{105}}{100} & 0 & 0 \\ 0 & \frac{\sqrt{70}}{25} & 0 & \frac{\sqrt{210}}{50} & 0 & 0 & \frac{\sqrt{105}}{100} & 0 & -\frac{\sqrt{210}}{100} & 0 \\ 0 & 0 & \frac{\sqrt{210}}{50} & 0 & 0 & 0 & 0 & \frac{\sqrt{35}}{100} & 0 & -\frac{\sqrt{14}}{20} \\ \frac{\sqrt{14}}{20} & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}}{35} & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{210}}{100} & 0 & 0 & -\frac{\sqrt{14}}{35} & 0 & -\frac{4\sqrt{35}}{175} & 0 & 0 & 0 \\ -\frac{\sqrt{35}}{100} & 0 & \frac{\sqrt{105}}{100} & 0 & 0 & -\frac{4\sqrt{35}}{175} & 0 & -\frac{3\sqrt{70}}{175} & 0 & 0 \\ 0 & -\frac{\sqrt{105}}{100} & 0 & \frac{\sqrt{35}}{100} & 0 & 0 & -\frac{3\sqrt{70}}{175} & 0 & -\frac{4\sqrt{35}}{175} & 0 \\ 0 & 0 & -\frac{\sqrt{210}}{100} & 0 & 0 & 0 & 0 & -\frac{4\sqrt{35}}{175} & 0 & -\frac{\sqrt{14}}{35} \\ 0 & 0 & 0 & -\frac{\sqrt{14}}{20} & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}}{35} & 0 \end{bmatrix}$$



$$\boxed{\text{x82}} \quad \mathbb{M}_{1,2}^{(1,1;a)}(E_g) = \begin{bmatrix} 0 & \frac{\sqrt{210}i}{50} & 0 & 0 & -\frac{\sqrt{14}i}{20} & 0 & -\frac{\sqrt{35}i}{100} & 0 & 0 & 0 \\ -\frac{\sqrt{210}i}{50} & 0 & \frac{\sqrt{70}i}{25} & 0 & 0 & -\frac{\sqrt{210}i}{100} & 0 & -\frac{\sqrt{105}i}{100} & 0 & 0 \\ 0 & -\frac{\sqrt{70}i}{25} & 0 & \frac{\sqrt{210}i}{50} & 0 & 0 & -\frac{\sqrt{105}i}{100} & 0 & -\frac{\sqrt{210}i}{100} & 0 \\ 0 & 0 & -\frac{\sqrt{210}i}{50} & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}i}{100} & 0 & -\frac{\sqrt{14}i}{20} \\ \frac{\sqrt{14}i}{20} & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}i}{35} & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{210}i}{100} & 0 & 0 & \frac{\sqrt{14}i}{35} & 0 & -\frac{4\sqrt{35}i}{175} & 0 & 0 & 0 \\ \frac{\sqrt{35}i}{100} & 0 & \frac{\sqrt{105}i}{100} & 0 & 0 & \frac{4\sqrt{35}i}{175} & 0 & -\frac{3\sqrt{70}i}{175} & 0 & 0 \\ 0 & \frac{\sqrt{105}i}{100} & 0 & \frac{\sqrt{35}i}{100} & 0 & 0 & \frac{3\sqrt{70}i}{175} & 0 & -\frac{4\sqrt{35}i}{175} & 0 \\ 0 & 0 & \frac{\sqrt{210}i}{100} & 0 & 0 & 0 & 0 & \frac{4\sqrt{35}i}{175} & 0 & -\frac{\sqrt{14}i}{35} \\ 0 & 0 & 0 & \frac{\sqrt{14}i}{20} & 0 & 0 & 0 & 0 & \frac{\sqrt{14}i}{35} & 0 \end{bmatrix}$$

$$\boxed{\text{x83}} \quad \mathbb{M}_{3,1}^{(1,1;a)}(E_g, 1) = \begin{bmatrix} 0 & \frac{3\sqrt{105}}{175} & 0 & -\frac{3\sqrt{35}}{35} & \frac{9\sqrt{7}}{560} & 0 & -\frac{27\sqrt{70}}{2800} & 0 & \frac{9\sqrt{35}}{560} & 0 \\ \frac{3\sqrt{105}}{175} & 0 & -\frac{9\sqrt{35}}{175} & 0 & 0 & -\frac{3\sqrt{105}}{400} & 0 & \frac{3\sqrt{210}}{2800} & 0 & \frac{3\sqrt{21}}{112} \\ 0 & -\frac{9\sqrt{35}}{175} & 0 & \frac{3\sqrt{105}}{175} & -\frac{3\sqrt{21}}{112} & 0 & -\frac{3\sqrt{210}}{2800} & 0 & \frac{3\sqrt{105}}{400} & 0 \\ -\frac{3\sqrt{35}}{35} & 0 & \frac{3\sqrt{105}}{175} & 0 & 0 & -\frac{9\sqrt{35}}{560} & 0 & \frac{27\sqrt{70}}{2800} & 0 & -\frac{9\sqrt{7}}{560} \\ \frac{9\sqrt{7}}{560} & 0 & -\frac{3\sqrt{21}}{112} & 0 & 0 & -\frac{\sqrt{7}}{70} & 0 & \frac{\sqrt{14}}{84} & 0 & 0 \\ 0 & -\frac{3\sqrt{105}}{400} & 0 & -\frac{9\sqrt{35}}{560} & -\frac{\sqrt{7}}{70} & 0 & \frac{\sqrt{70}}{700} & 0 & \frac{\sqrt{35}}{105} & 0 \\ -\frac{27\sqrt{70}}{2800} & 0 & -\frac{3\sqrt{210}}{2800} & 0 & 0 & \frac{\sqrt{70}}{700} & 0 & \frac{\sqrt{35}}{175} & 0 & \frac{\sqrt{14}}{84} \\ 0 & \frac{3\sqrt{210}}{2800} & 0 & \frac{27\sqrt{70}}{2800} & \frac{\sqrt{14}}{84} & 0 & \frac{\sqrt{35}}{175} & 0 & \frac{\sqrt{70}}{700} & 0 \\ \frac{9\sqrt{35}}{560} & 0 & \frac{3\sqrt{105}}{400} & 0 & 0 & \frac{\sqrt{35}}{105} & 0 & \frac{\sqrt{70}}{700} & 0 & -\frac{\sqrt{7}}{70} \\ 0 & \frac{3\sqrt{21}}{112} & 0 & -\frac{9\sqrt{7}}{560} & 0 & 0 & \frac{\sqrt{14}}{84} & 0 & -\frac{\sqrt{7}}{70} & 0 \end{bmatrix}$$

$$\boxed{\text{x84}} \quad \mathbb{M}_{3,2}^{(1,1;a)}(E_g, 1) = \begin{bmatrix} 0 & \frac{3\sqrt{105}i}{175} & 0 & \frac{3\sqrt{35}i}{35} & -\frac{9\sqrt{7}i}{560} & 0 & -\frac{27\sqrt{70}i}{2800} & 0 & -\frac{9\sqrt{35}i}{560} & 0 \\ -\frac{3\sqrt{105}i}{175} & 0 & -\frac{9\sqrt{35}i}{175} & 0 & 0 & \frac{3\sqrt{105}i}{400} & 0 & \frac{3\sqrt{210}i}{2800} & 0 & -\frac{3\sqrt{21}i}{112} \\ 0 & \frac{9\sqrt{35}i}{175} & 0 & \frac{3\sqrt{105}i}{175} & -\frac{3\sqrt{21}i}{112} & 0 & \frac{3\sqrt{210}i}{2800} & 0 & \frac{3\sqrt{105}i}{400} & 0 \\ -\frac{3\sqrt{35}i}{35} & 0 & -\frac{3\sqrt{105}i}{175} & 0 & 0 & -\frac{9\sqrt{35}i}{560} & 0 & -\frac{27\sqrt{70}i}{2800} & 0 & -\frac{9\sqrt{7}i}{560} \\ \frac{9\sqrt{7}i}{560} & 0 & \frac{3\sqrt{21}i}{112} & 0 & 0 & -\frac{\sqrt{7}i}{70} & 0 & -\frac{\sqrt{14}i}{84} & 0 & 0 \\ 0 & -\frac{3\sqrt{105}i}{400} & 0 & \frac{9\sqrt{35}i}{560} & \frac{\sqrt{7}i}{70} & 0 & \frac{\sqrt{70}i}{700} & 0 & -\frac{\sqrt{35}i}{105} & 0 \\ \frac{27\sqrt{70}i}{2800} & 0 & -\frac{3\sqrt{210}i}{2800} & 0 & 0 & -\frac{\sqrt{70}i}{700} & 0 & \frac{\sqrt{35}i}{175} & 0 & -\frac{\sqrt{14}i}{84} \\ 0 & -\frac{3\sqrt{210}i}{2800} & 0 & \frac{27\sqrt{70}i}{2800} & \frac{\sqrt{14}i}{84} & 0 & -\frac{\sqrt{35}i}{175} & 0 & \frac{\sqrt{70}i}{700} & 0 \\ \frac{9\sqrt{35}i}{560} & 0 & -\frac{3\sqrt{105}i}{400} & 0 & 0 & \frac{\sqrt{35}i}{105} & 0 & -\frac{\sqrt{70}i}{700} & 0 & -\frac{\sqrt{7}i}{70} \\ 0 & \frac{3\sqrt{21}i}{112} & 0 & \frac{9\sqrt{7}i}{560} & 0 & 0 & \frac{\sqrt{14}i}{84} & 0 & \frac{\sqrt{7}i}{70} & 0 \end{bmatrix}$$

$$\boxed{\text{x85}} \quad \mathbb{M}_{3,1}^{(1,1;a)}(E_g, 2) = \begin{bmatrix} 0 & \frac{3\sqrt{7}}{35} & 0 & \frac{3\sqrt{21}}{35} & \frac{3\sqrt{105}}{560} & 0 & -\frac{9\sqrt{42}}{560} & 0 & -\frac{9\sqrt{21}}{560} & 0 \\ \frac{3\sqrt{7}}{35} & 0 & -\frac{3\sqrt{21}}{35} & 0 & 0 & -\frac{3\sqrt{7}}{80} & 0 & \frac{3\sqrt{14}}{560} & 0 & -\frac{9\sqrt{35}}{560} \\ 0 & -\frac{3\sqrt{21}}{35} & 0 & \frac{3\sqrt{7}}{35} & \frac{9\sqrt{35}}{560} & 0 & -\frac{3\sqrt{14}}{560} & 0 & \frac{3\sqrt{7}}{80} & 0 \\ \frac{3\sqrt{21}}{35} & 0 & \frac{3\sqrt{7}}{35} & 0 & 0 & \frac{9\sqrt{21}}{560} & 0 & \frac{9\sqrt{42}}{560} & 0 & -\frac{3\sqrt{105}}{560} \\ \frac{3\sqrt{105}}{560} & 0 & \frac{9\sqrt{35}}{560} & 0 & 0 & -\frac{\sqrt{105}}{210} & 0 & -\frac{\sqrt{210}}{420} & 0 & 0 \\ 0 & -\frac{3\sqrt{7}}{80} & 0 & \frac{9\sqrt{21}}{560} & -\frac{\sqrt{105}}{210} & 0 & \frac{\sqrt{42}}{420} & 0 & -\frac{\sqrt{21}}{105} & 0 \\ -\frac{9\sqrt{42}}{560} & 0 & -\frac{3\sqrt{14}}{560} & 0 & 0 & \frac{\sqrt{42}}{420} & 0 & \frac{\sqrt{21}}{105} & 0 & -\frac{\sqrt{210}}{420} \\ 0 & \frac{3\sqrt{14}}{560} & 0 & \frac{9\sqrt{42}}{560} & -\frac{\sqrt{210}}{420} & 0 & \frac{\sqrt{21}}{105} & 0 & \frac{\sqrt{42}}{420} & 0 \\ -\frac{9\sqrt{21}}{560} & 0 & \frac{3\sqrt{7}}{80} & 0 & 0 & -\frac{\sqrt{21}}{105} & 0 & \frac{\sqrt{42}}{420} & 0 & -\frac{\sqrt{105}}{210} \\ 0 & -\frac{9\sqrt{35}}{560} & 0 & -\frac{3\sqrt{105}}{560} & 0 & 0 & -\frac{\sqrt{210}}{420} & 0 & -\frac{\sqrt{105}}{210} & 0 \end{bmatrix}$$

$$\boxed{\text{x86}} \quad \mathbb{M}_{3,2}^{(1,1;a)}(E_g, 2) = \begin{bmatrix} 0 & \frac{3\sqrt{7}i}{35} & 0 & -\frac{3\sqrt{21}i}{35} & -\frac{3\sqrt{105}i}{560} & 0 & -\frac{9\sqrt{42}i}{560} & 0 & \frac{9\sqrt{21}i}{560} & 0 \\ -\frac{3\sqrt{7}i}{35} & 0 & -\frac{3\sqrt{21}i}{35} & 0 & 0 & \frac{3\sqrt{7}i}{80} & 0 & \frac{3\sqrt{14}i}{560} & 0 & \frac{9\sqrt{35}i}{560} \\ 0 & \frac{3\sqrt{21}i}{35} & 0 & \frac{3\sqrt{7}i}{35} & \frac{9\sqrt{35}i}{560} & 0 & \frac{3\sqrt{14}i}{560} & 0 & \frac{3\sqrt{7}i}{80} & 0 \\ \frac{3\sqrt{21}i}{35} & 0 & -\frac{3\sqrt{7}i}{35} & 0 & 0 & \frac{9\sqrt{21}i}{560} & 0 & -\frac{9\sqrt{42}i}{560} & 0 & -\frac{3\sqrt{105}i}{560} \\ \frac{3\sqrt{105}i}{560} & 0 & -\frac{9\sqrt{35}i}{560} & 0 & 0 & -\frac{\sqrt{105}i}{210} & 0 & \frac{\sqrt{210}i}{420} & 0 & 0 \\ 0 & -\frac{3\sqrt{7}i}{80} & 0 & -\frac{9\sqrt{21}i}{560} & \frac{\sqrt{105}i}{210} & 0 & \frac{\sqrt{42}i}{420} & 0 & \frac{\sqrt{21}i}{105} & 0 \\ \frac{9\sqrt{42}i}{560} & 0 & -\frac{3\sqrt{14}i}{560} & 0 & 0 & -\frac{\sqrt{42}i}{420} & 0 & \frac{\sqrt{21}i}{105} & 0 & \frac{\sqrt{210}i}{420} \\ 0 & -\frac{3\sqrt{14}i}{560} & 0 & \frac{9\sqrt{42}i}{560} & -\frac{\sqrt{210}i}{420} & 0 & -\frac{\sqrt{21}i}{105} & 0 & \frac{\sqrt{42}i}{420} & 0 \\ -\frac{9\sqrt{21}i}{560} & 0 & -\frac{3\sqrt{7}i}{80} & 0 & 0 & -\frac{\sqrt{21}i}{105} & 0 & -\frac{\sqrt{42}i}{420} & 0 & -\frac{\sqrt{105}i}{210} \\ 0 & -\frac{9\sqrt{35}i}{560} & 0 & \frac{3\sqrt{105}i}{560} & 0 & 0 & -\frac{\sqrt{210}i}{420} & 0 & \frac{\sqrt{105}i}{210} & 0 \end{bmatrix}$$

$$\boxed{\text{x87}} \quad \mathbb{T}_2^{(1,0;a)}(A_{1g}) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{42}i}{14} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}i}{14} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}i}{14} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}i}{14} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{42}i}{14} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{7}i}{14} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{7}i}{14} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{42}i}{14} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x88}} \quad \mathbb{T}_4^{(1,0;a)}(A_{1g}, 1) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{12} & 0 & 0 & 0 & -\frac{\sqrt{15}i}{12} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{4} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{4} & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{12} & 0 & 0 & 0 & \frac{\sqrt{3}i}{12} & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{15}i}{12} & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{3}i}{12} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{2}i}{4} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{2}i}{4} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{3}i}{12} & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{15}i}{12} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x89}} \quad \mathbb{T}_4^{(1,0;a)}(A_{1g}, 2) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}i}{84} & 0 & 0 & 0 & \frac{\sqrt{21}i}{12} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{70}i}{28} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}i}{28} & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{21}i}{12} & 0 & 0 & 0 & \frac{\sqrt{105}i}{84} & 0 \\ 0 & 0 & 0 & \frac{\sqrt{21}i}{12} & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{105}i}{84} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{70}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{70}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{105}i}{84} & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{21}i}{12} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x90}} \quad \mathbb{T}_4^{(1,0;a)}(A_{2g}) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{1}{2} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{1}{2} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{1}{2} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{1}{2} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x91}} \quad \mathbb{T}_2^{(1,0;a)}(B_{1g}) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}i}{14} & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{210}i}{42} & 0 & 0 & 0 & \frac{\sqrt{42}i}{21} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}i}{21} & 0 & 0 & 0 & \frac{\sqrt{210}i}{42} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}i}{14} & 0 & 0 & 0 \\ 0 & \frac{\sqrt{210}i}{42} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{42}i}{21} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{7}i}{14} & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{7}i}{14} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{42}i}{21} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{210}i}{42} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x92}} \quad \mathbb{T}_4^{(1,0;a)}(B_{1g}) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{70}i}{28} & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{21}i}{28} & 0 & 0 & 0 & -\frac{\sqrt{105}i}{28} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{28} & 0 & 0 & 0 & \frac{\sqrt{21}i}{28} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}i}{28} & 0 & 0 & 0 \\ 0 & \frac{\sqrt{21}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{105}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{70}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{70}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{105}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{21}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x93}} \quad \mathbb{T}_2^{(1,0;a)}(B_{2g}) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{14} & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{210}}{42} & 0 & 0 & 0 & \frac{\sqrt{42}}{21} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{42}}{21} & 0 & 0 & 0 & \frac{\sqrt{210}}{42} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{14} & 0 & 0 & 0 \\ 0 & \frac{\sqrt{210}}{42} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{42}}{21} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{7}}{14} & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{7}}{14} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{42}}{21} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{210}}{42} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x94}} \quad \mathbb{T}_4^{(1,0;a)}(B_{2g}) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}}{28} & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{21}}{28} & 0 & 0 & 0 & \frac{\sqrt{105}}{28} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}}{28} & 0 & 0 & 0 & -\frac{\sqrt{21}}{28} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}}{28} & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{21}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{105}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{70}}{28} & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{70}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{105}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{21}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x95}} \quad \mathbb{T}_{2,1}^{(1,0;a)}(E_g) = \begin{bmatrix} 0 & 0 & 0 & 0 & \frac{\sqrt{70}}{28} & 0 & \frac{3\sqrt{7}}{28} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}}{84} & 0 & \frac{5\sqrt{21}}{84} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{21}}{84} & 0 & \frac{\sqrt{42}}{84} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{7}}{28} & 0 & -\frac{\sqrt{70}}{28} \\ \frac{\sqrt{70}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{42}}{84} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{3\sqrt{7}}{28} & 0 & -\frac{5\sqrt{21}}{84} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{5\sqrt{21}}{84} & 0 & -\frac{3\sqrt{7}}{28} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{42}}{84} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{70}}{28} & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x96}} \quad \mathbb{T}_{2,2}^{(1,0;a)}(E_g) = \begin{bmatrix} 0 & 0 & 0 & 0 & -\frac{\sqrt{70}i}{28} & 0 & \frac{3\sqrt{7}i}{28} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{42}i}{84} & 0 & \frac{5\sqrt{21}i}{84} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{21}i}{84} & 0 & \frac{\sqrt{42}i}{84} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{7}i}{28} & 0 & -\frac{\sqrt{70}i}{28} \\ \frac{\sqrt{70}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{42}i}{84} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{3\sqrt{7}i}{28} & 0 & -\frac{5\sqrt{21}i}{84} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{5\sqrt{21}i}{84} & 0 & -\frac{3\sqrt{7}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{42}i}{84} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{70}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x97}} \quad \mathbb{T}_{4,1}^{(1,0;a)}(E_g, 1) = \begin{bmatrix} 0 & 0 & 0 & 0 & \frac{1}{16} & 0 & \frac{\sqrt{10}}{16} & 0 & \frac{\sqrt{5}}{16} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{16} & 0 & -\frac{\sqrt{30}}{16} & 0 & -\frac{\sqrt{3}}{16} \\ 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{16} & 0 & \frac{\sqrt{30}}{16} & 0 & \frac{\sqrt{15}}{16} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{16} & 0 & -\frac{\sqrt{10}}{16} & 0 & -\frac{1}{16} \\ \frac{1}{16} & 0 & \frac{\sqrt{3}}{16} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{15}}{16} & 0 & -\frac{\sqrt{5}}{16} & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{10}}{16} & 0 & \frac{\sqrt{30}}{16} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{30}}{16} & 0 & -\frac{\sqrt{10}}{16} & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{5}}{16} & 0 & \frac{\sqrt{15}}{16} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{3}}{16} & 0 & -\frac{1}{16} & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x98}} \quad \mathbb{T}_{4,2}^{(1,0;a)}(E_g, 1) = \begin{bmatrix} 0 & 0 & 0 & 0 & -\frac{i}{16} & 0 & \frac{\sqrt{10}i}{16} & 0 & -\frac{\sqrt{5}i}{16} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{16} & 0 & -\frac{\sqrt{30}i}{16} & 0 & \frac{\sqrt{3}i}{16} \\ 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{16} & 0 & -\frac{\sqrt{30}i}{16} & 0 & \frac{\sqrt{15}i}{16} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{16} & 0 & \frac{\sqrt{10}i}{16} & 0 & -\frac{i}{16} \\ \frac{i}{16} & 0 & -\frac{\sqrt{3}i}{16} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{15}i}{16} & 0 & \frac{\sqrt{5}i}{16} & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{10}i}{16} & 0 & \frac{\sqrt{30}i}{16} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{30}i}{16} & 0 & -\frac{\sqrt{10}i}{16} & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{5}i}{16} & 0 & -\frac{\sqrt{15}i}{16} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{3}i}{16} & 0 & \frac{i}{16} & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x99}} \quad \mathbb{T}_{4,1}^{(1,0;a)}(E_g, 2) = \begin{bmatrix} 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{112} & 0 & \frac{\sqrt{70}}{112} & 0 & -\frac{\sqrt{35}}{16} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{112} & 0 & -\frac{\sqrt{210}}{112} & 0 & \frac{\sqrt{21}}{16} \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{21}}{16} & 0 & \frac{\sqrt{210}}{112} & 0 & \frac{\sqrt{105}}{112} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{35}}{16} & 0 & -\frac{\sqrt{70}}{112} & 0 & -\frac{\sqrt{7}}{112} \\ \frac{\sqrt{7}}{112} & 0 & -\frac{\sqrt{21}}{16} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{105}}{112} & 0 & \frac{\sqrt{35}}{16} & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{70}}{112} & 0 & \frac{\sqrt{210}}{112} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{210}}{112} & 0 & -\frac{\sqrt{70}}{112} & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{35}}{16} & 0 & \frac{\sqrt{105}}{112} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{21}}{16} & 0 & -\frac{\sqrt{7}}{112} & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x100}} \quad \mathbb{T}_{4,2}^{(1,0;a)}(E_g, 2) = \begin{bmatrix} 0 & 0 & 0 & 0 & -\frac{\sqrt{7}i}{112} & 0 & \frac{\sqrt{70}i}{112} & 0 & \frac{\sqrt{35}i}{16} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{112} & 0 & -\frac{\sqrt{210}i}{112} & 0 & -\frac{\sqrt{21}i}{16} \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{21}i}{16} & 0 & -\frac{\sqrt{210}i}{112} & 0 & \frac{\sqrt{105}i}{112} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{35}i}{16} & 0 & \frac{\sqrt{70}i}{112} & 0 & -\frac{\sqrt{7}i}{112} \\ \frac{\sqrt{7}i}{112} & 0 & \frac{\sqrt{21}i}{16} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{105}i}{112} & 0 & -\frac{\sqrt{35}i}{16} & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{70}i}{112} & 0 & \frac{\sqrt{210}i}{112} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{210}i}{112} & 0 & -\frac{\sqrt{70}i}{112} & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{35}i}{16} & 0 & -\frac{\sqrt{105}i}{112} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{21}i}{16} & 0 & \frac{\sqrt{7}i}{112} & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

- bra:  $\langle \frac{3}{2}, \frac{3}{2}; d |, \langle \frac{3}{2}, \frac{1}{2}; d |, \langle \frac{3}{2}, -\frac{1}{2}; d |, \langle \frac{3}{2}, -\frac{3}{2}; d |, \langle \frac{5}{2}, \frac{5}{2}; d |, \langle \frac{5}{2}, \frac{3}{2}; d |, \langle \frac{5}{2}, \frac{1}{2}; d |, \langle \frac{5}{2}, -\frac{1}{2}; d |, \langle \frac{5}{2}, -\frac{3}{2}; d |, \langle \frac{5}{2}, -\frac{5}{2}; d |$
- ket:  $|\frac{5}{2}, \frac{5}{2}; f\rangle, |\frac{5}{2}, \frac{3}{2}; f\rangle, |\frac{5}{2}, \frac{1}{2}; f\rangle, |\frac{5}{2}, -\frac{1}{2}; f\rangle, |\frac{5}{2}, -\frac{3}{2}; f\rangle, |\frac{5}{2}, -\frac{5}{2}; f\rangle, |\frac{7}{2}, \frac{7}{2}; f\rangle, |\frac{7}{2}, \frac{5}{2}; f\rangle, |\frac{7}{2}, \frac{3}{2}; f\rangle, |\frac{7}{2}, \frac{1}{2}; f\rangle, |\frac{7}{2}, -\frac{1}{2}; f\rangle, |\frac{7}{2}, -\frac{3}{2}; f\rangle, |\frac{7}{2}, -\frac{5}{2}; f\rangle, |\frac{7}{2}, -\frac{7}{2}; f\rangle$

$$\boxed{\text{x101}} \quad \mathbb{Q}_5^{(a)}(A_{1u}) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}i}{10} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{10} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}i}{10} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{42}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}i}{70} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}i}{70} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{10} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{42}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}i}{70} & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{42}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{70} & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x102}} \quad \mathbb{Q}_1^{(a)}(A_{2u}) = \begin{bmatrix} 0 & \frac{1}{5} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{6}}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{6}}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{1}{5} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{1}{14} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{14} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{3}{70} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{10}}{14} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{1}{70} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{7} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{1}{70} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{7} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{3}{70} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{10}}{14} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{1}{14} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{14} & 0 \end{bmatrix}$$

$$\boxed{\text{x103}} \quad \mathbb{Q}_3^{(a)}(A_{2u}) = \begin{bmatrix} 0 & -\frac{3\sqrt{21}}{70} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}}{84} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{3\sqrt{14}}{70} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}}{84} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{3\sqrt{14}}{70} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{42}}{84} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{3\sqrt{21}}{70} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{210}}{84} & 0 & 0 \\ \frac{\sqrt{21}}{42} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}}{14} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{21}}{30} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{2\sqrt{21}}{105} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{14} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{2\sqrt{21}}{105} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{14} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{30} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}}{42} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}}{14} & 0 \end{bmatrix}$$

$$\boxed{\text{x104}} \quad \mathbb{Q}_5^{(a)}(A_{2u}, 1) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{30} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{6} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{30} & 0 & 0 \\ -\frac{\sqrt{6}}{84} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{1}{14} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{5\sqrt{6}}{84} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{15}}{70} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{5\sqrt{6}}{42} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{14} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{5\sqrt{6}}{42} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{14} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{5\sqrt{6}}{84} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{15}}{70} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{84} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{1}{14} & 0 \end{bmatrix}$$

$$\boxed{\text{x105}} \quad \mathbb{Q}_5^{(a)}(A_{2u}, 2) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{10} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{10} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}}{10} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{42}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}}{70} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{42}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{70} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}}{10} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{42}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{70} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{42}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}}{70} & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$



$$\boxed{\text{x106}} \quad \mathbb{Q}_3^{(a)}(B_{1u}) = \begin{bmatrix} 0 & 0 & 0 & \frac{3\sqrt{70}i}{140} & 0 & 0 & -\frac{\sqrt{6}i}{24} & 0 & 0 & 0 & \frac{\sqrt{210}i}{168} & 0 & 0 & 0 \\ \frac{\sqrt{21}i}{28} & 0 & 0 & 0 & \frac{\sqrt{105}i}{140} & 0 & 0 & \frac{\sqrt{14}i}{56} & 0 & 0 & 0 & \frac{\sqrt{42}i}{56} & 0 & 0 \\ 0 & -\frac{\sqrt{105}i}{140} & 0 & 0 & 0 & -\frac{\sqrt{21}i}{28} & 0 & 0 & \frac{\sqrt{42}i}{56} & 0 & 0 & 0 & \frac{\sqrt{14}i}{56} & 0 \\ 0 & 0 & -\frac{3\sqrt{70}i}{140} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{210}i}{168} & 0 & 0 & 0 & -\frac{\sqrt{6}i}{24} \\ 0 & 0 & -\frac{\sqrt{14}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{42}i}{42} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{70}i}{140} & 0 & 0 & \frac{\sqrt{6}i}{12} & 0 & 0 & 0 & \frac{\sqrt{210}i}{84} & 0 & 0 & 0 \\ \frac{\sqrt{14}i}{28} & 0 & 0 & 0 & \frac{\sqrt{70}i}{140} & 0 & 0 & \frac{\sqrt{21}i}{84} & 0 & 0 & 0 & \frac{\sqrt{7}i}{28} & 0 & 0 \\ 0 & \frac{\sqrt{70}i}{140} & 0 & 0 & 0 & \frac{\sqrt{14}i}{28} & 0 & 0 & -\frac{\sqrt{7}i}{28} & 0 & 0 & 0 & -\frac{\sqrt{21}i}{84} & 0 \\ 0 & 0 & -\frac{\sqrt{70}i}{140} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}i}{84} & 0 & 0 & 0 & -\frac{\sqrt{6}i}{12} \\ 0 & 0 & 0 & -\frac{\sqrt{14}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}i}{42} & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x107}} \quad \mathbb{Q}_5^{(a)}(B_{1u}) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{60} & 0 & 0 & 0 & \frac{\sqrt{105}i}{60} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}i}{20} & 0 & 0 & 0 & -\frac{\sqrt{21}i}{20} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}i}{20} & 0 & 0 & 0 & \frac{\sqrt{7}i}{20} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{60} & 0 & 0 & 0 & -\frac{\sqrt{3}i}{60} \\ 0 & 0 & -\frac{\sqrt{7}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}i}{42} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{35}i}{28} & 0 & 0 & \frac{\sqrt{3}i}{30} & 0 & 0 & 0 & -\frac{\sqrt{105}i}{105} & 0 & 0 & 0 \\ \frac{\sqrt{7}i}{28} & 0 & 0 & 0 & -\frac{\sqrt{35}i}{28} & 0 & 0 & -\frac{2\sqrt{42}i}{105} & 0 & 0 & 0 & -\frac{\sqrt{14}i}{70} & 0 & 0 \\ 0 & -\frac{\sqrt{35}i}{28} & 0 & 0 & 0 & \frac{\sqrt{7}i}{28} & 0 & 0 & \frac{\sqrt{14}i}{70} & 0 & 0 & 0 & \frac{2\sqrt{42}i}{105} & 0 \\ 0 & 0 & \frac{\sqrt{35}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{105} & 0 & 0 & 0 & -\frac{\sqrt{3}i}{30} \\ 0 & 0 & 0 & -\frac{\sqrt{7}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}i}{42} & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x108}} \quad \mathbb{Q}_3^{(a)}(B_{2u}) = \begin{bmatrix} 0 & 0 & 0 & -\frac{3\sqrt{70}}{140} & 0 & 0 & -\frac{\sqrt{6}}{24} & 0 & 0 & 0 & -\frac{\sqrt{210}}{168} & 0 & 0 & 0 \\ \frac{\sqrt{21}}{28} & 0 & 0 & 0 & -\frac{\sqrt{105}}{140} & 0 & 0 & \frac{\sqrt{14}}{56} & 0 & 0 & 0 & -\frac{\sqrt{42}}{56} & 0 & 0 \\ 0 & -\frac{\sqrt{105}}{140} & 0 & 0 & 0 & \frac{\sqrt{21}}{28} & 0 & 0 & \frac{\sqrt{42}}{56} & 0 & 0 & 0 & -\frac{\sqrt{14}}{56} & 0 \\ 0 & 0 & -\frac{3\sqrt{70}}{140} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{210}}{168} & 0 & 0 & 0 & \frac{\sqrt{6}}{24} \\ 0 & 0 & \frac{\sqrt{14}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}}{42} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{70}}{140} & 0 & 0 & \frac{\sqrt{6}}{12} & 0 & 0 & 0 & -\frac{\sqrt{210}}{84} & 0 & 0 & 0 \\ \frac{\sqrt{14}}{28} & 0 & 0 & 0 & -\frac{\sqrt{70}}{140} & 0 & 0 & \frac{\sqrt{21}}{84} & 0 & 0 & 0 & -\frac{\sqrt{7}}{28} & 0 & 0 \\ 0 & \frac{\sqrt{70}}{140} & 0 & 0 & 0 & -\frac{\sqrt{14}}{28} & 0 & 0 & -\frac{\sqrt{7}}{28} & 0 & 0 & 0 & \frac{\sqrt{21}}{84} & 0 \\ 0 & 0 & -\frac{\sqrt{70}}{140} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}}{84} & 0 & 0 & 0 & \frac{\sqrt{6}}{12} \\ 0 & 0 & 0 & -\frac{\sqrt{14}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}}{42} & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x109}} \quad \mathbb{Q}_5^{(a)}(B_{2u}) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{60} & 0 & 0 & 0 & \frac{\sqrt{105}}{60} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}}{20} & 0 & 0 & 0 & -\frac{\sqrt{21}}{20} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{20} & 0 & 0 & 0 & \frac{\sqrt{7}}{20} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{60} & 0 & 0 & 0 & -\frac{\sqrt{3}}{60} \\ 0 & 0 & -\frac{\sqrt{7}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{42} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{35}}{28} & 0 & 0 & -\frac{\sqrt{3}}{30} & 0 & 0 & 0 & -\frac{\sqrt{105}}{105} & 0 & 0 & 0 \\ -\frac{\sqrt{7}}{28} & 0 & 0 & 0 & -\frac{\sqrt{35}}{28} & 0 & 0 & \frac{2\sqrt{42}}{105} & 0 & 0 & 0 & -\frac{\sqrt{14}}{70} & 0 & 0 \\ 0 & \frac{\sqrt{35}}{28} & 0 & 0 & 0 & \frac{\sqrt{7}}{28} & 0 & 0 & -\frac{\sqrt{14}}{70} & 0 & 0 & 0 & \frac{2\sqrt{42}}{105} & 0 \\ 0 & 0 & -\frac{\sqrt{35}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{105} & 0 & 0 & 0 & -\frac{\sqrt{3}}{30} \\ 0 & 0 & 0 & \frac{\sqrt{7}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{42} & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x110}} \quad \mathbb{Q}_{1,1}^{(a)}(E_u) = \begin{bmatrix} -\frac{\sqrt{5}}{10} & 0 & \frac{\sqrt{2}}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{3}}{10} & 0 & \frac{\sqrt{6}}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{6}}{20} & 0 & \frac{\sqrt{3}}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{2}}{20} & 0 & \frac{\sqrt{5}}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{5}}{70} & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}}{28} & 0 & \frac{\sqrt{2}}{28} & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{5}}{70} & 0 & -\frac{\sqrt{2}}{35} & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}}{28} & 0 & \frac{\sqrt{6}}{28} & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{2}}{35} & 0 & -\frac{3}{70} & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{14} & 0 & \frac{\sqrt{3}}{14} & 0 & 0 & 0 \\ 0 & 0 & -\frac{3}{70} & 0 & -\frac{\sqrt{2}}{35} & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{14} & 0 & \frac{\sqrt{5}}{14} & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{2}}{35} & 0 & -\frac{\sqrt{5}}{70} & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{28} & 0 & \frac{\sqrt{30}}{28} & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{70} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}}{28} & 0 & \frac{\sqrt{42}}{28} \end{bmatrix}$$

$$\boxed{\text{x111}} \quad \mathbb{Q}_{1,2}^{(a)}(E_u) = \begin{bmatrix} -\frac{\sqrt{5}i}{10} & 0 & -\frac{\sqrt{2}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{3}i}{10} & 0 & -\frac{\sqrt{6}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{6}i}{20} & 0 & -\frac{\sqrt{3}i}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{2}i}{20} & 0 & -\frac{\sqrt{5}i}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{5}i}{70} & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}i}{28} & 0 & -\frac{\sqrt{2}i}{28} & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{5}i}{70} & 0 & \frac{\sqrt{2}i}{35} & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}i}{28} & 0 & -\frac{\sqrt{6}i}{28} & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{2}i}{35} & 0 & \frac{3i}{70} & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{14} & 0 & -\frac{\sqrt{3}i}{14} & 0 & 0 & 0 \\ 0 & 0 & -\frac{3i}{70} & 0 & \frac{\sqrt{2}i}{35} & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{14} & 0 & -\frac{\sqrt{5}i}{14} & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{2}i}{35} & 0 & \frac{\sqrt{5}i}{70} & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}i}{28} & 0 & -\frac{\sqrt{30}i}{28} & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{70} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{28} & 0 & -\frac{\sqrt{42}i}{28} \end{bmatrix}$$

$$\begin{aligned}
\boxed{\text{x112}} \quad \mathbb{Q}_{3,1}^{(a)}(E_u, 1) &= \begin{bmatrix} -\frac{3\sqrt{105}}{560} & 0 & \frac{9\sqrt{42}}{560} & 0 & -\frac{3\sqrt{21}}{112} & 0 & 0 & -\frac{\sqrt{70}}{112} & 0 & \frac{\sqrt{14}}{56} & 0 & -\frac{\sqrt{210}}{336} & 0 & 0 \\ 0 & \frac{3\sqrt{7}}{80} & 0 & -\frac{3\sqrt{14}}{560} & 0 & -\frac{3\sqrt{35}}{112} & -\frac{\sqrt{30}}{48} & 0 & 0 & 0 & \frac{\sqrt{42}}{112} & 0 & -\frac{\sqrt{210}}{168} & 0 \\ \frac{3\sqrt{35}}{112} & 0 & \frac{3\sqrt{14}}{560} & 0 & -\frac{3\sqrt{7}}{80} & 0 & 0 & -\frac{\sqrt{210}}{168} & 0 & \frac{\sqrt{42}}{112} & 0 & 0 & 0 & -\frac{\sqrt{30}}{48} \\ 0 & \frac{3\sqrt{21}}{112} & 0 & -\frac{9\sqrt{42}}{560} & 0 & \frac{3\sqrt{105}}{560} & 0 & 0 & -\frac{\sqrt{210}}{336} & 0 & \frac{\sqrt{14}}{56} & 0 & -\frac{\sqrt{70}}{112} & 0 \\ 0 & -\frac{\sqrt{105}}{140} & 0 & \frac{\sqrt{210}}{168} & 0 & 0 & -\frac{\sqrt{2}}{16} & 0 & \frac{\sqrt{42}}{56} & 0 & -\frac{\sqrt{70}}{112} & 0 & 0 & 0 \\ -\frac{\sqrt{105}}{140} & 0 & \frac{\sqrt{42}}{280} & 0 & \frac{\sqrt{21}}{42} & 0 & 0 & \frac{\sqrt{70}}{112} & 0 & \frac{\sqrt{14}}{56} & 0 & -\frac{\sqrt{210}}{112} & 0 & 0 \\ 0 & \frac{\sqrt{42}}{280} & 0 & \frac{\sqrt{21}}{70} & 0 & \frac{\sqrt{210}}{168} & \frac{\sqrt{5}}{16} & 0 & \frac{\sqrt{105}}{112} & 0 & -\frac{\sqrt{7}}{112} & 0 & -\frac{3\sqrt{35}}{112} & 0 \\ \frac{\sqrt{210}}{168} & 0 & \frac{\sqrt{21}}{70} & 0 & \frac{\sqrt{42}}{280} & 0 & 0 & \frac{3\sqrt{35}}{112} & 0 & \frac{\sqrt{7}}{112} & 0 & -\frac{\sqrt{105}}{112} & 0 & -\frac{\sqrt{5}}{16} \\ 0 & \frac{\sqrt{21}}{42} & 0 & \frac{\sqrt{42}}{280} & 0 & -\frac{\sqrt{105}}{140} & 0 & 0 & \frac{\sqrt{210}}{112} & 0 & -\frac{\sqrt{14}}{56} & 0 & -\frac{\sqrt{70}}{112} & 0 \\ 0 & 0 & \frac{\sqrt{210}}{168} & 0 & -\frac{\sqrt{105}}{140} & 0 & 0 & 0 & 0 & \frac{\sqrt{70}}{112} & 0 & -\frac{\sqrt{42}}{56} & 0 & \frac{\sqrt{2}}{16} \end{bmatrix} \\
\boxed{\text{x113}} \quad \mathbb{Q}_{3,2}^{(a)}(E_u, 1) &= \begin{bmatrix} -\frac{3\sqrt{105}i}{560} & 0 & -\frac{9\sqrt{42}i}{560} & 0 & -\frac{3\sqrt{21}i}{112} & 0 & 0 & -\frac{\sqrt{70}i}{112} & 0 & -\frac{\sqrt{14}i}{56} & 0 & -\frac{\sqrt{210}i}{336} & 0 & 0 \\ 0 & \frac{3\sqrt{7}i}{80} & 0 & \frac{3\sqrt{14}i}{560} & 0 & -\frac{3\sqrt{35}i}{112} & \frac{\sqrt{30}i}{48} & 0 & 0 & 0 & -\frac{\sqrt{42}i}{112} & 0 & -\frac{\sqrt{210}i}{168} & 0 \\ -\frac{3\sqrt{35}i}{112} & 0 & \frac{3\sqrt{14}i}{560} & 0 & \frac{3\sqrt{7}i}{80} & 0 & 0 & \frac{\sqrt{210}i}{168} & 0 & \frac{\sqrt{42}i}{112} & 0 & 0 & 0 & -\frac{\sqrt{30}i}{48} \\ 0 & -\frac{3\sqrt{21}i}{112} & 0 & -\frac{9\sqrt{42}i}{560} & 0 & -\frac{3\sqrt{105}i}{560} & 0 & 0 & \frac{\sqrt{210}i}{336} & 0 & \frac{\sqrt{14}i}{56} & 0 & \frac{\sqrt{70}i}{112} & 0 \\ 0 & \frac{\sqrt{105}i}{140} & 0 & \frac{\sqrt{210}i}{168} & 0 & 0 & -\frac{\sqrt{2}i}{16} & 0 & -\frac{\sqrt{42}i}{56} & 0 & -\frac{\sqrt{70}i}{112} & 0 & 0 & 0 \\ -\frac{\sqrt{105}i}{140} & 0 & -\frac{\sqrt{42}i}{280} & 0 & \frac{\sqrt{21}i}{42} & 0 & 0 & \frac{\sqrt{70}i}{112} & 0 & -\frac{\sqrt{14}i}{56} & 0 & -\frac{\sqrt{210}i}{112} & 0 & 0 \\ 0 & \frac{\sqrt{42}i}{280} & 0 & -\frac{\sqrt{21}i}{70} & 0 & \frac{\sqrt{210}i}{168} & -\frac{\sqrt{5}i}{16} & 0 & \frac{\sqrt{105}i}{112} & 0 & \frac{\sqrt{7}i}{112} & 0 & -\frac{3\sqrt{35}i}{112} & 0 \\ -\frac{\sqrt{210}i}{168} & 0 & \frac{\sqrt{21}i}{70} & 0 & -\frac{\sqrt{42}i}{280} & 0 & 0 & -\frac{3\sqrt{35}i}{112} & 0 & \frac{\sqrt{7}i}{112} & 0 & \frac{\sqrt{105}i}{112} & 0 & -\frac{\sqrt{5}i}{16} \\ 0 & -\frac{\sqrt{21}i}{42} & 0 & \frac{\sqrt{42}i}{280} & 0 & \frac{\sqrt{105}i}{140} & 0 & 0 & -\frac{\sqrt{210}i}{112} & 0 & -\frac{\sqrt{14}i}{56} & 0 & \frac{\sqrt{70}i}{112} & 0 \\ 0 & 0 & -\frac{\sqrt{210}i}{168} & 0 & -\frac{\sqrt{105}i}{140} & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}i}{112} & 0 & -\frac{\sqrt{42}i}{56} & 0 & -\frac{\sqrt{2}i}{16} \end{bmatrix} \\
\boxed{\text{x114}} \quad \mathbb{Q}_{3,1}^{(a)}(E_u, 2) &= \begin{bmatrix} -\frac{3\sqrt{7}}{112} & 0 & \frac{9\sqrt{70}}{560} & 0 & \frac{9\sqrt{35}}{560} & 0 & 0 & -\frac{5\sqrt{42}}{336} & 0 & \frac{\sqrt{210}}{168} & 0 & \frac{\sqrt{14}}{112} & 0 & 0 \\ 0 & \frac{\sqrt{105}}{80} & 0 & -\frac{\sqrt{210}}{560} & 0 & \frac{3\sqrt{21}}{112} & \frac{\sqrt{2}}{16} & 0 & 0 & 0 & \frac{\sqrt{70}}{112} & 0 & \frac{\sqrt{14}}{56} & 0 \\ -\frac{3\sqrt{21}}{112} & 0 & \frac{\sqrt{210}}{560} & 0 & -\frac{\sqrt{105}}{80} & 0 & 0 & \frac{\sqrt{14}}{56} & 0 & \frac{\sqrt{70}}{112} & 0 & 0 & 0 & \frac{\sqrt{2}}{16} \\ 0 & -\frac{9\sqrt{35}}{560} & 0 & -\frac{9\sqrt{70}}{560} & 0 & \frac{3\sqrt{7}}{112} & 0 & 0 & \frac{\sqrt{14}}{112} & 0 & \frac{\sqrt{210}}{168} & 0 & -\frac{5\sqrt{42}}{336} & 0 \\ 0 & -\frac{\sqrt{7}}{28} & 0 & -\frac{\sqrt{14}}{56} & 0 & 0 & -\frac{\sqrt{30}}{48} & 0 & \frac{\sqrt{70}}{56} & 0 & \frac{\sqrt{42}}{112} & 0 & 0 & 0 \\ -\frac{\sqrt{7}}{28} & 0 & \frac{\sqrt{70}}{280} & 0 & -\frac{\sqrt{35}}{70} & 0 & 0 & \frac{5\sqrt{42}}{336} & 0 & \frac{\sqrt{210}}{168} & 0 & \frac{3\sqrt{14}}{112} & 0 & 0 \\ 0 & \frac{\sqrt{70}}{280} & 0 & \frac{\sqrt{35}}{70} & 0 & -\frac{\sqrt{14}}{56} & -\frac{\sqrt{3}}{16} & 0 & \frac{5\sqrt{7}}{112} & 0 & -\frac{\sqrt{105}}{336} & 0 & \frac{3\sqrt{21}}{112} & 0 \\ -\frac{\sqrt{14}}{56} & 0 & \frac{\sqrt{35}}{70} & 0 & \frac{\sqrt{70}}{280} & 0 & 0 & -\frac{3\sqrt{21}}{112} & 0 & \frac{\sqrt{105}}{336} & 0 & -\frac{5\sqrt{7}}{112} & 0 & \frac{\sqrt{3}}{16} \\ 0 & -\frac{\sqrt{35}}{70} & 0 & \frac{\sqrt{70}}{280} & 0 & -\frac{\sqrt{7}}{28} & 0 & 0 & -\frac{3\sqrt{14}}{112} & 0 & -\frac{\sqrt{210}}{168} & 0 & -\frac{5\sqrt{42}}{336} & 0 \\ 0 & 0 & -\frac{\sqrt{14}}{56} & 0 & -\frac{\sqrt{7}}{28} & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}}{112} & 0 & -\frac{\sqrt{70}}{56} & 0 & \frac{\sqrt{30}}{48} \end{bmatrix}
\end{aligned}$$

$$\boxed{\text{x115}} \quad \mathbb{Q}_{3,2}^{(a)}(E_u, 2) = \begin{bmatrix} -\frac{3\sqrt{7}i}{112} & 0 & -\frac{9\sqrt{70}i}{560} & 0 & \frac{9\sqrt{35}i}{560} & 0 & 0 & -\frac{5\sqrt{42}i}{336} & 0 & -\frac{\sqrt{210}i}{168} & 0 & \frac{\sqrt{14}i}{112} & 0 & 0 \\ 0 & \frac{\sqrt{105}i}{80} & 0 & \frac{\sqrt{210}i}{560} & 0 & \frac{3\sqrt{21}i}{112} & -\frac{\sqrt{2}i}{16} & 0 & 0 & 0 & -\frac{\sqrt{70}i}{112} & 0 & \frac{\sqrt{14}i}{56} & 0 \\ \frac{3\sqrt{21}i}{112} & 0 & \frac{\sqrt{210}i}{560} & 0 & \frac{\sqrt{105}i}{80} & 0 & 0 & -\frac{\sqrt{14}i}{56} & 0 & \frac{\sqrt{70}i}{112} & 0 & 0 & 0 & \frac{\sqrt{2}i}{16} \\ 0 & \frac{9\sqrt{35}i}{560} & 0 & -\frac{9\sqrt{70}i}{560} & 0 & -\frac{3\sqrt{7}i}{112} & 0 & 0 & -\frac{\sqrt{14}i}{112} & 0 & \frac{\sqrt{210}i}{168} & 0 & \frac{5\sqrt{42}i}{336} & 0 \\ 0 & \frac{\sqrt{7}i}{28} & 0 & -\frac{\sqrt{14}i}{56} & 0 & 0 & -\frac{\sqrt{30}i}{48} & 0 & -\frac{\sqrt{70}i}{56} & 0 & \frac{\sqrt{42}i}{112} & 0 & 0 & 0 \\ -\frac{\sqrt{7}i}{28} & 0 & -\frac{\sqrt{70}i}{280} & 0 & -\frac{\sqrt{35}i}{70} & 0 & 0 & \frac{5\sqrt{42}i}{336} & 0 & -\frac{\sqrt{210}i}{168} & 0 & \frac{3\sqrt{14}i}{112} & 0 & 0 \\ 0 & \frac{\sqrt{70}i}{280} & 0 & -\frac{\sqrt{35}i}{70} & 0 & -\frac{\sqrt{14}i}{56} & \frac{\sqrt{3}i}{16} & 0 & \frac{5\sqrt{7}i}{112} & 0 & \frac{\sqrt{105}i}{336} & 0 & \frac{3\sqrt{21}i}{112} & 0 \\ \frac{\sqrt{14}i}{56} & 0 & \frac{\sqrt{35}i}{70} & 0 & -\frac{\sqrt{70}i}{280} & 0 & 0 & \frac{3\sqrt{21}i}{112} & 0 & \frac{\sqrt{105}i}{336} & 0 & \frac{5\sqrt{7}i}{112} & 0 & \frac{\sqrt{3}i}{16} \\ 0 & \frac{\sqrt{35}i}{70} & 0 & \frac{\sqrt{70}i}{280} & 0 & \frac{\sqrt{7}i}{28} & 0 & 0 & \frac{3\sqrt{14}i}{112} & 0 & -\frac{\sqrt{210}i}{168} & 0 & \frac{5\sqrt{42}i}{336} & 0 \\ 0 & 0 & \frac{\sqrt{14}i}{56} & 0 & -\frac{\sqrt{7}i}{28} & 0 & 0 & 0 & 0 & \frac{\sqrt{42}i}{112} & 0 & -\frac{\sqrt{70}i}{56} & 0 & -\frac{\sqrt{30}i}{48} \end{bmatrix}$$

$$\boxed{\text{x116}} \quad \mathbb{Q}_{5,1}^{(a)}(E_u, 1) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{80} & 0 & \frac{1}{16} & 0 & -\frac{7\sqrt{15}}{240} & 0 & \frac{3\sqrt{35}}{80} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{240} & 0 & \frac{3\sqrt{5}}{80} & 0 & -\frac{\sqrt{3}}{16} & 0 & \frac{7\sqrt{15}}{240} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{7\sqrt{15}}{240} & 0 & -\frac{\sqrt{3}}{16} & 0 & \frac{3\sqrt{5}}{80} & 0 & -\frac{\sqrt{105}}{240} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{35}}{80} & 0 & -\frac{7\sqrt{15}}{240} & 0 & \frac{1}{16} & 0 & -\frac{\sqrt{5}}{80} & 0 \\ 0 & -\frac{\sqrt{30}}{224} & 0 & \frac{\sqrt{15}}{48} & 0 & -\frac{3\sqrt{6}}{32} & -\frac{\sqrt{7}}{224} & 0 & \frac{5\sqrt{3}}{224} & 0 & -\frac{\sqrt{5}}{32} & 0 & \frac{3}{32} & 0 \\ -\frac{\sqrt{30}}{224} & 0 & \frac{5\sqrt{3}}{112} & 0 & -\frac{5\sqrt{6}}{96} & 0 & 0 & \frac{23\sqrt{5}}{1120} & 0 & -\frac{13}{224} & 0 & \frac{\sqrt{15}}{160} & 0 & \frac{3\sqrt{35}}{160} \\ 0 & \frac{5\sqrt{3}}{112} & 0 & -\frac{5\sqrt{6}}{112} & 0 & \frac{\sqrt{15}}{48} & \frac{\sqrt{70}}{160} & 0 & -\frac{11\sqrt{30}}{1120} & 0 & \frac{\sqrt{2}}{224} & 0 & \frac{3\sqrt{10}}{160} & 0 \\ \frac{\sqrt{15}}{48} & 0 & -\frac{5\sqrt{6}}{112} & 0 & \frac{5\sqrt{3}}{112} & 0 & 0 & -\frac{3\sqrt{10}}{160} & 0 & -\frac{\sqrt{2}}{224} & 0 & \frac{11\sqrt{30}}{1120} & 0 & -\frac{\sqrt{70}}{160} \\ 0 & -\frac{5\sqrt{6}}{96} & 0 & \frac{5\sqrt{3}}{112} & 0 & -\frac{\sqrt{30}}{224} & -\frac{3\sqrt{35}}{160} & 0 & -\frac{\sqrt{15}}{160} & 0 & \frac{13}{224} & 0 & -\frac{23\sqrt{5}}{1120} & 0 \\ -\frac{3\sqrt{6}}{32} & 0 & \frac{\sqrt{15}}{48} & 0 & -\frac{\sqrt{30}}{224} & 0 & 0 & -\frac{3}{32} & 0 & \frac{\sqrt{5}}{32} & 0 & -\frac{5\sqrt{3}}{224} & 0 & \frac{\sqrt{7}}{224} \end{bmatrix}$$

$$\boxed{\text{x117}} \quad \mathbb{Q}_{5,2}^{(a)}(E_u, 1) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{80} & 0 & -\frac{i}{16} & 0 & -\frac{7\sqrt{15}i}{240} & 0 & -\frac{3\sqrt{35}i}{80} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{240} & 0 & \frac{3\sqrt{5}i}{80} & 0 & \frac{\sqrt{3}i}{16} & 0 & \frac{7\sqrt{15}i}{240} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{7\sqrt{15}i}{240} & 0 & -\frac{\sqrt{3}i}{16} & 0 & -\frac{3\sqrt{5}i}{80} & 0 & -\frac{\sqrt{105}i}{240} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{35}i}{80} & 0 & \frac{7\sqrt{15}i}{240} & 0 & \frac{i}{16} & 0 & \frac{\sqrt{5}i}{80} & 0 \\ 0 & \frac{\sqrt{30}i}{224} & 0 & \frac{\sqrt{15}i}{48} & 0 & \frac{3\sqrt{6}i}{32} & -\frac{\sqrt{7}i}{224} & 0 & -\frac{5\sqrt{3}i}{224} & 0 & -\frac{\sqrt{5}i}{32} & 0 & -\frac{3i}{32} & 0 \\ -\frac{\sqrt{30}i}{224} & 0 & -\frac{5\sqrt{3}i}{112} & 0 & -\frac{5\sqrt{6}i}{96} & 0 & 0 & \frac{23\sqrt{5}i}{1120} & 0 & \frac{13i}{224} & 0 & \frac{\sqrt{15}i}{160} & 0 & -\frac{3\sqrt{35}i}{160} \\ 0 & \frac{5\sqrt{3}i}{112} & 0 & \frac{5\sqrt{6}i}{112} & 0 & \frac{\sqrt{15}i}{48} & -\frac{\sqrt{70}i}{160} & 0 & -\frac{11\sqrt{30}i}{1120} & 0 & -\frac{\sqrt{2}i}{224} & 0 & \frac{3\sqrt{10}i}{160} & 0 \\ -\frac{\sqrt{15}i}{48} & 0 & -\frac{5\sqrt{6}i}{112} & 0 & -\frac{5\sqrt{3}i}{112} & 0 & 0 & \frac{3\sqrt{10}i}{160} & 0 & -\frac{\sqrt{2}i}{224} & 0 & -\frac{11\sqrt{30}i}{1120} & 0 & -\frac{\sqrt{70}i}{160} \\ 0 & \frac{5\sqrt{6}i}{96} & 0 & \frac{5\sqrt{3}i}{112} & 0 & \frac{\sqrt{30}i}{224} & -\frac{3\sqrt{35}i}{160} & 0 & \frac{\sqrt{15}i}{160} & 0 & \frac{13i}{224} & 0 & \frac{23\sqrt{5}i}{1120} & 0 \\ -\frac{3\sqrt{6}i}{32} & 0 & -\frac{\sqrt{15}i}{48} & 0 & -\frac{\sqrt{30}i}{224} & 0 & 0 & -\frac{3i}{32} & 0 & -\frac{\sqrt{5}i}{32} & 0 & -\frac{5\sqrt{3}i}{224} & 0 & -\frac{\sqrt{7}i}{224} \end{bmatrix}$$

$$\boxed{\text{x118}} \quad \mathbb{Q}_{5,1}^{(a)}(E_u, 2) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}}{80} & 0 & \frac{\sqrt{35}}{80} & 0 & \frac{3\sqrt{21}}{80} & 0 & \frac{1}{16} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{3}}{80} & 0 & \frac{3\sqrt{7}}{80} & 0 & -\frac{\sqrt{105}}{80} & 0 & -\frac{3\sqrt{21}}{80} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{21}}{80} & 0 & -\frac{\sqrt{105}}{80} & 0 & \frac{3\sqrt{7}}{80} & 0 & \frac{3\sqrt{3}}{80} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{1}{16} & 0 & \frac{3\sqrt{21}}{80} & 0 & \frac{\sqrt{35}}{80} & 0 & -\frac{\sqrt{7}}{80} & 0 \\ 0 & -\frac{\sqrt{42}}{224} & 0 & -\frac{3\sqrt{21}}{112} & 0 & -\frac{\sqrt{210}}{224} & -\frac{\sqrt{5}}{160} & 0 & \frac{\sqrt{105}}{224} & 0 & \frac{9\sqrt{7}}{224} & 0 & \frac{\sqrt{35}}{224} & 0 \\ -\frac{\sqrt{42}}{224} & 0 & \frac{\sqrt{105}}{112} & 0 & \frac{3\sqrt{210}}{224} & 0 & 0 & \frac{23\sqrt{7}}{1120} & 0 & -\frac{13\sqrt{35}}{1120} & 0 & -\frac{9\sqrt{21}}{1120} & 0 & \frac{1}{32} \\ 0 & \frac{\sqrt{105}}{112} & 0 & -\frac{\sqrt{210}}{112} & 0 & -\frac{3\sqrt{21}}{112} & -\frac{9\sqrt{2}}{160} & 0 & -\frac{11\sqrt{42}}{1120} & 0 & \frac{\sqrt{70}}{1120} & 0 & -\frac{27\sqrt{14}}{1120} & 0 \\ -\frac{3\sqrt{21}}{112} & 0 & -\frac{\sqrt{210}}{112} & 0 & \frac{\sqrt{105}}{112} & 0 & 0 & \frac{27\sqrt{14}}{1120} & 0 & -\frac{\sqrt{70}}{1120} & 0 & \frac{11\sqrt{42}}{1120} & 0 & \frac{9\sqrt{2}}{160} \\ 0 & \frac{3\sqrt{210}}{224} & 0 & \frac{\sqrt{105}}{112} & 0 & -\frac{\sqrt{42}}{224} & -\frac{1}{32} & 0 & \frac{9\sqrt{21}}{1120} & 0 & \frac{13\sqrt{35}}{1120} & 0 & -\frac{23\sqrt{7}}{1120} & 0 \\ -\frac{\sqrt{210}}{224} & 0 & -\frac{3\sqrt{21}}{112} & 0 & -\frac{\sqrt{42}}{224} & 0 & 0 & -\frac{\sqrt{35}}{224} & 0 & -\frac{9\sqrt{7}}{224} & 0 & -\frac{\sqrt{105}}{224} & 0 & \frac{\sqrt{5}}{160} \end{bmatrix}$$

$$\boxed{\text{x119}} \quad \mathbb{Q}_{5,2}^{(a)}(E_u, 2) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}i}{80} & 0 & -\frac{\sqrt{35}i}{80} & 0 & \frac{3\sqrt{21}i}{80} & 0 & -\frac{i}{16} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{3}i}{80} & 0 & \frac{3\sqrt{7}i}{80} & 0 & \frac{\sqrt{105}i}{80} & 0 & -\frac{3\sqrt{21}i}{80} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{21}i}{80} & 0 & -\frac{\sqrt{105}i}{80} & 0 & -\frac{3\sqrt{7}i}{80} & 0 & \frac{3\sqrt{3}i}{80} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{i}{16} & 0 & -\frac{3\sqrt{21}i}{80} & 0 & \frac{\sqrt{35}i}{80} & 0 & \frac{\sqrt{7}i}{80} & 0 \\ 0 & \frac{\sqrt{42}i}{224} & 0 & -\frac{3\sqrt{21}i}{112} & 0 & \frac{\sqrt{210}i}{224} & -\frac{\sqrt{5}i}{160} & 0 & -\frac{\sqrt{105}i}{224} & 0 & \frac{9\sqrt{7}i}{224} & 0 & -\frac{\sqrt{35}i}{224} & 0 \\ -\frac{\sqrt{42}i}{224} & 0 & -\frac{\sqrt{105}i}{112} & 0 & \frac{3\sqrt{210}i}{224} & 0 & 0 & \frac{23\sqrt{7}i}{1120} & 0 & \frac{13\sqrt{35}i}{1120} & 0 & -\frac{9\sqrt{21}i}{1120} & 0 & -\frac{i}{32} \\ 0 & \frac{\sqrt{105}i}{112} & 0 & \frac{\sqrt{210}i}{112} & 0 & -\frac{3\sqrt{21}i}{112} & \frac{9\sqrt{2}i}{160} & 0 & -\frac{11\sqrt{42}i}{1120} & 0 & -\frac{\sqrt{70}i}{1120} & 0 & -\frac{27\sqrt{14}i}{1120} & 0 \\ \frac{3\sqrt{21}i}{112} & 0 & -\frac{\sqrt{210}i}{112} & 0 & -\frac{\sqrt{105}i}{112} & 0 & 0 & -\frac{27\sqrt{14}i}{1120} & 0 & -\frac{\sqrt{70}i}{1120} & 0 & -\frac{11\sqrt{42}i}{1120} & 0 & \frac{9\sqrt{2}i}{160} \\ 0 & -\frac{3\sqrt{210}i}{224} & 0 & \frac{\sqrt{105}i}{112} & 0 & \frac{\sqrt{42}i}{224} & -\frac{i}{32} & 0 & -\frac{9\sqrt{21}i}{1120} & 0 & \frac{13\sqrt{35}i}{1120} & 0 & \frac{23\sqrt{7}i}{1120} & 0 \\ -\frac{\sqrt{210}i}{224} & 0 & \frac{3\sqrt{21}i}{112} & 0 & -\frac{\sqrt{42}i}{224} & 0 & 0 & -\frac{\sqrt{35}i}{224} & 0 & \frac{9\sqrt{7}i}{224} & 0 & -\frac{\sqrt{105}i}{224} & 0 & -\frac{\sqrt{5}i}{160} \end{bmatrix}$$

$$\boxed{\text{x120}} \quad \mathbb{Q}_{5,1}^{(a)}(E_u, 3) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}}{120} & 0 & \frac{\sqrt{105}}{120} & 0 & -\frac{\sqrt{7}}{40} & 0 & -\frac{\sqrt{3}}{8} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{1}{40} & 0 & \frac{\sqrt{21}}{40} & 0 & -\frac{\sqrt{35}}{40} & 0 & \frac{\sqrt{7}}{40} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{40} & 0 & -\frac{\sqrt{35}}{40} & 0 & \frac{\sqrt{21}}{40} & 0 & -\frac{1}{40} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{8} & 0 & -\frac{\sqrt{7}}{40} & 0 & \frac{\sqrt{105}}{120} & 0 & -\frac{\sqrt{21}}{120} & 0 \\ 0 & -\frac{\sqrt{14}}{112} & 0 & \frac{\sqrt{7}}{56} & 0 & \frac{3\sqrt{70}}{112} & -\frac{\sqrt{15}}{240} & 0 & \frac{\sqrt{35}}{112} & 0 & -\frac{\sqrt{21}}{112} & 0 & -\frac{\sqrt{105}}{112} & 0 \\ -\frac{\sqrt{14}}{112} & 0 & \frac{\sqrt{35}}{56} & 0 & -\frac{\sqrt{70}}{112} & 0 & 0 & \frac{23\sqrt{21}}{1680} & 0 & -\frac{13\sqrt{105}}{1680} & 0 & \frac{3\sqrt{7}}{560} & 0 & -\frac{\sqrt{3}}{16} \\ 0 & \frac{\sqrt{35}}{56} & 0 & -\frac{\sqrt{70}}{56} & 0 & \frac{\sqrt{7}}{56} & \frac{\sqrt{6}}{80} & 0 & -\frac{11\sqrt{14}}{560} & 0 & \frac{\sqrt{210}}{1680} & 0 & \frac{3\sqrt{42}}{560} & 0 \\ \frac{\sqrt{7}}{56} & 0 & -\frac{\sqrt{70}}{56} & 0 & \frac{\sqrt{35}}{56} & 0 & 0 & -\frac{3\sqrt{42}}{560} & 0 & -\frac{\sqrt{210}}{1680} & 0 & \frac{11\sqrt{14}}{560} & 0 & -\frac{\sqrt{6}}{80} \\ 0 & -\frac{\sqrt{70}}{112} & 0 & \frac{\sqrt{35}}{56} & 0 & -\frac{\sqrt{14}}{112} & \frac{\sqrt{3}}{16} & 0 & -\frac{3\sqrt{7}}{560} & 0 & \frac{13\sqrt{105}}{1680} & 0 & -\frac{23\sqrt{21}}{1680} & 0 \\ \frac{3\sqrt{70}}{112} & 0 & \frac{\sqrt{7}}{56} & 0 & -\frac{\sqrt{14}}{112} & 0 & 0 & \frac{\sqrt{105}}{112} & 0 & \frac{\sqrt{21}}{112} & 0 & -\frac{\sqrt{35}}{112} & 0 & \frac{\sqrt{15}}{240} \end{bmatrix}$$

$$\boxed{\text{x121}} \quad \mathbb{Q}_{5,2}^{(a)}(E_u, 3) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}i}{120} & 0 & -\frac{\sqrt{105}i}{120} & 0 & -\frac{\sqrt{7}i}{40} & 0 & \frac{\sqrt{3}i}{8} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{i}{40} & 0 & \frac{\sqrt{21}i}{40} & 0 & \frac{\sqrt{35}i}{40} & 0 & \frac{\sqrt{7}i}{40} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}i}{40} & 0 & -\frac{\sqrt{35}i}{40} & 0 & -\frac{\sqrt{21}i}{40} & 0 & -\frac{i}{40} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{8} & 0 & \frac{\sqrt{7}i}{40} & 0 & \frac{\sqrt{105}i}{120} & 0 & \frac{\sqrt{21}i}{40} & 0 \\ 0 & \frac{\sqrt{14}i}{112} & 0 & \frac{\sqrt{7}i}{56} & 0 & -\frac{3\sqrt{70}i}{112} & -\frac{\sqrt{15}i}{240} & 0 & -\frac{\sqrt{35}i}{112} & 0 & -\frac{\sqrt{21}i}{112} & 0 & \frac{\sqrt{105}i}{112} & 0 \\ -\frac{\sqrt{14}i}{112} & 0 & -\frac{\sqrt{35}i}{56} & 0 & -\frac{\sqrt{70}i}{112} & 0 & 0 & \frac{23\sqrt{21}i}{1680} & 0 & \frac{13\sqrt{105}i}{1680} & 0 & \frac{3\sqrt{7}i}{560} & 0 & \frac{\sqrt{3}i}{16} \\ 0 & \frac{\sqrt{35}i}{56} & 0 & \frac{\sqrt{70}i}{56} & 0 & \frac{\sqrt{7}i}{56} & -\frac{\sqrt{6}i}{80} & 0 & -\frac{11\sqrt{14}i}{560} & 0 & -\frac{\sqrt{210}i}{1680} & 0 & \frac{3\sqrt{42}i}{560} & 0 \\ -\frac{\sqrt{7}i}{56} & 0 & -\frac{\sqrt{70}i}{56} & 0 & -\frac{\sqrt{35}i}{56} & 0 & 0 & \frac{3\sqrt{42}i}{560} & 0 & -\frac{\sqrt{210}i}{1680} & 0 & -\frac{11\sqrt{14}i}{560} & 0 & -\frac{\sqrt{6}i}{80} \\ 0 & \frac{\sqrt{70}i}{112} & 0 & \frac{\sqrt{35}i}{56} & 0 & \frac{\sqrt{14}i}{112} & \frac{\sqrt{3}i}{16} & 0 & \frac{3\sqrt{7}i}{560} & 0 & \frac{13\sqrt{105}i}{1680} & 0 & \frac{23\sqrt{21}i}{1680} & 0 \\ \frac{3\sqrt{70}i}{112} & 0 & -\frac{\sqrt{7}i}{56} & 0 & -\frac{\sqrt{14}i}{112} & 0 & 0 & \frac{\sqrt{105}i}{112} & 0 & -\frac{\sqrt{21}i}{112} & 0 & -\frac{\sqrt{35}i}{112} & 0 & -\frac{\sqrt{15}i}{240} \end{bmatrix}$$

$$\boxed{\text{x122}} \quad \mathbb{Q}_5^{(1,-1;a)}(A_{1u}) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}i}{100} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{10}i}{100} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{10}i}{100} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}i}{100} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{35}i}{70} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{14}i}{35} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}i}{70} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{210}i}{175} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{2\sqrt{15}i}{25} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{2\sqrt{15}i}{25} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{35}i}{70} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}i}{175} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{35}i}{70} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{14}i}{35} & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x123}} \quad \mathbb{Q}_3^{(1,-1;a)}(A_{2u}) = \begin{bmatrix} 0 & -\frac{\sqrt{6}}{35} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{14} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{2}{35} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{14} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{2}{35} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{14} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{35} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{14} & 0 & 0 \\ \frac{\sqrt{6}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{2}{7} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{6}}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{6}}{35} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}}{7} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{6}}{35} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}}{7} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{2}{7} & 0 \end{bmatrix}$$

$$\boxed{\text{x124}} \quad \mathbb{Q}_5^{(1,-1;a)}(A_{2u}, 1) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{20} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}}{20} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{10}}{20} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}}{20} & 0 & 0 \\ -\frac{\sqrt{5}}{210} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}}{35} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{5}}{42} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{9\sqrt{2}}{35} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{5}}{21} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{2\sqrt{15}}{35} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{5}}{21} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{2\sqrt{15}}{35} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{42} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{9\sqrt{2}}{35} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}}{210} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}}{35} & 0 \end{bmatrix}$$

$$\boxed{\text{x125}} \quad \mathbb{Q}_5^{(1,-1;a)}(A_{2u}, 2) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{210}}{100} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{10}}{100} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{10}}{100} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}}{100} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{35}}{70} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{14}}{35} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{35}}{70} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}}{175} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{2\sqrt{15}}{25} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{2\sqrt{15}}{25} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{35}}{70} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}}{175} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{35}}{70} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{14}}{35} & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x126}} \quad \mathbb{Q}_3^{(1,-1;a)}(B_{1u}) = \begin{bmatrix} 0 & 0 & 0 & \frac{\sqrt{5}i}{35} & 0 & 0 & -\frac{\sqrt{21}i}{28} & 0 & 0 & 0 & \frac{\sqrt{15}i}{28} & 0 & 0 & 0 & 0 \\ \frac{\sqrt{6}i}{42} & 0 & 0 & 0 & \frac{\sqrt{30}i}{210} & 0 & 0 & \frac{3i}{28} & 0 & 0 & 0 & \frac{3\sqrt{3}i}{28} & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{30}i}{210} & 0 & 0 & 0 & -\frac{\sqrt{6}i}{42} & 0 & 0 & \frac{3\sqrt{3}i}{28} & 0 & 0 & 0 & \frac{3i}{28} & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{5}i}{35} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{28} & 0 & 0 & 0 & -\frac{\sqrt{21}i}{28} & 0 \\ 0 & 0 & -\frac{3i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{2\sqrt{3}i}{21} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{3\sqrt{5}i}{140} & 0 & 0 & -\frac{\sqrt{21}i}{21} & 0 & 0 & 0 & -\frac{\sqrt{15}i}{21} & 0 & 0 & 0 & 0 \\ \frac{3i}{28} & 0 & 0 & 0 & \frac{3\sqrt{5}i}{140} & 0 & 0 & -\frac{\sqrt{6}i}{42} & 0 & 0 & 0 & -\frac{\sqrt{2}i}{14} & 0 & 0 & 0 \\ 0 & \frac{3\sqrt{5}i}{140} & 0 & 0 & 0 & \frac{3i}{28} & 0 & 0 & \frac{\sqrt{2}i}{14} & 0 & 0 & 0 & \frac{\sqrt{6}i}{42} & 0 & 0 \\ 0 & 0 & -\frac{3\sqrt{5}i}{140} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{21} & 0 & 0 & 0 & \frac{\sqrt{21}i}{21} & 0 \\ 0 & 0 & 0 & -\frac{3i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{2\sqrt{3}i}{21} & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x127}} \quad \mathbb{Q}_5^{(1,-1;a)}(B_{1u}) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}i}{200} & 0 & 0 & 0 & \frac{\sqrt{14}i}{40} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{210}i}{200} & 0 & 0 & 0 & -\frac{3\sqrt{70}i}{200} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{70}i}{200} & 0 & 0 & 0 & \frac{\sqrt{210}i}{200} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}i}{40} & 0 & 0 & 0 & -\frac{\sqrt{10}i}{200} \\ 0 & 0 & -\frac{\sqrt{210}i}{420} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}i}{35} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{42}i}{84} & 0 & 0 & -\frac{\sqrt{10}i}{25} & 0 & 0 & 0 & \frac{2\sqrt{14}i}{35} & 0 & 0 & 0 \\ \frac{\sqrt{210}i}{420} & 0 & 0 & 0 & -\frac{\sqrt{42}i}{84} & 0 & 0 & \frac{8\sqrt{35}i}{175} & 0 & 0 & 0 & \frac{2\sqrt{105}i}{175} & 0 & 0 \\ 0 & -\frac{\sqrt{42}i}{84} & 0 & 0 & 0 & \frac{\sqrt{210}i}{420} & 0 & 0 & -\frac{2\sqrt{105}i}{175} & 0 & 0 & 0 & -\frac{8\sqrt{35}i}{175} & 0 \\ 0 & 0 & \frac{\sqrt{42}i}{84} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{2\sqrt{14}i}{35} & 0 & 0 & 0 & \frac{\sqrt{10}i}{25} \\ 0 & 0 & 0 & -\frac{\sqrt{210}i}{420} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{70}i}{35} & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x128}} \quad \mathbb{Q}_3^{(1,-1;a)}(B_{2u}) = \begin{bmatrix} 0 & 0 & 0 & -\frac{\sqrt{5}}{35} & 0 & 0 & -\frac{\sqrt{21}}{28} & 0 & 0 & 0 & -\frac{\sqrt{15}}{28} & 0 & 0 & 0 \\ \frac{\sqrt{6}}{42} & 0 & 0 & 0 & -\frac{\sqrt{30}}{210} & 0 & 0 & \frac{3}{28} & 0 & 0 & 0 & -\frac{3\sqrt{3}}{28} & 0 & 0 \\ 0 & -\frac{\sqrt{30}}{210} & 0 & 0 & 0 & \frac{\sqrt{6}}{42} & 0 & 0 & \frac{3\sqrt{3}}{28} & 0 & 0 & 0 & -\frac{3}{28} & 0 \\ 0 & 0 & -\frac{\sqrt{5}}{35} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{28} & 0 & 0 & 0 & \frac{\sqrt{21}}{28} \\ 0 & 0 & \frac{3}{28} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{2\sqrt{3}}{21} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{3\sqrt{5}}{140} & 0 & 0 & -\frac{\sqrt{21}}{21} & 0 & 0 & 0 & \frac{\sqrt{15}}{21} & 0 & 0 & 0 \\ \frac{3}{28} & 0 & 0 & 0 & -\frac{3\sqrt{5}}{140} & 0 & 0 & -\frac{\sqrt{6}}{42} & 0 & 0 & 0 & \frac{\sqrt{2}}{14} & 0 & 0 \\ 0 & \frac{3\sqrt{5}}{140} & 0 & 0 & 0 & -\frac{3}{28} & 0 & 0 & \frac{\sqrt{2}}{14} & 0 & 0 & 0 & -\frac{\sqrt{6}}{42} & 0 \\ 0 & 0 & -\frac{3\sqrt{5}}{140} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{21} & 0 & 0 & 0 & -\frac{\sqrt{21}}{21} \\ 0 & 0 & 0 & -\frac{3}{28} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{2\sqrt{3}}{21} & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x129}} \quad \mathbb{Q}_5^{(1,-1;a)}(B_{2u}) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{10}}{200} & 0 & 0 & 0 & \frac{\sqrt{14}}{40} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}}{200} & 0 & 0 & 0 & -\frac{3\sqrt{70}}{200} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{70}}{200} & 0 & 0 & 0 & \frac{\sqrt{210}}{200} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}}{40} & 0 & 0 & 0 & -\frac{\sqrt{10}}{200} \\ 0 & 0 & -\frac{\sqrt{210}}{420} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}}{35} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{42}}{84} & 0 & 0 & \frac{\sqrt{10}}{25} & 0 & 0 & 0 & \frac{2\sqrt{14}}{35} & 0 & 0 & 0 \\ -\frac{\sqrt{210}}{420} & 0 & 0 & 0 & -\frac{\sqrt{42}}{84} & 0 & 0 & -\frac{8\sqrt{35}}{175} & 0 & 0 & 0 & \frac{2\sqrt{105}}{175} & 0 & 0 \\ 0 & \frac{\sqrt{42}}{84} & 0 & 0 & 0 & \frac{\sqrt{210}}{420} & 0 & 0 & \frac{2\sqrt{105}}{175} & 0 & 0 & 0 & -\frac{8\sqrt{35}}{175} & 0 \\ 0 & 0 & -\frac{\sqrt{42}}{84} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{2\sqrt{14}}{35} & 0 & 0 & 0 & \frac{\sqrt{10}}{25} \\ 0 & 0 & 0 & \frac{\sqrt{210}}{420} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}}{35} & 0 & 0 & 0 \end{bmatrix}$$



$$\boxed{\text{x130}} \quad \mathbb{Q}_{3,1}^{(1,-1;a)}(E_u, 1) = \begin{bmatrix} -\frac{\sqrt{30}}{280} & 0 & \frac{3\sqrt{3}}{140} & 0 & -\frac{\sqrt{6}}{56} & 0 & 0 & -\frac{3\sqrt{5}}{56} & 0 & \frac{3}{28} & 0 & -\frac{\sqrt{15}}{56} & 0 & 0 \\ 0 & \frac{\sqrt{2}}{40} & 0 & -\frac{1}{140} & 0 & -\frac{\sqrt{10}}{56} & -\frac{\sqrt{105}}{56} & 0 & 0 & 0 & \frac{3\sqrt{3}}{56} & 0 & -\frac{\sqrt{15}}{28} & 0 \\ \frac{\sqrt{10}}{56} & 0 & \frac{1}{140} & 0 & -\frac{\sqrt{2}}{40} & 0 & 0 & -\frac{\sqrt{15}}{28} & 0 & \frac{3\sqrt{3}}{56} & 0 & 0 & 0 & -\frac{\sqrt{105}}{56} \\ 0 & \frac{\sqrt{6}}{56} & 0 & -\frac{3\sqrt{3}}{140} & 0 & \frac{\sqrt{30}}{280} & 0 & 0 & -\frac{\sqrt{15}}{56} & 0 & \frac{3}{28} & 0 & -\frac{3\sqrt{5}}{56} & 0 \\ 0 & -\frac{3\sqrt{30}}{280} & 0 & \frac{\sqrt{15}}{56} & 0 & 0 & \frac{\sqrt{7}}{28} & 0 & -\frac{\sqrt{3}}{14} & 0 & \frac{\sqrt{5}}{28} & 0 & 0 & 0 \\ -\frac{3\sqrt{30}}{280} & 0 & \frac{3\sqrt{3}}{280} & 0 & \frac{\sqrt{6}}{28} & 0 & 0 & -\frac{\sqrt{5}}{28} & 0 & -\frac{1}{14} & 0 & \frac{\sqrt{15}}{28} & 0 & 0 \\ 0 & \frac{3\sqrt{3}}{280} & 0 & \frac{3\sqrt{6}}{140} & 0 & \frac{\sqrt{15}}{56} & -\frac{\sqrt{70}}{56} & 0 & -\frac{\sqrt{30}}{56} & 0 & \frac{\sqrt{2}}{56} & 0 & \frac{3\sqrt{10}}{56} & 0 \\ \frac{\sqrt{15}}{56} & 0 & \frac{3\sqrt{6}}{140} & 0 & \frac{3\sqrt{3}}{280} & 0 & 0 & -\frac{3\sqrt{10}}{56} & 0 & -\frac{\sqrt{2}}{56} & 0 & \frac{\sqrt{30}}{56} & 0 & \frac{\sqrt{70}}{56} \\ 0 & \frac{\sqrt{6}}{28} & 0 & \frac{3\sqrt{3}}{280} & 0 & -\frac{3\sqrt{30}}{280} & 0 & 0 & -\frac{\sqrt{15}}{28} & 0 & \frac{1}{14} & 0 & \frac{\sqrt{5}}{28} & 0 \\ 0 & 0 & \frac{\sqrt{15}}{56} & 0 & -\frac{3\sqrt{30}}{280} & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{28} & 0 & \frac{\sqrt{3}}{14} & 0 & -\frac{\sqrt{7}}{28} \end{bmatrix}$$

$$\boxed{\text{x131}} \quad \mathbb{Q}_{3,2}^{(1,-1;a)}(E_u, 1) = \begin{bmatrix} -\frac{\sqrt{30}i}{280} & 0 & -\frac{3\sqrt{3}i}{140} & 0 & -\frac{\sqrt{6}i}{56} & 0 & 0 & -\frac{3\sqrt{5}i}{56} & 0 & -\frac{3i}{28} & 0 & -\frac{\sqrt{15}i}{56} & 0 & 0 \\ 0 & \frac{\sqrt{2}i}{40} & 0 & \frac{i}{140} & 0 & -\frac{\sqrt{10}i}{56} & \frac{\sqrt{105}i}{56} & 0 & 0 & 0 & -\frac{3\sqrt{3}i}{56} & 0 & -\frac{\sqrt{15}i}{28} & 0 \\ -\frac{\sqrt{10}i}{56} & 0 & \frac{i}{140} & 0 & \frac{\sqrt{2}i}{40} & 0 & 0 & \frac{\sqrt{15}i}{28} & 0 & \frac{3\sqrt{3}i}{56} & 0 & 0 & 0 & -\frac{\sqrt{105}i}{56} \\ 0 & -\frac{\sqrt{6}i}{56} & 0 & -\frac{3\sqrt{3}i}{140} & 0 & -\frac{\sqrt{30}i}{280} & 0 & 0 & \frac{\sqrt{15}i}{56} & 0 & \frac{3i}{28} & 0 & \frac{3\sqrt{5}i}{56} & 0 \\ 0 & \frac{3\sqrt{30}i}{280} & 0 & \frac{\sqrt{15}i}{56} & 0 & 0 & \frac{\sqrt{7}i}{28} & 0 & \frac{\sqrt{3}i}{14} & 0 & \frac{\sqrt{5}i}{28} & 0 & 0 & 0 \\ -\frac{3\sqrt{30}i}{280} & 0 & -\frac{3\sqrt{3}i}{280} & 0 & \frac{\sqrt{6}i}{28} & 0 & 0 & -\frac{\sqrt{5}i}{28} & 0 & \frac{i}{14} & 0 & \frac{\sqrt{15}i}{28} & 0 & 0 \\ 0 & \frac{3\sqrt{3}i}{280} & 0 & -\frac{3\sqrt{6}i}{140} & 0 & \frac{\sqrt{15}i}{56} & \frac{\sqrt{70}i}{56} & 0 & -\frac{\sqrt{30}i}{56} & 0 & -\frac{\sqrt{2}i}{56} & 0 & \frac{3\sqrt{10}i}{56} & 0 \\ -\frac{\sqrt{15}i}{56} & 0 & \frac{3\sqrt{6}i}{140} & 0 & -\frac{3\sqrt{3}i}{280} & 0 & 0 & \frac{3\sqrt{10}i}{56} & 0 & -\frac{\sqrt{2}i}{56} & 0 & -\frac{\sqrt{30}i}{56} & 0 & \frac{\sqrt{70}i}{56} \\ 0 & -\frac{\sqrt{6}i}{28} & 0 & \frac{3\sqrt{3}i}{280} & 0 & \frac{3\sqrt{30}i}{280} & 0 & 0 & \frac{\sqrt{15}i}{28} & 0 & \frac{i}{14} & 0 & -\frac{\sqrt{5}i}{28} & 0 \\ 0 & 0 & -\frac{\sqrt{15}i}{56} & 0 & -\frac{3\sqrt{30}i}{280} & 0 & 0 & 0 & 0 & \frac{\sqrt{5}i}{28} & 0 & \frac{\sqrt{3}i}{14} & 0 & \frac{\sqrt{7}i}{28} \end{bmatrix}$$

$$\boxed{\text{x132}} \quad \mathbb{Q}_{3,1}^{(1,-1;a)}(E_u, 2) = \begin{bmatrix} -\frac{\sqrt{2}}{56} & 0 & \frac{3\sqrt{5}}{140} & 0 & \frac{3\sqrt{10}}{280} & 0 & 0 & -\frac{5\sqrt{3}}{56} & 0 & \frac{\sqrt{15}}{28} & 0 & \frac{3}{56} & 0 & 0 \\ 0 & \frac{\sqrt{30}}{120} & 0 & -\frac{\sqrt{15}}{420} & 0 & \frac{\sqrt{6}}{56} & \frac{3\sqrt{7}}{56} & 0 & 0 & 0 & \frac{3\sqrt{5}}{56} & 0 & \frac{3}{28} & 0 \\ -\frac{\sqrt{6}}{56} & 0 & \frac{\sqrt{15}}{420} & 0 & -\frac{\sqrt{30}}{120} & 0 & 0 & \frac{3}{28} & 0 & \frac{3\sqrt{5}}{56} & 0 & 0 & 0 & \frac{3\sqrt{7}}{56} \\ 0 & -\frac{3\sqrt{10}}{280} & 0 & -\frac{3\sqrt{5}}{140} & 0 & \frac{\sqrt{2}}{56} & 0 & 0 & \frac{3}{56} & 0 & \frac{\sqrt{15}}{28} & 0 & -\frac{5\sqrt{3}}{56} & 0 \\ 0 & -\frac{3\sqrt{2}}{56} & 0 & -\frac{3}{56} & 0 & 0 & \frac{\sqrt{105}}{84} & 0 & -\frac{\sqrt{5}}{14} & 0 & -\frac{\sqrt{3}}{28} & 0 & 0 & 0 \\ -\frac{3\sqrt{2}}{56} & 0 & \frac{3\sqrt{5}}{280} & 0 & -\frac{3\sqrt{10}}{140} & 0 & 0 & -\frac{5\sqrt{3}}{84} & 0 & -\frac{\sqrt{15}}{42} & 0 & -\frac{3}{28} & 0 & 0 \\ 0 & \frac{3\sqrt{5}}{280} & 0 & \frac{3\sqrt{10}}{140} & 0 & -\frac{3}{56} & \frac{\sqrt{42}}{56} & 0 & -\frac{5\sqrt{2}}{56} & 0 & \frac{\sqrt{30}}{168} & 0 & -\frac{3\sqrt{6}}{56} & 0 \\ -\frac{3}{56} & 0 & \frac{3\sqrt{10}}{140} & 0 & \frac{3\sqrt{5}}{280} & 0 & 0 & \frac{3\sqrt{6}}{56} & 0 & -\frac{\sqrt{30}}{168} & 0 & \frac{5\sqrt{2}}{56} & 0 & -\frac{\sqrt{42}}{56} \\ 0 & -\frac{3\sqrt{10}}{140} & 0 & \frac{3\sqrt{5}}{280} & 0 & -\frac{3\sqrt{2}}{56} & 0 & 0 & \frac{3}{28} & 0 & \frac{\sqrt{15}}{42} & 0 & \frac{5\sqrt{3}}{84} & 0 \\ 0 & 0 & -\frac{3}{56} & 0 & -\frac{3\sqrt{2}}{56} & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{28} & 0 & \frac{\sqrt{5}}{14} & 0 & -\frac{\sqrt{105}}{84} \end{bmatrix}$$

$$\boxed{\text{x133}} \quad \mathbb{Q}_{3,2}^{(1,-1;a)}(E_u, 2) = \begin{bmatrix} -\frac{\sqrt{2}i}{56} & 0 & -\frac{3\sqrt{5}i}{140} & 0 & \frac{3\sqrt{10}i}{280} & 0 & 0 & -\frac{5\sqrt{3}i}{56} & 0 & -\frac{\sqrt{15}i}{28} & 0 & \frac{3i}{56} & 0 & 0 \\ 0 & \frac{\sqrt{30}i}{120} & 0 & \frac{\sqrt{15}i}{420} & 0 & \frac{\sqrt{6}i}{56} & -\frac{3\sqrt{7}i}{56} & 0 & 0 & 0 & -\frac{3\sqrt{5}i}{56} & 0 & \frac{3i}{28} & 0 \\ \frac{\sqrt{6}i}{56} & 0 & \frac{\sqrt{15}i}{420} & 0 & \frac{\sqrt{30}i}{120} & 0 & 0 & -\frac{3i}{28} & 0 & \frac{3\sqrt{5}i}{56} & 0 & 0 & 0 & \frac{3\sqrt{7}i}{56} \\ 0 & \frac{3\sqrt{10}i}{280} & 0 & -\frac{3\sqrt{5}i}{140} & 0 & -\frac{\sqrt{2}i}{56} & 0 & 0 & -\frac{3i}{28} & 0 & \frac{\sqrt{15}i}{28} & 0 & \frac{5\sqrt{3}i}{56} & 0 \\ 0 & \frac{3\sqrt{2}i}{56} & 0 & -\frac{3i}{56} & 0 & 0 & \frac{\sqrt{105}i}{84} & 0 & \frac{\sqrt{5}i}{14} & 0 & -\frac{\sqrt{3}i}{28} & 0 & 0 & 0 \\ -\frac{3\sqrt{2}i}{56} & 0 & -\frac{3\sqrt{5}i}{280} & 0 & -\frac{3\sqrt{10}i}{140} & 0 & 0 & -\frac{5\sqrt{3}i}{84} & 0 & \frac{\sqrt{15}i}{42} & 0 & -\frac{3i}{28} & 0 & 0 \\ 0 & \frac{3\sqrt{5}i}{280} & 0 & -\frac{3\sqrt{10}i}{140} & 0 & -\frac{3i}{56} & -\frac{\sqrt{42}i}{56} & 0 & -\frac{5\sqrt{2}i}{56} & 0 & -\frac{\sqrt{30}i}{168} & 0 & -\frac{3\sqrt{6}i}{56} & 0 \\ \frac{3i}{56} & 0 & \frac{3\sqrt{10}i}{140} & 0 & -\frac{3\sqrt{5}i}{280} & 0 & 0 & -\frac{3\sqrt{6}i}{56} & 0 & -\frac{\sqrt{30}i}{168} & 0 & -\frac{5\sqrt{2}i}{56} & 0 & -\frac{\sqrt{42}i}{56} \\ 0 & \frac{3\sqrt{10}i}{140} & 0 & \frac{3\sqrt{5}i}{280} & 0 & \frac{3\sqrt{2}i}{56} & 0 & 0 & -\frac{3i}{28} & 0 & \frac{\sqrt{15}i}{42} & 0 & -\frac{5\sqrt{3}i}{84} & 0 \\ 0 & 0 & \frac{3i}{56} & 0 & -\frac{3\sqrt{2}i}{56} & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{28} & 0 & \frac{\sqrt{5}i}{14} & 0 & \frac{\sqrt{105}i}{84} \end{bmatrix}$$

$$\boxed{\text{x134}} \quad \mathbb{Q}_{5,1}^{(1,-1;a)}(E_u, 1) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{160} & 0 & \frac{\sqrt{30}}{160} & 0 & -\frac{7\sqrt{2}}{160} & 0 & \frac{3\sqrt{42}}{160} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}}{160} & 0 & \frac{3\sqrt{6}}{160} & 0 & -\frac{3\sqrt{10}}{160} & 0 & \frac{7\sqrt{2}}{160} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{7\sqrt{2}}{160} & 0 & -\frac{3\sqrt{10}}{160} & 0 & \frac{3\sqrt{6}}{160} & 0 & -\frac{\sqrt{14}}{160} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{42}}{160} & 0 & -\frac{7\sqrt{2}}{160} & 0 & \frac{\sqrt{30}}{160} & 0 & -\frac{\sqrt{6}}{160} & 0 \\ 0 & -\frac{1}{112} & 0 & \frac{\sqrt{2}}{48} & 0 & -\frac{3\sqrt{5}}{80} & \frac{\sqrt{210}}{560} & 0 & -\frac{3\sqrt{10}}{112} & 0 & \frac{\sqrt{6}}{16} & 0 & -\frac{3\sqrt{30}}{80} & 0 \\ -\frac{1}{112} & 0 & \frac{\sqrt{10}}{112} & 0 & -\frac{\sqrt{5}}{48} & 0 & 0 & -\frac{23\sqrt{6}}{560} & 0 & \frac{13\sqrt{30}}{560} & 0 & -\frac{3\sqrt{2}}{80} & 0 & -\frac{3\sqrt{42}}{80} \\ 0 & \frac{\sqrt{10}}{112} & 0 & -\frac{\sqrt{5}}{56} & 0 & \frac{\sqrt{2}}{48} & -\frac{\sqrt{21}}{40} & 0 & \frac{33}{280} & 0 & -\frac{\sqrt{15}}{280} & 0 & -\frac{3\sqrt{3}}{40} & 0 \\ \frac{\sqrt{2}}{48} & 0 & -\frac{\sqrt{5}}{56} & 0 & \frac{\sqrt{10}}{112} & 0 & 0 & \frac{3\sqrt{3}}{40} & 0 & \frac{\sqrt{15}}{280} & 0 & -\frac{33}{280} & 0 & \frac{\sqrt{21}}{40} \\ 0 & -\frac{\sqrt{5}}{48} & 0 & \frac{\sqrt{10}}{112} & 0 & -\frac{1}{112} & \frac{3\sqrt{42}}{80} & 0 & \frac{3\sqrt{2}}{80} & 0 & -\frac{13\sqrt{30}}{560} & 0 & \frac{23\sqrt{6}}{560} & 0 \\ -\frac{3\sqrt{5}}{80} & 0 & \frac{\sqrt{2}}{48} & 0 & -\frac{1}{112} & 0 & 0 & \frac{3\sqrt{30}}{80} & 0 & -\frac{\sqrt{6}}{16} & 0 & \frac{3\sqrt{10}}{112} & 0 & -\frac{\sqrt{210}}{560} \end{bmatrix}$$

$$\boxed{\text{x135}} \quad \mathbb{Q}_{5,2}^{(1,-1;a)}(E_u, 1) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}i}{160} & 0 & -\frac{\sqrt{30}i}{160} & 0 & -\frac{7\sqrt{2}i}{160} & 0 & -\frac{3\sqrt{42}i}{160} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}i}{160} & 0 & \frac{3\sqrt{6}i}{160} & 0 & \frac{3\sqrt{10}i}{160} & 0 & \frac{7\sqrt{2}i}{160} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{7\sqrt{2}i}{160} & 0 & -\frac{3\sqrt{10}i}{160} & 0 & -\frac{3\sqrt{6}i}{160} & 0 & -\frac{\sqrt{14}i}{160} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{42}i}{160} & 0 & \frac{7\sqrt{2}i}{160} & 0 & \frac{\sqrt{30}i}{160} & 0 & \frac{\sqrt{6}i}{160} & 0 \\ 0 & \frac{i}{112} & 0 & \frac{\sqrt{2}i}{48} & 0 & \frac{3\sqrt{5}i}{80} & \frac{\sqrt{210}i}{560} & 0 & \frac{3\sqrt{10}i}{112} & 0 & \frac{\sqrt{6}i}{16} & 0 & \frac{3\sqrt{30}i}{80} & 0 \\ -\frac{i}{112} & 0 & -\frac{\sqrt{10}i}{112} & 0 & -\frac{\sqrt{5}i}{48} & 0 & 0 & -\frac{23\sqrt{6}i}{560} & 0 & -\frac{13\sqrt{30}i}{560} & 0 & -\frac{3\sqrt{2}i}{80} & 0 & \frac{3\sqrt{42}i}{80} \\ 0 & \frac{\sqrt{10}i}{112} & 0 & \frac{\sqrt{5}i}{56} & 0 & \frac{\sqrt{2}i}{48} & \frac{\sqrt{21}i}{40} & 0 & \frac{33i}{280} & 0 & \frac{\sqrt{15}i}{280} & 0 & -\frac{3\sqrt{3}i}{40} & 0 \\ -\frac{\sqrt{2}i}{48} & 0 & -\frac{\sqrt{5}i}{56} & 0 & -\frac{\sqrt{10}i}{112} & 0 & 0 & -\frac{3\sqrt{3}i}{40} & 0 & \frac{\sqrt{15}i}{280} & 0 & \frac{33i}{280} & 0 & \frac{\sqrt{21}i}{40} \\ 0 & \frac{\sqrt{5}i}{48} & 0 & \frac{\sqrt{10}i}{112} & 0 & \frac{i}{112} & \frac{3\sqrt{42}i}{80} & 0 & -\frac{3\sqrt{2}i}{80} & 0 & -\frac{13\sqrt{30}i}{560} & 0 & -\frac{23\sqrt{6}i}{560} & 0 \\ -\frac{3\sqrt{5}i}{80} & 0 & -\frac{\sqrt{2}i}{48} & 0 & -\frac{i}{112} & 0 & 0 & \frac{3\sqrt{30}i}{80} & 0 & \frac{\sqrt{6}i}{16} & 0 & \frac{3\sqrt{10}i}{112} & 0 & \frac{\sqrt{210}i}{560} \end{bmatrix}$$

$$\boxed{\text{x136}} \quad \mathbb{Q}_{5,1}^{(1,-1;a)}(E_u, 2) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}}{800} & 0 & \frac{\sqrt{42}}{160} & 0 & \frac{9\sqrt{70}}{800} & 0 & \frac{\sqrt{30}}{160} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{9\sqrt{10}}{800} & 0 & \frac{3\sqrt{210}}{800} & 0 & -\frac{3\sqrt{14}}{160} & 0 & -\frac{9\sqrt{70}}{800} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{9\sqrt{70}}{800} & 0 & -\frac{3\sqrt{14}}{160} & 0 & \frac{3\sqrt{210}}{800} & 0 & \frac{9\sqrt{10}}{800} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{160} & 0 & \frac{9\sqrt{70}}{800} & 0 & \frac{\sqrt{42}}{160} & 0 & -\frac{\sqrt{210}}{800} & 0 \\ 0 & -\frac{\sqrt{35}}{560} & 0 & -\frac{3\sqrt{70}}{560} & 0 & -\frac{\sqrt{7}}{112} & \frac{\sqrt{6}}{80} & 0 & -\frac{3\sqrt{14}}{112} & 0 & -\frac{9\sqrt{210}}{560} & 0 & -\frac{\sqrt{42}}{112} & 0 \\ -\frac{\sqrt{35}}{560} & 0 & \frac{\sqrt{14}}{112} & 0 & \frac{3\sqrt{7}}{112} & 0 & 0 & -\frac{23\sqrt{210}}{2800} & 0 & \frac{13\sqrt{42}}{560} & 0 & \frac{27\sqrt{70}}{2800} & 0 & -\frac{\sqrt{30}}{80} \\ 0 & \frac{\sqrt{14}}{112} & 0 & -\frac{\sqrt{7}}{56} & 0 & -\frac{3\sqrt{70}}{560} & \frac{9\sqrt{15}}{200} & 0 & \frac{33\sqrt{35}}{1400} & 0 & -\frac{\sqrt{21}}{280} & 0 & \frac{27\sqrt{105}}{1400} & 0 \\ -\frac{3\sqrt{70}}{560} & 0 & -\frac{\sqrt{7}}{56} & 0 & \frac{\sqrt{14}}{112} & 0 & 0 & -\frac{27\sqrt{105}}{1400} & 0 & \frac{\sqrt{21}}{280} & 0 & -\frac{33\sqrt{35}}{1400} & 0 & -\frac{9\sqrt{15}}{200} \\ 0 & \frac{3\sqrt{7}}{112} & 0 & \frac{\sqrt{14}}{112} & 0 & -\frac{\sqrt{35}}{560} & \frac{\sqrt{30}}{80} & 0 & -\frac{27\sqrt{70}}{2800} & 0 & -\frac{13\sqrt{42}}{560} & 0 & \frac{23\sqrt{210}}{2800} & 0 \\ -\frac{\sqrt{7}}{112} & 0 & -\frac{3\sqrt{70}}{560} & 0 & -\frac{\sqrt{35}}{560} & 0 & 0 & \frac{\sqrt{42}}{112} & 0 & \frac{9\sqrt{210}}{560} & 0 & \frac{3\sqrt{14}}{112} & 0 & -\frac{\sqrt{6}}{80} \end{bmatrix}$$

$$\boxed{\text{x137}} \quad \mathbb{Q}_{5,2}^{(1,-1;a)}(E_u, 2) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}i}{800} & 0 & -\frac{\sqrt{42}i}{160} & 0 & \frac{9\sqrt{70}i}{800} & 0 & -\frac{\sqrt{30}i}{160} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{9\sqrt{10}i}{800} & 0 & \frac{3\sqrt{210}i}{800} & 0 & \frac{3\sqrt{14}i}{160} & 0 & -\frac{9\sqrt{70}i}{800} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{9\sqrt{70}i}{800} & 0 & -\frac{3\sqrt{14}i}{160} & 0 & -\frac{3\sqrt{210}i}{800} & 0 & \frac{9\sqrt{10}i}{800} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{160} & 0 & -\frac{9\sqrt{70}i}{800} & 0 & \frac{\sqrt{42}i}{160} & 0 & \frac{\sqrt{210}i}{800} & 0 \\ 0 & \frac{\sqrt{35}i}{560} & 0 & -\frac{3\sqrt{70}i}{560} & 0 & \frac{\sqrt{7}i}{112} & \frac{\sqrt{6}i}{80} & 0 & \frac{3\sqrt{14}i}{112} & 0 & -\frac{9\sqrt{210}i}{560} & 0 & \frac{\sqrt{42}i}{112} & 0 \\ -\frac{\sqrt{35}i}{560} & 0 & -\frac{\sqrt{14}i}{112} & 0 & \frac{3\sqrt{7}i}{112} & 0 & 0 & -\frac{23\sqrt{210}i}{2800} & 0 & -\frac{13\sqrt{42}i}{560} & 0 & \frac{27\sqrt{70}i}{2800} & 0 & \frac{\sqrt{30}i}{80} \\ 0 & \frac{\sqrt{14}i}{112} & 0 & \frac{\sqrt{7}i}{56} & 0 & -\frac{3\sqrt{70}i}{560} & -\frac{9\sqrt{15}i}{200} & 0 & \frac{33\sqrt{35}i}{1400} & 0 & \frac{\sqrt{21}i}{280} & 0 & \frac{27\sqrt{105}i}{1400} & 0 \\ \frac{3\sqrt{70}i}{560} & 0 & -\frac{\sqrt{7}i}{56} & 0 & -\frac{\sqrt{14}i}{112} & 0 & 0 & \frac{27\sqrt{105}i}{1400} & 0 & \frac{\sqrt{21}i}{280} & 0 & \frac{33\sqrt{35}i}{1400} & 0 & -\frac{9\sqrt{15}i}{200} \\ 0 & -\frac{3\sqrt{7}i}{112} & 0 & \frac{\sqrt{14}i}{112} & 0 & \frac{\sqrt{35}i}{560} & \frac{\sqrt{30}i}{80} & 0 & \frac{27\sqrt{70}i}{2800} & 0 & -\frac{13\sqrt{42}i}{560} & 0 & -\frac{23\sqrt{210}i}{2800} & 0 \\ -\frac{\sqrt{7}i}{112} & 0 & \frac{3\sqrt{70}i}{560} & 0 & -\frac{\sqrt{35}i}{560} & 0 & 0 & \frac{\sqrt{42}i}{112} & 0 & -\frac{9\sqrt{210}i}{560} & 0 & \frac{3\sqrt{14}i}{112} & 0 & \frac{\sqrt{6}i}{80} \end{bmatrix}$$

$$\boxed{\text{x138}} \quad \mathbb{Q}_{5,1}^{(1,-1;a)}(E_u, 3) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}}{400} & 0 & \frac{\sqrt{14}}{80} & 0 & -\frac{\sqrt{210}}{400} & 0 & -\frac{3\sqrt{10}}{80} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}}{400} & 0 & \frac{3\sqrt{70}}{400} & 0 & -\frac{\sqrt{42}}{80} & 0 & \frac{\sqrt{210}}{400} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{210}}{400} & 0 & -\frac{\sqrt{42}}{80} & 0 & \frac{3\sqrt{70}}{400} & 0 & -\frac{\sqrt{30}}{400} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{10}}{80} & 0 & -\frac{\sqrt{210}}{400} & 0 & \frac{\sqrt{14}}{80} & 0 & -\frac{\sqrt{70}}{400} & 0 \\ 0 & -\frac{\sqrt{105}}{840} & 0 & \frac{\sqrt{210}}{840} & 0 & \frac{\sqrt{21}}{56} & \frac{\sqrt{2}}{40} & 0 & -\frac{\sqrt{42}}{56} & 0 & \frac{3\sqrt{70}}{280} & 0 & \frac{3\sqrt{14}}{56} & 0 \\ -\frac{\sqrt{105}}{840} & 0 & \frac{\sqrt{42}}{168} & 0 & -\frac{\sqrt{21}}{168} & 0 & 0 & -\frac{23\sqrt{70}}{1400} & 0 & \frac{13\sqrt{14}}{280} & 0 & -\frac{3\sqrt{210}}{1400} & 0 & \frac{3\sqrt{10}}{40} \\ 0 & \frac{\sqrt{42}}{168} & 0 & -\frac{\sqrt{21}}{84} & 0 & \frac{\sqrt{210}}{840} & -\frac{3\sqrt{5}}{100} & 0 & \frac{11\sqrt{105}}{700} & 0 & -\frac{\sqrt{7}}{140} & 0 & -\frac{9\sqrt{35}}{700} & 0 \\ \frac{\sqrt{210}}{840} & 0 & -\frac{\sqrt{21}}{84} & 0 & \frac{\sqrt{42}}{168} & 0 & 0 & \frac{9\sqrt{35}}{700} & 0 & \frac{\sqrt{7}}{140} & 0 & -\frac{11\sqrt{105}}{700} & 0 & \frac{3\sqrt{5}}{100} \\ 0 & -\frac{\sqrt{21}}{168} & 0 & \frac{\sqrt{42}}{168} & 0 & -\frac{\sqrt{105}}{840} & -\frac{3\sqrt{10}}{40} & 0 & \frac{3\sqrt{210}}{1400} & 0 & -\frac{13\sqrt{14}}{280} & 0 & \frac{23\sqrt{70}}{1400} & 0 \\ \frac{\sqrt{21}}{56} & 0 & \frac{\sqrt{210}}{840} & 0 & -\frac{\sqrt{105}}{840} & 0 & 0 & -\frac{3\sqrt{14}}{56} & 0 & -\frac{3\sqrt{70}}{280} & 0 & \frac{\sqrt{42}}{56} & 0 & -\frac{\sqrt{2}}{40} \end{bmatrix}$$

$$\boxed{\text{x139}} \quad \mathbb{Q}_{5,2}^{(1,-1;a)}(E_u, 3) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}i}{400} & 0 & -\frac{\sqrt{14}i}{80} & 0 & -\frac{\sqrt{210}i}{400} & 0 & \frac{3\sqrt{10}i}{80} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{400} & 0 & \frac{3\sqrt{70}i}{400} & 0 & \frac{\sqrt{42}i}{80} & 0 & \frac{\sqrt{210}i}{400} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}i}{400} & 0 & -\frac{\sqrt{42}i}{80} & 0 & -\frac{3\sqrt{70}i}{400} & 0 & -\frac{\sqrt{30}i}{400} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{10}i}{80} & 0 & \frac{\sqrt{210}i}{400} & 0 & \frac{\sqrt{14}i}{80} & 0 & \frac{\sqrt{70}i}{400} & 0 \\ 0 & \frac{\sqrt{105}i}{840} & 0 & \frac{\sqrt{210}i}{840} & 0 & -\frac{\sqrt{21}i}{56} & \frac{\sqrt{2}i}{40} & 0 & \frac{\sqrt{42}i}{56} & 0 & \frac{3\sqrt{70}i}{280} & 0 & -\frac{3\sqrt{14}i}{56} & 0 \\ -\frac{\sqrt{105}i}{840} & 0 & -\frac{\sqrt{42}i}{168} & 0 & -\frac{\sqrt{21}i}{168} & 0 & 0 & -\frac{23\sqrt{70}i}{1400} & 0 & -\frac{13\sqrt{14}i}{280} & 0 & -\frac{3\sqrt{210}i}{1400} & 0 & -\frac{3\sqrt{10}i}{40} \\ 0 & \frac{\sqrt{42}i}{168} & 0 & \frac{\sqrt{21}i}{84} & 0 & \frac{\sqrt{210}i}{840} & \frac{3\sqrt{5}i}{100} & 0 & \frac{11\sqrt{105}i}{700} & 0 & \frac{\sqrt{7}i}{140} & 0 & -\frac{9\sqrt{35}i}{700} & 0 \\ -\frac{\sqrt{210}i}{840} & 0 & -\frac{\sqrt{21}i}{84} & 0 & -\frac{\sqrt{42}i}{168} & 0 & 0 & -\frac{9\sqrt{35}i}{700} & 0 & \frac{\sqrt{7}i}{140} & 0 & \frac{11\sqrt{105}i}{700} & 0 & \frac{3\sqrt{5}i}{100} \\ 0 & \frac{\sqrt{21}i}{168} & 0 & \frac{\sqrt{42}i}{168} & 0 & \frac{\sqrt{105}i}{840} & -\frac{3\sqrt{10}i}{40} & 0 & -\frac{3\sqrt{210}i}{1400} & 0 & -\frac{13\sqrt{14}i}{280} & 0 & -\frac{23\sqrt{70}i}{1400} & 0 \\ \frac{\sqrt{21}i}{56} & 0 & -\frac{\sqrt{210}i}{840} & 0 & -\frac{\sqrt{105}i}{840} & 0 & 0 & -\frac{3\sqrt{14}i}{56} & 0 & \frac{3\sqrt{70}i}{280} & 0 & \frac{\sqrt{42}i}{56} & 0 & \frac{\sqrt{2}i}{40} \end{bmatrix}$$

$$\boxed{\text{x140}} \quad \mathbb{Q}_5^{(1,0;a)}(A_{1u}) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}i}{50} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{10}i}{50} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{10}i}{50} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}i}{50} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{3\sqrt{35}i}{70} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}i}{140} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{35}i}{70} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}i}{2100} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{150} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{150} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{3\sqrt{35}i}{70} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{210}i}{2100} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{3\sqrt{35}i}{70} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}i}{140} & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x141}} \quad \mathbb{Q}_1^{(1,0;a)}(A_{2u}) = \begin{bmatrix} 0 & -\frac{\sqrt{2}}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{3}}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{3}}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{2}}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{3\sqrt{2}}{14} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{14} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{9\sqrt{2}}{70} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}}{14} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{3\sqrt{2}}{70} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{14} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{3\sqrt{2}}{70} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{14} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{9\sqrt{2}}{70} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}}{14} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{2}}{14} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{14} & 0 \end{bmatrix}$$

$$\boxed{\text{x142}} \quad \mathbb{Q}_3^{(1,0;a)}(A_{2u}) = \begin{bmatrix} 0 & \frac{3\sqrt{7}}{140} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}}{28} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{42}}{140} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}}{28} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{42}}{140} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}}{28} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{3\sqrt{7}}{140} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{70}}{28} & 0 & 0 \\ -\frac{\sqrt{7}}{14} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}}{84} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{7}}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{2\sqrt{7}}{35} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{84} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{2\sqrt{7}}{35} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{84} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{7}}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{14} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}}{84} & 0 \end{bmatrix}$$

$$\boxed{\text{x143}} \quad \mathbb{Q}_5^{(1,0;a)}(A_{2u}, 1) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{10} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}}{10} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{10}}{10} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}}{10} & 0 & 0 \\ \frac{\sqrt{5}}{70} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{420} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{5}}{14} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{2}}{140} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{5}}{7} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{210} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{5}}{7} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{210} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{5}}{14} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{2}}{140} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{70} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{420} & 0 \end{bmatrix}$$

$$\boxed{\text{x144}} \quad \mathbb{Q}_5^{(1,0;a)}(A_{2u}, 2) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{210}}{50} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{10}}{50} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{10}}{50} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}}{50} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{3\sqrt{35}}{70} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}}{140} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{35}}{70} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{210}}{2100} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{150} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{150} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{3\sqrt{35}}{70} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{210}}{2100} & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{3\sqrt{35}}{70} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}}{140} & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x145}} \quad \mathbb{Q}_3^{(1,0;a)}(B_{1u}) = \begin{bmatrix} 0 & 0 & 0 & -\frac{\sqrt{210}i}{280} & 0 & 0 & -\frac{\sqrt{2}i}{8} & 0 & 0 & 0 & \frac{\sqrt{70}i}{56} & 0 & 0 & 0 \\ -\frac{\sqrt{7}i}{56} & 0 & 0 & 0 & -\frac{\sqrt{35}i}{280} & 0 & 0 & \frac{\sqrt{42}i}{56} & 0 & 0 & 0 & \frac{3\sqrt{14}i}{56} & 0 & 0 \\ 0 & \frac{\sqrt{35}i}{280} & 0 & 0 & 0 & \frac{\sqrt{7}i}{56} & 0 & 0 & \frac{3\sqrt{14}i}{56} & 0 & 0 & 0 & \frac{\sqrt{42}i}{56} & 0 \\ 0 & 0 & \frac{\sqrt{210}i}{280} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{70}i}{56} & 0 & 0 & 0 & -\frac{\sqrt{2}i}{8} \\ 0 & 0 & \frac{\sqrt{42}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}i}{84} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{210}i}{140} & 0 & 0 & \frac{\sqrt{2}i}{24} & 0 & 0 & 0 & \frac{\sqrt{70}i}{168} & 0 & 0 & 0 \\ -\frac{\sqrt{42}i}{28} & 0 & 0 & 0 & -\frac{\sqrt{210}i}{140} & 0 & 0 & \frac{\sqrt{7}i}{168} & 0 & 0 & 0 & \frac{\sqrt{21}i}{168} & 0 & 0 \\ 0 & -\frac{\sqrt{210}i}{140} & 0 & 0 & 0 & -\frac{\sqrt{42}i}{28} & 0 & 0 & -\frac{\sqrt{21}i}{168} & 0 & 0 & 0 & -\frac{\sqrt{7}i}{168} & 0 \\ 0 & 0 & \frac{\sqrt{210}i}{140} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}i}{168} & 0 & 0 & 0 & -\frac{\sqrt{2}i}{24} \\ 0 & 0 & 0 & \frac{\sqrt{42}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}i}{84} & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x146}} \quad \mathbb{Q}_5^{(1,0;a)}(B_{1u}) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}i}{100} & 0 & 0 & 0 & \frac{\sqrt{14}i}{20} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{210}i}{100} & 0 & 0 & 0 & -\frac{3\sqrt{70}i}{100} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{70}i}{100} & 0 & 0 & 0 & \frac{\sqrt{210}i}{100} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}i}{20} & 0 & 0 & 0 & -\frac{\sqrt{10}i}{100} \\ 0 & 0 & \frac{\sqrt{210}i}{140} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{70}i}{420} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{42}i}{28} & 0 & 0 & \frac{\sqrt{10}i}{300} & 0 & 0 & 0 & -\frac{\sqrt{14}i}{210} & 0 & 0 & 0 \\ -\frac{\sqrt{210}i}{140} & 0 & 0 & 0 & \frac{\sqrt{42}i}{28} & 0 & 0 & -\frac{2\sqrt{35}i}{525} & 0 & 0 & 0 & -\frac{\sqrt{105}i}{1050} & 0 & 0 \\ 0 & \frac{\sqrt{42}i}{28} & 0 & 0 & 0 & -\frac{\sqrt{210}i}{140} & 0 & 0 & \frac{\sqrt{105}i}{1050} & 0 & 0 & 0 & \frac{2\sqrt{35}i}{525} & 0 \\ 0 & 0 & -\frac{\sqrt{42}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}i}{210} & 0 & 0 & 0 & -\frac{\sqrt{10}i}{300} \\ 0 & 0 & 0 & \frac{\sqrt{210}i}{140} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}i}{420} & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x147}} \quad \mathbb{Q}_3^{(1,0;a)}(B_{2u}) = \begin{bmatrix} 0 & 0 & 0 & \frac{\sqrt{210}}{280} & 0 & 0 & -\frac{\sqrt{2}}{8} & 0 & 0 & 0 & -\frac{\sqrt{70}}{56} & 0 & 0 & 0 \\ -\frac{\sqrt{7}}{56} & 0 & 0 & 0 & \frac{\sqrt{35}}{280} & 0 & 0 & \frac{\sqrt{42}}{56} & 0 & 0 & 0 & -\frac{3\sqrt{14}}{56} & 0 & 0 \\ 0 & \frac{\sqrt{35}}{280} & 0 & 0 & 0 & -\frac{\sqrt{7}}{56} & 0 & 0 & \frac{3\sqrt{14}}{56} & 0 & 0 & 0 & -\frac{\sqrt{42}}{56} & 0 \\ 0 & 0 & \frac{\sqrt{210}}{280} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{70}}{56} & 0 & 0 & 0 & \frac{\sqrt{2}}{8} \\ 0 & 0 & -\frac{\sqrt{42}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}}{84} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{210}}{140} & 0 & 0 & \frac{\sqrt{2}}{24} & 0 & 0 & 0 & -\frac{\sqrt{70}}{168} & 0 & 0 & 0 \\ -\frac{\sqrt{42}}{28} & 0 & 0 & 0 & \frac{\sqrt{210}}{140} & 0 & 0 & \frac{\sqrt{7}}{168} & 0 & 0 & 0 & -\frac{\sqrt{21}}{168} & 0 & 0 \\ 0 & -\frac{\sqrt{210}}{140} & 0 & 0 & 0 & \frac{\sqrt{42}}{28} & 0 & 0 & -\frac{\sqrt{21}}{168} & 0 & 0 & 0 & \frac{\sqrt{7}}{168} & 0 \\ 0 & 0 & \frac{\sqrt{210}}{140} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}}{168} & 0 & 0 & 0 & \frac{\sqrt{2}}{24} \\ 0 & 0 & 0 & \frac{\sqrt{42}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}}{84} & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x148}} \quad \mathbb{Q}_5^{(1,0;a)}(B_{2u}) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{10}}{100} & 0 & 0 & 0 & \frac{\sqrt{14}}{20} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}}{100} & 0 & 0 & 0 & -\frac{3\sqrt{70}}{100} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{70}}{100} & 0 & 0 & 0 & \frac{\sqrt{210}}{100} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}}{20} & 0 & 0 & 0 & -\frac{\sqrt{10}}{100} \\ 0 & 0 & \frac{\sqrt{210}}{140} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{70}}{420} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{42}}{28} & 0 & 0 & -\frac{\sqrt{10}}{300} & 0 & 0 & 0 & -\frac{\sqrt{14}}{210} & 0 & 0 & 0 \\ \frac{\sqrt{210}}{140} & 0 & 0 & 0 & \frac{\sqrt{42}}{28} & 0 & 0 & \frac{2\sqrt{35}}{525} & 0 & 0 & 0 & -\frac{\sqrt{105}}{1050} & 0 & 0 \\ 0 & -\frac{\sqrt{42}}{28} & 0 & 0 & 0 & -\frac{\sqrt{210}}{140} & 0 & 0 & -\frac{\sqrt{105}}{1050} & 0 & 0 & 0 & \frac{2\sqrt{35}}{525} & 0 \\ 0 & 0 & \frac{\sqrt{42}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}}{210} & 0 & 0 & 0 & -\frac{\sqrt{10}}{300} \\ 0 & 0 & 0 & -\frac{\sqrt{210}}{140} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{70}}{420} & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x149}} \quad \mathbb{Q}_{1,1}^{(1,0;a)}(E_u) = \begin{bmatrix} \frac{\sqrt{10}}{20} & 0 & -\frac{1}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{6}}{20} & 0 & -\frac{\sqrt{3}}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{3}}{20} & 0 & -\frac{\sqrt{6}}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{1}{20} & 0 & -\frac{\sqrt{10}}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{3\sqrt{10}}{70} & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}}{28} & 0 & \frac{1}{28} & 0 & 0 & 0 & 0 & 0 \\ \frac{3\sqrt{10}}{70} & 0 & \frac{6}{35} & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{28} & 0 & \frac{\sqrt{3}}{28} & 0 & 0 & 0 & 0 \\ 0 & \frac{6}{35} & 0 & \frac{9\sqrt{2}}{70} & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}}{28} & 0 & \frac{\sqrt{6}}{28} & 0 & 0 & 0 \\ 0 & 0 & \frac{9\sqrt{2}}{70} & 0 & \frac{6}{35} & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{28} & 0 & \frac{\sqrt{10}}{28} & 0 & 0 \\ 0 & 0 & 0 & \frac{6}{35} & 0 & \frac{3\sqrt{10}}{70} & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{28} & 0 & \frac{\sqrt{15}}{28} & 0 \\ 0 & 0 & 0 & 0 & \frac{3\sqrt{10}}{70} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{1}{28} & 0 & \frac{\sqrt{21}}{28} \end{bmatrix}$$

$$\boxed{\text{x150}} \quad \mathbb{Q}_{1,2}^{(1,0;a)}(E_u) = \begin{bmatrix} \frac{\sqrt{10}i}{20} & 0 & \frac{i}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{6}i}{20} & 0 & \frac{\sqrt{3}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{3}i}{20} & 0 & \frac{\sqrt{6}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{i}{20} & 0 & \frac{\sqrt{10}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{3\sqrt{10}i}{70} & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}i}{28} & 0 & -\frac{i}{28} & 0 & 0 & 0 & 0 & 0 \\ \frac{3\sqrt{10}i}{70} & 0 & -\frac{6i}{35} & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{28} & 0 & -\frac{\sqrt{3}i}{28} & 0 & 0 & 0 & 0 \\ 0 & \frac{6i}{35} & 0 & -\frac{9\sqrt{2}i}{70} & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}i}{28} & 0 & -\frac{\sqrt{6}i}{28} & 0 & 0 & 0 \\ 0 & 0 & \frac{9\sqrt{2}i}{70} & 0 & -\frac{6i}{35} & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}i}{28} & 0 & -\frac{\sqrt{10}i}{28} & 0 & 0 \\ 0 & 0 & 0 & \frac{6i}{35} & 0 & -\frac{3\sqrt{10}i}{70} & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{28} & 0 & -\frac{\sqrt{15}i}{28} & 0 \\ 0 & 0 & 0 & 0 & \frac{3\sqrt{10}i}{70} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{i}{28} & 0 & -\frac{\sqrt{21}i}{28} \end{bmatrix}$$

$$\boxed{\text{x151}} \quad \mathbb{Q}_{3,1}^{(1,0;a)}(E_u, 1) = \begin{bmatrix} \frac{3\sqrt{35}}{1120} & 0 & -\frac{9\sqrt{14}}{1120} & 0 & \frac{3\sqrt{7}}{224} & 0 & 0 & -\frac{\sqrt{210}}{112} & 0 & \frac{\sqrt{42}}{56} & 0 & -\frac{\sqrt{70}}{112} & 0 & 0 \\ 0 & -\frac{\sqrt{21}}{160} & 0 & \frac{\sqrt{42}}{1120} & 0 & \frac{\sqrt{105}}{224} & -\frac{\sqrt{10}}{16} & 0 & 0 & 0 & \frac{3\sqrt{14}}{112} & 0 & -\frac{\sqrt{70}}{56} & 0 \\ -\frac{\sqrt{105}}{224} & 0 & -\frac{\sqrt{42}}{1120} & 0 & \frac{\sqrt{21}}{160} & 0 & 0 & -\frac{\sqrt{70}}{56} & 0 & \frac{3\sqrt{14}}{112} & 0 & 0 & 0 & -\frac{\sqrt{10}}{16} \\ 0 & -\frac{3\sqrt{7}}{224} & 0 & \frac{9\sqrt{14}}{1120} & 0 & -\frac{3\sqrt{35}}{1120} & 0 & 0 & -\frac{\sqrt{70}}{112} & 0 & \frac{\sqrt{42}}{56} & 0 & -\frac{\sqrt{210}}{112} & 0 \\ 0 & \frac{3\sqrt{35}}{140} & 0 & -\frac{\sqrt{70}}{56} & 0 & 0 & -\frac{\sqrt{6}}{96} & 0 & \frac{\sqrt{14}}{112} & 0 & -\frac{\sqrt{210}}{672} & 0 & 0 & 0 \\ \frac{3\sqrt{35}}{140} & 0 & -\frac{3\sqrt{14}}{280} & 0 & -\frac{\sqrt{7}}{14} & 0 & 0 & \frac{\sqrt{210}}{672} & 0 & \frac{\sqrt{42}}{336} & 0 & -\frac{\sqrt{70}}{224} & 0 & 0 \\ 0 & -\frac{3\sqrt{14}}{280} & 0 & -\frac{3\sqrt{7}}{70} & 0 & -\frac{\sqrt{70}}{56} & \frac{\sqrt{15}}{96} & 0 & \frac{\sqrt{35}}{224} & 0 & -\frac{\sqrt{21}}{672} & 0 & -\frac{\sqrt{105}}{224} & 0 \\ -\frac{\sqrt{70}}{56} & 0 & -\frac{3\sqrt{7}}{70} & 0 & -\frac{3\sqrt{14}}{280} & 0 & 0 & \frac{\sqrt{105}}{224} & 0 & \frac{\sqrt{21}}{672} & 0 & -\frac{\sqrt{35}}{224} & 0 & -\frac{\sqrt{15}}{96} \\ 0 & -\frac{\sqrt{7}}{14} & 0 & -\frac{3\sqrt{14}}{280} & 0 & \frac{3\sqrt{35}}{140} & 0 & 0 & \frac{\sqrt{70}}{224} & 0 & -\frac{\sqrt{42}}{336} & 0 & -\frac{\sqrt{210}}{672} & 0 \\ 0 & 0 & -\frac{\sqrt{70}}{56} & 0 & \frac{3\sqrt{35}}{140} & 0 & 0 & 0 & 0 & \frac{\sqrt{210}}{672} & 0 & -\frac{\sqrt{14}}{112} & 0 & \frac{\sqrt{6}}{96} \end{bmatrix}$$

$$\boxed{\text{x152}} \quad \mathbb{Q}_{3,2}^{(1,0;a)}(E_u, 1) = \begin{bmatrix} \frac{3\sqrt{35}i}{1120} & 0 & \frac{9\sqrt{14}i}{1120} & 0 & \frac{3\sqrt{7}i}{224} & 0 & 0 & -\frac{\sqrt{210}i}{112} & 0 & -\frac{\sqrt{42}i}{56} & 0 & -\frac{\sqrt{70}i}{112} & 0 & 0 \\ 0 & -\frac{\sqrt{21}i}{160} & 0 & -\frac{\sqrt{42}i}{1120} & 0 & \frac{\sqrt{105}i}{224} & \frac{\sqrt{10}i}{16} & 0 & 0 & 0 & -\frac{3\sqrt{14}i}{112} & 0 & -\frac{\sqrt{70}i}{56} & 0 \\ \frac{\sqrt{105}i}{224} & 0 & -\frac{\sqrt{42}i}{1120} & 0 & -\frac{\sqrt{21}i}{160} & 0 & 0 & \frac{\sqrt{70}i}{56} & 0 & \frac{3\sqrt{14}i}{112} & 0 & 0 & 0 & -\frac{\sqrt{10}i}{16} \\ 0 & \frac{3\sqrt{7}i}{224} & 0 & \frac{9\sqrt{14}i}{1120} & 0 & \frac{3\sqrt{35}i}{1120} & 0 & 0 & \frac{\sqrt{70}i}{112} & 0 & \frac{\sqrt{42}i}{56} & 0 & \frac{\sqrt{210}i}{112} & 0 \\ 0 & -\frac{3\sqrt{35}i}{140} & 0 & -\frac{\sqrt{70}i}{56} & 0 & 0 & -\frac{\sqrt{6}i}{96} & 0 & -\frac{\sqrt{14}i}{112} & 0 & -\frac{\sqrt{210}i}{672} & 0 & 0 & 0 \\ \frac{3\sqrt{35}i}{140} & 0 & \frac{3\sqrt{14}i}{280} & 0 & -\frac{\sqrt{7}i}{14} & 0 & 0 & \frac{\sqrt{210}i}{672} & 0 & -\frac{\sqrt{42}i}{336} & 0 & -\frac{\sqrt{70}i}{224} & 0 & 0 \\ 0 & -\frac{3\sqrt{14}i}{280} & 0 & \frac{3\sqrt{7}i}{70} & 0 & -\frac{\sqrt{70}i}{56} & -\frac{\sqrt{15}i}{96} & 0 & \frac{\sqrt{35}i}{224} & 0 & \frac{\sqrt{21}i}{672} & 0 & -\frac{\sqrt{105}i}{224} & 0 \\ \frac{\sqrt{70}i}{56} & 0 & -\frac{3\sqrt{7}i}{70} & 0 & \frac{3\sqrt{14}i}{280} & 0 & 0 & -\frac{\sqrt{105}i}{224} & 0 & \frac{\sqrt{21}i}{672} & 0 & \frac{\sqrt{35}i}{224} & 0 & -\frac{\sqrt{15}i}{96} \\ 0 & \frac{\sqrt{7}i}{14} & 0 & -\frac{3\sqrt{14}i}{280} & 0 & -\frac{3\sqrt{35}i}{140} & 0 & 0 & -\frac{\sqrt{70}i}{224} & 0 & -\frac{\sqrt{42}i}{336} & 0 & \frac{\sqrt{210}i}{672} & 0 \\ 0 & 0 & \frac{\sqrt{70}i}{56} & 0 & \frac{3\sqrt{35}i}{140} & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}i}{672} & 0 & -\frac{\sqrt{14}i}{112} & 0 & -\frac{\sqrt{6}i}{96} \end{bmatrix}$$

$$\boxed{\text{x153}} \quad \mathbb{Q}_{3,1}^{(1,0;a)}(E_u, 2) = \begin{bmatrix} \frac{\sqrt{21}}{224} & 0 & -\frac{3\sqrt{210}}{1120} & 0 & -\frac{3\sqrt{105}}{1120} & 0 & 0 & -\frac{5\sqrt{14}}{112} & 0 & \frac{\sqrt{70}}{56} & 0 & \frac{\sqrt{42}}{112} & 0 & 0 \\ 0 & -\frac{\sqrt{35}}{160} & 0 & \frac{\sqrt{70}}{1120} & 0 & -\frac{3\sqrt{7}}{224} & \frac{\sqrt{6}}{16} & 0 & 0 & 0 & \frac{\sqrt{210}}{112} & 0 & \frac{\sqrt{42}}{56} & 0 \\ \frac{3\sqrt{7}}{224} & 0 & -\frac{\sqrt{70}}{1120} & 0 & \frac{\sqrt{35}}{160} & 0 & 0 & \frac{\sqrt{42}}{56} & 0 & \frac{\sqrt{210}}{112} & 0 & 0 & 0 & \frac{\sqrt{6}}{16} \\ 0 & \frac{3\sqrt{105}}{1120} & 0 & \frac{3\sqrt{210}}{1120} & 0 & -\frac{\sqrt{21}}{224} & 0 & 0 & \frac{\sqrt{42}}{112} & 0 & \frac{\sqrt{70}}{56} & 0 & -\frac{5\sqrt{14}}{112} & 0 \\ 0 & \frac{\sqrt{21}}{28} & 0 & \frac{\sqrt{42}}{56} & 0 & 0 & -\frac{\sqrt{10}}{96} & 0 & \frac{\sqrt{210}}{336} & 0 & \frac{\sqrt{14}}{224} & 0 & 0 & 0 \\ \frac{\sqrt{21}}{28} & 0 & -\frac{\sqrt{210}}{280} & 0 & \frac{\sqrt{105}}{70} & 0 & 0 & \frac{5\sqrt{14}}{672} & 0 & \frac{\sqrt{70}}{336} & 0 & \frac{\sqrt{42}}{224} & 0 & 0 \\ 0 & -\frac{\sqrt{210}}{280} & 0 & -\frac{\sqrt{105}}{70} & 0 & \frac{\sqrt{42}}{56} & -\frac{1}{32} & 0 & \frac{5\sqrt{21}}{672} & 0 & -\frac{\sqrt{35}}{672} & 0 & \frac{3\sqrt{7}}{224} & 0 \\ \frac{\sqrt{42}}{56} & 0 & -\frac{\sqrt{105}}{70} & 0 & -\frac{\sqrt{210}}{280} & 0 & 0 & -\frac{3\sqrt{7}}{224} & 0 & \frac{\sqrt{35}}{672} & 0 & -\frac{5\sqrt{21}}{672} & 0 & \frac{1}{32} \\ 0 & \frac{\sqrt{105}}{70} & 0 & -\frac{\sqrt{210}}{280} & 0 & \frac{\sqrt{21}}{28} & 0 & 0 & -\frac{\sqrt{42}}{224} & 0 & -\frac{\sqrt{70}}{336} & 0 & -\frac{5\sqrt{14}}{672} & 0 \\ 0 & 0 & \frac{\sqrt{42}}{56} & 0 & \frac{\sqrt{21}}{28} & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}}{224} & 0 & -\frac{\sqrt{210}}{336} & 0 & \frac{\sqrt{10}}{96} \end{bmatrix}$$



$$\boxed{\text{x154}} \quad \mathbb{Q}_{3,2}^{(1,0;a)}(E_u, 2) = \begin{bmatrix} \frac{\sqrt{21}i}{224} & 0 & \frac{3\sqrt{210}i}{1120} & 0 & -\frac{3\sqrt{105}i}{1120} & 0 & 0 & -\frac{5\sqrt{14}i}{112} & 0 & -\frac{\sqrt{70}i}{56} & 0 & \frac{\sqrt{42}i}{112} & 0 & 0 \\ 0 & -\frac{\sqrt{35}i}{160} & 0 & -\frac{\sqrt{70}i}{1120} & 0 & -\frac{3\sqrt{7}i}{224} & -\frac{\sqrt{6}i}{16} & 0 & 0 & 0 & -\frac{\sqrt{210}i}{112} & 0 & \frac{\sqrt{42}i}{56} & 0 \\ -\frac{3\sqrt{7}i}{224} & 0 & -\frac{\sqrt{70}i}{1120} & 0 & -\frac{\sqrt{35}i}{160} & 0 & 0 & -\frac{\sqrt{42}i}{56} & 0 & \frac{\sqrt{210}i}{112} & 0 & 0 & 0 & \frac{\sqrt{6}i}{16} \\ 0 & -\frac{3\sqrt{105}i}{1120} & 0 & \frac{3\sqrt{210}i}{1120} & 0 & \frac{\sqrt{21}i}{224} & 0 & 0 & -\frac{\sqrt{42}i}{112} & 0 & \frac{\sqrt{70}i}{56} & 0 & \frac{5\sqrt{14}i}{112} & 0 \\ 0 & -\frac{\sqrt{21}i}{28} & 0 & \frac{\sqrt{42}i}{56} & 0 & 0 & -\frac{\sqrt{10}i}{96} & 0 & -\frac{\sqrt{210}i}{224} & 0 & \frac{\sqrt{14}i}{224} & 0 & 0 & 0 \\ \frac{\sqrt{21}i}{28} & 0 & \frac{\sqrt{210}i}{280} & 0 & \frac{\sqrt{105}i}{70} & 0 & 0 & \frac{5\sqrt{14}i}{672} & 0 & -\frac{\sqrt{70}i}{336} & 0 & \frac{\sqrt{42}i}{224} & 0 & 0 \\ 0 & -\frac{\sqrt{210}i}{280} & 0 & \frac{\sqrt{105}i}{70} & 0 & \frac{\sqrt{42}i}{56} & \frac{i}{32} & 0 & \frac{5\sqrt{21}i}{672} & 0 & \frac{\sqrt{35}i}{672} & 0 & \frac{3\sqrt{7}i}{224} & 0 \\ -\frac{\sqrt{42}i}{56} & 0 & -\frac{\sqrt{105}i}{70} & 0 & \frac{\sqrt{210}i}{280} & 0 & 0 & \frac{3\sqrt{7}i}{224} & 0 & \frac{\sqrt{35}i}{672} & 0 & \frac{5\sqrt{21}i}{672} & 0 & \frac{i}{32} \\ 0 & -\frac{\sqrt{105}i}{70} & 0 & -\frac{\sqrt{210}i}{280} & 0 & -\frac{\sqrt{21}i}{28} & 0 & 0 & \frac{\sqrt{42}i}{224} & 0 & -\frac{\sqrt{70}i}{336} & 0 & \frac{5\sqrt{14}i}{672} & 0 \\ 0 & 0 & -\frac{\sqrt{42}i}{56} & 0 & \frac{\sqrt{21}i}{28} & 0 & 0 & 0 & 0 & \frac{\sqrt{14}i}{224} & 0 & -\frac{\sqrt{210}i}{336} & 0 & -\frac{\sqrt{10}i}{96} \end{bmatrix}$$

$$\boxed{\text{x155}} \quad \mathbb{Q}_{5,1}^{(1,0;a)}(E_u, 1) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{80} & 0 & \frac{\sqrt{30}}{80} & 0 & -\frac{7\sqrt{2}}{80} & 0 & \frac{3\sqrt{42}}{80} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}}{80} & 0 & \frac{3\sqrt{6}}{80} & 0 & -\frac{3\sqrt{10}}{80} & 0 & \frac{7\sqrt{2}}{80} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{7\sqrt{2}}{80} & 0 & -\frac{3\sqrt{10}}{80} & 0 & \frac{3\sqrt{6}}{80} & 0 & -\frac{\sqrt{14}}{80} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{42}}{80} & 0 & -\frac{7\sqrt{2}}{80} & 0 & \frac{\sqrt{30}}{80} & 0 & -\frac{\sqrt{6}}{80} & 0 \\ 0 & \frac{3}{112} & 0 & -\frac{\sqrt{2}}{16} & 0 & \frac{9\sqrt{5}}{80} & -\frac{\sqrt{210}}{6720} & 0 & \frac{\sqrt{10}}{448} & 0 & -\frac{\sqrt{6}}{192} & 0 & \frac{\sqrt{30}}{320} & 0 \\ \frac{3}{112} & 0 & -\frac{3\sqrt{10}}{112} & 0 & \frac{\sqrt{5}}{16} & 0 & 0 & \frac{23\sqrt{6}}{6720} & 0 & -\frac{13\sqrt{30}}{6720} & 0 & \frac{\sqrt{2}}{320} & 0 & \frac{\sqrt{42}}{320} \\ 0 & -\frac{3\sqrt{10}}{112} & 0 & \frac{3\sqrt{5}}{56} & 0 & -\frac{\sqrt{2}}{16} & \frac{\sqrt{21}}{480} & 0 & -\frac{11}{1120} & 0 & \frac{\sqrt{15}}{3360} & 0 & \frac{\sqrt{3}}{160} & 0 \\ -\frac{\sqrt{2}}{16} & 0 & \frac{3\sqrt{5}}{56} & 0 & -\frac{3\sqrt{10}}{112} & 0 & 0 & -\frac{\sqrt{3}}{160} & 0 & -\frac{\sqrt{15}}{3360} & 0 & \frac{11}{1120} & 0 & -\frac{\sqrt{21}}{480} \\ 0 & \frac{\sqrt{5}}{16} & 0 & -\frac{3\sqrt{10}}{112} & 0 & \frac{3}{112} & -\frac{\sqrt{42}}{320} & 0 & -\frac{\sqrt{2}}{320} & 0 & \frac{13\sqrt{30}}{6720} & 0 & -\frac{23\sqrt{6}}{6720} & 0 \\ \frac{9\sqrt{5}}{80} & 0 & -\frac{\sqrt{2}}{16} & 0 & \frac{3}{112} & 0 & 0 & -\frac{\sqrt{30}}{320} & 0 & \frac{\sqrt{6}}{192} & 0 & -\frac{\sqrt{10}}{448} & 0 & \frac{\sqrt{210}}{6720} \end{bmatrix}$$

$$\boxed{\text{x156}} \quad \mathbb{Q}_{5,2}^{(1,0;a)}(E_u, 1) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}i}{80} & 0 & -\frac{\sqrt{30}i}{80} & 0 & -\frac{7\sqrt{2}i}{80} & 0 & -\frac{3\sqrt{42}i}{80} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}i}{80} & 0 & \frac{3\sqrt{6}i}{80} & 0 & \frac{3\sqrt{10}i}{80} & 0 & \frac{7\sqrt{2}i}{80} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{7\sqrt{2}i}{80} & 0 & -\frac{3\sqrt{10}i}{80} & 0 & -\frac{3\sqrt{6}i}{80} & 0 & -\frac{\sqrt{14}i}{80} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{42}i}{80} & 0 & \frac{7\sqrt{2}i}{80} & 0 & \frac{\sqrt{30}i}{80} & 0 & \frac{\sqrt{6}i}{80} & 0 \\ 0 & -\frac{3i}{112} & 0 & -\frac{\sqrt{2}i}{16} & 0 & -\frac{9\sqrt{5}i}{80} & -\frac{\sqrt{210}i}{6720} & 0 & -\frac{\sqrt{10}i}{448} & 0 & -\frac{\sqrt{6}i}{192} & 0 & -\frac{\sqrt{30}i}{320} & 0 \\ \frac{3i}{112} & 0 & \frac{3\sqrt{10}i}{112} & 0 & \frac{\sqrt{5}i}{16} & 0 & 0 & \frac{23\sqrt{6}i}{6720} & 0 & \frac{13\sqrt{30}i}{6720} & 0 & \frac{\sqrt{2}i}{320} & 0 & -\frac{\sqrt{42}i}{320} \\ 0 & -\frac{3\sqrt{10}i}{112} & 0 & -\frac{3\sqrt{5}i}{56} & 0 & -\frac{\sqrt{2}i}{16} & -\frac{\sqrt{21}i}{480} & 0 & -\frac{11i}{1120} & 0 & -\frac{\sqrt{15}i}{3360} & 0 & \frac{\sqrt{3}i}{160} & 0 \\ \frac{\sqrt{2}i}{16} & 0 & \frac{3\sqrt{5}i}{56} & 0 & \frac{3\sqrt{10}i}{112} & 0 & 0 & \frac{\sqrt{3}i}{160} & 0 & -\frac{\sqrt{15}i}{3360} & 0 & -\frac{11i}{1120} & 0 & -\frac{\sqrt{21}i}{480} \\ 0 & -\frac{\sqrt{5}i}{16} & 0 & -\frac{3\sqrt{10}i}{112} & 0 & -\frac{3i}{112} & -\frac{\sqrt{42}i}{320} & 0 & \frac{\sqrt{2}i}{320} & 0 & \frac{13\sqrt{30}i}{6720} & 0 & \frac{23\sqrt{6}i}{6720} & 0 \\ \frac{9\sqrt{5}i}{80} & 0 & \frac{\sqrt{2}i}{16} & 0 & \frac{3i}{112} & 0 & 0 & -\frac{\sqrt{30}i}{320} & 0 & -\frac{\sqrt{6}i}{192} & 0 & -\frac{\sqrt{10}i}{448} & 0 & -\frac{\sqrt{210}i}{6720} \end{bmatrix}$$

$$\begin{aligned}
\boxed{\text{x157}} \quad \mathbb{Q}_{5,1}^{(1,0;a)}(E_u, 2) &= \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}}{400} & 0 & \frac{\sqrt{42}}{80} & 0 & \frac{9\sqrt{70}}{400} & 0 & \frac{\sqrt{30}}{80} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{9\sqrt{10}}{400} & 0 & \frac{3\sqrt{210}}{400} & 0 & -\frac{3\sqrt{14}}{80} & 0 & -\frac{9\sqrt{70}}{400} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{9\sqrt{70}}{400} & 0 & -\frac{3\sqrt{14}}{80} & 0 & \frac{3\sqrt{210}}{400} & 0 & \frac{9\sqrt{10}}{400} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{80} & 0 & \frac{9\sqrt{70}}{400} & 0 & \frac{\sqrt{42}}{80} & 0 & -\frac{\sqrt{210}}{400} & 0 \\ 0 & \frac{3\sqrt{35}}{560} & 0 & \frac{9\sqrt{70}}{560} & 0 & \frac{3\sqrt{7}}{112} & -\frac{\sqrt{6}}{960} & 0 & \frac{\sqrt{14}}{448} & 0 & \frac{3\sqrt{210}}{2240} & 0 & \frac{\sqrt{42}}{1344} & 0 \\ \frac{3\sqrt{35}}{560} & 0 & -\frac{3\sqrt{14}}{112} & 0 & -\frac{9\sqrt{7}}{112} & 0 & 0 & \frac{23\sqrt{210}}{33600} & 0 & -\frac{13\sqrt{42}}{6720} & 0 & -\frac{9\sqrt{70}}{11200} & 0 & \frac{\sqrt{30}}{960} \\ 0 & -\frac{3\sqrt{14}}{112} & 0 & \frac{3\sqrt{7}}{56} & 0 & \frac{9\sqrt{70}}{560} & -\frac{3\sqrt{15}}{800} & 0 & -\frac{11\sqrt{35}}{5600} & 0 & \frac{\sqrt{21}}{3360} & 0 & -\frac{9\sqrt{105}}{5600} & 0 \\ \frac{9\sqrt{70}}{560} & 0 & \frac{3\sqrt{7}}{56} & 0 & -\frac{3\sqrt{14}}{112} & 0 & 0 & \frac{9\sqrt{105}}{5600} & 0 & -\frac{\sqrt{21}}{3360} & 0 & \frac{11\sqrt{35}}{5600} & 0 & \frac{3\sqrt{15}}{800} \\ 0 & -\frac{9\sqrt{7}}{112} & 0 & -\frac{3\sqrt{14}}{112} & 0 & \frac{3\sqrt{35}}{560} & -\frac{\sqrt{30}}{960} & 0 & \frac{9\sqrt{70}}{11200} & 0 & \frac{13\sqrt{42}}{6720} & 0 & -\frac{23\sqrt{210}}{33600} & 0 \\ \frac{3\sqrt{7}}{112} & 0 & \frac{9\sqrt{70}}{560} & 0 & \frac{3\sqrt{35}}{560} & 0 & 0 & -\frac{\sqrt{42}}{1344} & 0 & -\frac{3\sqrt{210}}{2240} & 0 & -\frac{\sqrt{14}}{448} & 0 & \frac{\sqrt{6}}{960} \end{bmatrix} \\
\boxed{\text{x158}} \quad \mathbb{Q}_{5,2}^{(1,0;a)}(E_u, 2) &= \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}i}{400} & 0 & -\frac{\sqrt{42}i}{80} & 0 & \frac{9\sqrt{70}i}{400} & 0 & -\frac{\sqrt{30}i}{80} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{9\sqrt{10}i}{400} & 0 & \frac{3\sqrt{210}i}{400} & 0 & \frac{3\sqrt{14}i}{80} & 0 & -\frac{9\sqrt{70}i}{400} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{9\sqrt{70}i}{400} & 0 & -\frac{3\sqrt{14}i}{80} & 0 & -\frac{3\sqrt{210}i}{400} & 0 & \frac{9\sqrt{10}i}{400} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{80} & 0 & -\frac{9\sqrt{70}i}{400} & 0 & \frac{\sqrt{42}i}{80} & 0 & \frac{\sqrt{210}i}{400} & 0 \\ 0 & -\frac{3\sqrt{35}i}{560} & 0 & \frac{9\sqrt{70}i}{560} & 0 & -\frac{3\sqrt{7}i}{112} & -\frac{\sqrt{6}i}{960} & 0 & -\frac{\sqrt{14}i}{448} & 0 & \frac{3\sqrt{210}i}{2240} & 0 & -\frac{\sqrt{42}i}{1344} & 0 \\ \frac{3\sqrt{35}i}{560} & 0 & \frac{3\sqrt{14}i}{112} & 0 & -\frac{9\sqrt{7}i}{112} & 0 & 0 & \frac{23\sqrt{210}i}{33600} & 0 & \frac{13\sqrt{42}i}{6720} & 0 & -\frac{9\sqrt{70}i}{11200} & 0 & -\frac{\sqrt{30}i}{960} \\ 0 & -\frac{3\sqrt{14}i}{112} & 0 & -\frac{3\sqrt{7}i}{56} & 0 & \frac{9\sqrt{70}i}{560} & \frac{3\sqrt{15}i}{800} & 0 & -\frac{11\sqrt{35}i}{5600} & 0 & -\frac{\sqrt{21}i}{3360} & 0 & -\frac{9\sqrt{105}i}{5600} & 0 \\ -\frac{9\sqrt{70}i}{560} & 0 & \frac{3\sqrt{7}i}{56} & 0 & \frac{3\sqrt{14}i}{112} & 0 & 0 & -\frac{9\sqrt{105}i}{5600} & 0 & -\frac{\sqrt{21}i}{3360} & 0 & -\frac{11\sqrt{35}i}{5600} & 0 & \frac{3\sqrt{15}i}{800} \\ 0 & \frac{9\sqrt{7}i}{112} & 0 & -\frac{3\sqrt{14}i}{112} & 0 & -\frac{3\sqrt{35}i}{560} & -\frac{\sqrt{30}i}{960} & 0 & -\frac{9\sqrt{70}i}{11200} & 0 & \frac{13\sqrt{42}i}{6720} & 0 & \frac{23\sqrt{210}i}{33600} & 0 \\ \frac{3\sqrt{7}i}{112} & 0 & -\frac{9\sqrt{70}i}{560} & 0 & \frac{3\sqrt{35}i}{560} & 0 & 0 & -\frac{\sqrt{42}i}{1344} & 0 & \frac{3\sqrt{210}i}{2240} & 0 & -\frac{\sqrt{14}i}{448} & 0 & -\frac{\sqrt{6}i}{960} \end{bmatrix} \\
\boxed{\text{x159}} \quad \mathbb{Q}_{5,1}^{(1,0;a)}(E_u, 3) &= \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}}{200} & 0 & \frac{\sqrt{14}}{40} & 0 & -\frac{\sqrt{210}}{200} & 0 & -\frac{3\sqrt{10}}{40} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}}{200} & 0 & \frac{3\sqrt{70}}{200} & 0 & -\frac{\sqrt{42}}{40} & 0 & \frac{\sqrt{210}}{200} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{210}}{200} & 0 & -\frac{\sqrt{42}}{40} & 0 & \frac{3\sqrt{70}}{200} & 0 & -\frac{\sqrt{30}}{200} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{10}}{40} & 0 & -\frac{\sqrt{210}}{200} & 0 & \frac{\sqrt{14}}{40} & 0 & -\frac{\sqrt{70}}{200} & 0 \\ 0 & \frac{\sqrt{105}}{280} & 0 & -\frac{\sqrt{210}}{280} & 0 & -\frac{3\sqrt{21}}{56} & -\frac{\sqrt{2}}{480} & 0 & \frac{\sqrt{42}}{672} & 0 & -\frac{\sqrt{70}}{1120} & 0 & -\frac{\sqrt{14}}{224} & 0 \\ \frac{\sqrt{105}}{280} & 0 & -\frac{\sqrt{42}}{56} & 0 & \frac{\sqrt{21}}{56} & 0 & 0 & \frac{23\sqrt{70}}{16800} & 0 & -\frac{13\sqrt{14}}{3360} & 0 & \frac{\sqrt{210}}{5600} & 0 & -\frac{\sqrt{10}}{160} \\ 0 & -\frac{\sqrt{42}}{56} & 0 & \frac{\sqrt{21}}{28} & 0 & -\frac{\sqrt{210}}{280} & \frac{\sqrt{5}}{400} & 0 & -\frac{11\sqrt{105}}{8400} & 0 & \frac{\sqrt{7}}{1680} & 0 & \frac{3\sqrt{35}}{2800} & 0 \\ -\frac{\sqrt{210}}{280} & 0 & \frac{\sqrt{21}}{28} & 0 & -\frac{\sqrt{42}}{56} & 0 & 0 & -\frac{3\sqrt{35}}{2800} & 0 & -\frac{\sqrt{7}}{1680} & 0 & \frac{11\sqrt{105}}{8400} & 0 & -\frac{\sqrt{5}}{400} \\ 0 & \frac{\sqrt{21}}{56} & 0 & -\frac{\sqrt{42}}{56} & 0 & \frac{\sqrt{105}}{280} & \frac{\sqrt{10}}{160} & 0 & -\frac{\sqrt{210}}{5600} & 0 & \frac{13\sqrt{14}}{3360} & 0 & -\frac{23\sqrt{70}}{16800} & 0 \\ -\frac{3\sqrt{21}}{56} & 0 & -\frac{\sqrt{210}}{280} & 0 & \frac{\sqrt{105}}{280} & 0 & 0 & \frac{\sqrt{14}}{224} & 0 & \frac{\sqrt{70}}{1120} & 0 & -\frac{\sqrt{42}}{672} & 0 & \frac{\sqrt{2}}{480} \end{bmatrix}
\end{aligned}$$

$$\boxed{\text{x160}} \quad \mathbb{Q}_{5,2}^{(1,0;a)}(E_u, 3) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}i}{200} & 0 & -\frac{\sqrt{14}i}{40} & 0 & -\frac{\sqrt{210}i}{200} & 0 & \frac{3\sqrt{10}i}{40} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{200} & 0 & \frac{3\sqrt{70}i}{200} & 0 & \frac{\sqrt{42}i}{40} & 0 & \frac{\sqrt{210}i}{200} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}i}{200} & 0 & -\frac{\sqrt{42}i}{40} & 0 & -\frac{3\sqrt{70}i}{200} & 0 & -\frac{\sqrt{30}i}{200} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{10}i}{40} & 0 & \frac{\sqrt{210}i}{200} & 0 & \frac{\sqrt{14}i}{40} & 0 & \frac{\sqrt{70}i}{200} & 0 \\ 0 & -\frac{\sqrt{105}i}{280} & 0 & -\frac{\sqrt{210}i}{280} & 0 & \frac{3\sqrt{21}i}{56} & -\frac{\sqrt{2}i}{480} & 0 & -\frac{\sqrt{42}i}{672} & 0 & -\frac{\sqrt{70}i}{1120} & 0 & \frac{\sqrt{14}i}{224} & 0 \\ \frac{\sqrt{105}i}{280} & 0 & \frac{\sqrt{42}i}{56} & 0 & \frac{\sqrt{21}i}{56} & 0 & 0 & \frac{23\sqrt{70}i}{16800} & 0 & \frac{13\sqrt{14}i}{3360} & 0 & \frac{\sqrt{210}i}{5600} & 0 & \frac{\sqrt{10}i}{160} \\ 0 & -\frac{\sqrt{42}i}{56} & 0 & -\frac{\sqrt{21}i}{28} & 0 & -\frac{\sqrt{210}i}{280} & -\frac{\sqrt{5}i}{400} & 0 & -\frac{11\sqrt{105}i}{8400} & 0 & -\frac{\sqrt{7}i}{1680} & 0 & \frac{3\sqrt{35}i}{2800} & 0 \\ \frac{\sqrt{210}i}{280} & 0 & \frac{\sqrt{21}i}{28} & 0 & \frac{\sqrt{42}i}{56} & 0 & 0 & \frac{3\sqrt{35}i}{2800} & 0 & -\frac{\sqrt{7}i}{1680} & 0 & -\frac{11\sqrt{105}i}{8400} & 0 & -\frac{\sqrt{5}i}{400} \\ 0 & -\frac{\sqrt{21}i}{56} & 0 & -\frac{\sqrt{42}i}{56} & 0 & -\frac{\sqrt{105}i}{280} & \frac{\sqrt{10}i}{160} & 0 & \frac{\sqrt{210}i}{5600} & 0 & \frac{13\sqrt{14}i}{3360} & 0 & \frac{23\sqrt{70}i}{16800} & 0 \\ -\frac{3\sqrt{21}i}{56} & 0 & \frac{\sqrt{210}i}{280} & 0 & \frac{\sqrt{105}i}{280} & 0 & 0 & \frac{\sqrt{14}i}{224} & 0 & -\frac{\sqrt{70}i}{1120} & 0 & -\frac{\sqrt{42}i}{672} & 0 & -\frac{\sqrt{2}i}{480} \end{bmatrix}$$

$$\boxed{\text{x161}} \quad \mathbb{Q}_1^{(1,1;a)}(A_{2u}) = \begin{bmatrix} 0 & -\frac{1}{5} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{6}}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{6}}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{1}{5} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{2}{7} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{28} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{6}{35} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{10}}{28} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{2}{35} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{14} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{2}{35} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{14} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{6}{35} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{10}}{28} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{2}{7} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{28} & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x162}} \quad \mathbb{Q}_3^{(1,1;a)}(A_{2u}) = \begin{bmatrix} 0 & \frac{9}{28} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}}{28} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{3\sqrt{6}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}}{28} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{3\sqrt{6}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{28} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{9}{28} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{10}}{28} & 0 & 0 \\ \frac{5}{42} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{28} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{1}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{2}{21} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{28} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{2}{21} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{28} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{1}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{5}{42} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{28} & 0 \end{bmatrix}$$

$$\boxed{\text{x163}} \quad \mathbb{Q}_3^{(1,1;a)}(B_{1u}) = \begin{bmatrix} 0 & 0 & 0 & -\frac{3\sqrt{30}i}{56} & 0 & 0 & -\frac{\sqrt{14}i}{56} & 0 & 0 & 0 & \frac{\sqrt{10}i}{56} & 0 & 0 & 0 \\ -\frac{15i}{56} & 0 & 0 & 0 & -\frac{3\sqrt{5}i}{56} & 0 & 0 & \frac{\sqrt{6}i}{56} & 0 & 0 & 0 & \frac{3\sqrt{2}i}{56} & 0 & 0 \\ 0 & \frac{3\sqrt{5}i}{56} & 0 & 0 & 0 & \frac{15i}{56} & 0 & 0 & \frac{3\sqrt{2}i}{56} & 0 & 0 & 0 & \frac{\sqrt{6}i}{56} & 0 \\ 0 & 0 & \frac{3\sqrt{30}i}{56} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{10}i}{56} & 0 & 0 & 0 & -\frac{\sqrt{14}i}{56} \\ 0 & 0 & -\frac{5\sqrt{6}i}{84} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{28} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{30}i}{84} & 0 & 0 & \frac{\sqrt{14}i}{56} & 0 & 0 & 0 & \frac{\sqrt{10}i}{56} & 0 & 0 & 0 \\ \frac{5\sqrt{6}i}{84} & 0 & 0 & 0 & \frac{\sqrt{30}i}{84} & 0 & 0 & \frac{i}{56} & 0 & 0 & 0 & \frac{\sqrt{3}i}{56} & 0 & 0 \\ 0 & \frac{\sqrt{30}i}{84} & 0 & 0 & 0 & \frac{5\sqrt{6}i}{84} & 0 & 0 & -\frac{\sqrt{3}i}{56} & 0 & 0 & 0 & -\frac{i}{56} & 0 \\ 0 & 0 & -\frac{\sqrt{30}i}{84} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}i}{56} & 0 & 0 & 0 & -\frac{\sqrt{14}i}{56} \\ 0 & 0 & 0 & -\frac{5\sqrt{6}i}{84} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{28} & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x164}} \quad \mathbb{Q}_3^{(1,1;a)}(B_{2u}) = \begin{bmatrix} 0 & 0 & 0 & \frac{3\sqrt{30}}{56} & 0 & 0 & -\frac{\sqrt{14}}{56} & 0 & 0 & 0 & -\frac{\sqrt{10}}{56} & 0 & 0 & 0 \\ -\frac{15}{56} & 0 & 0 & 0 & \frac{3\sqrt{5}}{56} & 0 & 0 & \frac{\sqrt{6}}{56} & 0 & 0 & 0 & -\frac{3\sqrt{2}}{56} & 0 & 0 \\ 0 & \frac{3\sqrt{5}}{56} & 0 & 0 & 0 & -\frac{15}{56} & 0 & 0 & \frac{3\sqrt{2}}{56} & 0 & 0 & 0 & -\frac{\sqrt{6}}{56} & 0 \\ 0 & 0 & \frac{3\sqrt{30}}{56} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{10}}{56} & 0 & 0 & 0 & \frac{\sqrt{14}}{56} \\ 0 & 0 & \frac{5\sqrt{6}}{84} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}}{28} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{30}}{84} & 0 & 0 & \frac{\sqrt{14}}{56} & 0 & 0 & 0 & -\frac{\sqrt{10}}{56} & 0 & 0 & 0 \\ \frac{5\sqrt{6}}{84} & 0 & 0 & 0 & -\frac{\sqrt{30}}{84} & 0 & 0 & \frac{1}{56} & 0 & 0 & 0 & -\frac{\sqrt{3}}{56} & 0 & 0 \\ 0 & \frac{\sqrt{30}}{84} & 0 & 0 & 0 & -\frac{5\sqrt{6}}{84} & 0 & 0 & -\frac{\sqrt{3}}{56} & 0 & 0 & 0 & \frac{1}{56} & 0 \\ 0 & 0 & -\frac{\sqrt{30}}{84} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}}{56} & 0 & 0 & 0 & \frac{\sqrt{14}}{56} \\ 0 & 0 & 0 & -\frac{5\sqrt{6}}{84} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}}{28} & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x165}} \quad \mathbb{Q}_{1,1}^{(1,1;a)}(E_u) = \begin{bmatrix} \frac{\sqrt{5}}{10} & 0 & -\frac{\sqrt{2}}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{3}}{10} & 0 & -\frac{\sqrt{6}}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{6}}{20} & 0 & -\frac{\sqrt{3}}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{2}}{20} & 0 & -\frac{\sqrt{5}}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{2\sqrt{5}}{35} & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}}{56} & 0 & \frac{\sqrt{2}}{56} & 0 & 0 & 0 & 0 & 0 \\ -\frac{2\sqrt{5}}{35} & 0 & -\frac{4\sqrt{2}}{35} & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}}{56} & 0 & \frac{\sqrt{6}}{56} & 0 & 0 & 0 & 0 \\ 0 & -\frac{4\sqrt{2}}{35} & 0 & -\frac{6}{35} & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{28} & 0 & \frac{\sqrt{3}}{28} & 0 & 0 & 0 \\ 0 & 0 & -\frac{6}{35} & 0 & -\frac{4\sqrt{2}}{35} & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{28} & 0 & \frac{\sqrt{5}}{28} & 0 & 0 \\ 0 & 0 & 0 & -\frac{4\sqrt{2}}{35} & 0 & -\frac{2\sqrt{5}}{35} & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{56} & 0 & \frac{\sqrt{30}}{56} & 0 \\ 0 & 0 & 0 & 0 & -\frac{2\sqrt{5}}{35} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}}{56} & 0 & \frac{\sqrt{42}}{56} \end{bmatrix}$$

$$\boxed{\text{x166}} \quad \mathbb{Q}_{1,2}^{(1,1;a)}(E_u) = \begin{bmatrix} \frac{\sqrt{5}i}{10} & 0 & \frac{\sqrt{2}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{3}i}{10} & 0 & \frac{\sqrt{6}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{6}i}{20} & 0 & \frac{\sqrt{3}i}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{2}i}{20} & 0 & \frac{\sqrt{5}i}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{2\sqrt{5}i}{35} & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}i}{56} & 0 & -\frac{\sqrt{2}i}{56} & 0 & 0 & 0 & 0 & 0 \\ -\frac{2\sqrt{5}i}{35} & 0 & \frac{4\sqrt{2}i}{35} & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}i}{56} & 0 & -\frac{\sqrt{6}i}{56} & 0 & 0 & 0 & 0 \\ 0 & -\frac{4\sqrt{2}i}{35} & 0 & \frac{6i}{35} & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{28} & 0 & -\frac{\sqrt{3}i}{28} & 0 & 0 & 0 \\ 0 & 0 & -\frac{6i}{35} & 0 & \frac{4\sqrt{2}i}{35} & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{28} & 0 & -\frac{\sqrt{5}i}{28} & 0 & 0 \\ 0 & 0 & 0 & -\frac{4\sqrt{2}i}{35} & 0 & \frac{2\sqrt{5}i}{35} & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}i}{56} & 0 & -\frac{\sqrt{30}i}{56} & 0 \\ 0 & 0 & 0 & 0 & -\frac{2\sqrt{5}i}{35} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{56} & 0 & -\frac{\sqrt{42}i}{56} \end{bmatrix}$$

$$\boxed{\text{x167}} \quad \mathbb{Q}_{3,1}^{(1,1;a)}(E_u, 1) = \begin{bmatrix} \frac{9\sqrt{5}}{224} & 0 & -\frac{27\sqrt{2}}{224} & 0 & \frac{45}{224} & 0 & 0 & -\frac{\sqrt{30}}{112} & 0 & \frac{\sqrt{6}}{56} & 0 & -\frac{\sqrt{10}}{112} & 0 & 0 \\ 0 & -\frac{3\sqrt{3}}{32} & 0 & \frac{3\sqrt{6}}{224} & 0 & \frac{15\sqrt{15}}{224} & -\frac{\sqrt{70}}{112} & 0 & 0 & 0 & \frac{3\sqrt{2}}{112} & 0 & -\frac{\sqrt{10}}{56} & 0 \\ -\frac{15\sqrt{15}}{224} & 0 & -\frac{3\sqrt{6}}{224} & 0 & \frac{3\sqrt{3}}{32} & 0 & 0 & -\frac{\sqrt{10}}{56} & 0 & \frac{3\sqrt{2}}{112} & 0 & 0 & 0 & -\frac{\sqrt{70}}{112} \\ 0 & -\frac{45}{224} & 0 & \frac{27\sqrt{2}}{224} & 0 & -\frac{9\sqrt{5}}{224} & 0 & 0 & -\frac{\sqrt{10}}{112} & 0 & \frac{\sqrt{6}}{56} & 0 & -\frac{\sqrt{30}}{112} & 0 \\ 0 & -\frac{\sqrt{5}}{28} & 0 & \frac{5\sqrt{10}}{168} & 0 & 0 & -\frac{\sqrt{42}}{224} & 0 & \frac{3\sqrt{2}}{112} & 0 & -\frac{\sqrt{30}}{224} & 0 & 0 & 0 \\ -\frac{\sqrt{5}}{28} & 0 & \frac{\sqrt{2}}{56} & 0 & \frac{5}{42} & 0 & 0 & \frac{\sqrt{30}}{224} & 0 & \frac{\sqrt{6}}{112} & 0 & -\frac{3\sqrt{10}}{224} & 0 & 0 \\ 0 & \frac{\sqrt{2}}{56} & 0 & \frac{1}{14} & 0 & \frac{5\sqrt{10}}{168} & \frac{\sqrt{105}}{224} & 0 & \frac{3\sqrt{5}}{224} & 0 & -\frac{\sqrt{3}}{224} & 0 & -\frac{3\sqrt{15}}{224} & 0 \\ \frac{5\sqrt{10}}{168} & 0 & \frac{1}{14} & 0 & \frac{\sqrt{2}}{56} & 0 & 0 & \frac{3\sqrt{15}}{224} & 0 & \frac{\sqrt{3}}{224} & 0 & -\frac{3\sqrt{5}}{224} & 0 & -\frac{\sqrt{105}}{224} \\ 0 & \frac{5}{42} & 0 & \frac{\sqrt{2}}{56} & 0 & -\frac{\sqrt{5}}{28} & 0 & 0 & \frac{3\sqrt{10}}{224} & 0 & -\frac{\sqrt{6}}{112} & 0 & -\frac{\sqrt{30}}{224} & 0 \\ 0 & 0 & \frac{5\sqrt{10}}{168} & 0 & -\frac{\sqrt{5}}{28} & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{224} & 0 & -\frac{3\sqrt{2}}{112} & 0 & \frac{\sqrt{42}}{224} \end{bmatrix}$$

$$\boxed{\text{x168}} \quad \mathbb{Q}_{3,2}^{(1,1;a)}(E_u, 1) = \begin{bmatrix} \frac{9\sqrt{5}i}{224} & 0 & \frac{27\sqrt{2}i}{224} & 0 & \frac{45i}{224} & 0 & 0 & -\frac{\sqrt{30}i}{112} & 0 & -\frac{\sqrt{6}i}{56} & 0 & -\frac{\sqrt{10}i}{112} & 0 & 0 \\ 0 & -\frac{3\sqrt{3}i}{32} & 0 & -\frac{3\sqrt{6}i}{224} & 0 & \frac{15\sqrt{15}i}{224} & \frac{\sqrt{70}i}{112} & 0 & 0 & 0 & -\frac{3\sqrt{2}i}{112} & 0 & -\frac{\sqrt{10}i}{56} & 0 \\ \frac{15\sqrt{15}i}{224} & 0 & -\frac{3\sqrt{6}i}{224} & 0 & -\frac{3\sqrt{3}i}{32} & 0 & 0 & \frac{\sqrt{10}i}{56} & 0 & \frac{3\sqrt{2}i}{112} & 0 & 0 & 0 & -\frac{\sqrt{70}i}{112} \\ 0 & \frac{45i}{224} & 0 & \frac{27\sqrt{2}i}{224} & 0 & \frac{9\sqrt{5}i}{224} & 0 & 0 & \frac{\sqrt{10}i}{112} & 0 & \frac{\sqrt{6}i}{56} & 0 & \frac{\sqrt{30}i}{112} & 0 \\ 0 & \frac{\sqrt{5}i}{28} & 0 & \frac{5\sqrt{10}i}{168} & 0 & 0 & -\frac{\sqrt{42}i}{224} & 0 & -\frac{3\sqrt{2}i}{112} & 0 & -\frac{\sqrt{30}i}{224} & 0 & 0 & 0 \\ -\frac{\sqrt{5}i}{28} & 0 & -\frac{\sqrt{2}i}{56} & 0 & \frac{5i}{42} & 0 & 0 & \frac{\sqrt{30}i}{224} & 0 & -\frac{\sqrt{6}i}{112} & 0 & -\frac{3\sqrt{10}i}{224} & 0 & 0 \\ 0 & \frac{\sqrt{2}i}{56} & 0 & -\frac{i}{14} & 0 & \frac{5\sqrt{10}i}{168} & -\frac{\sqrt{105}i}{224} & 0 & \frac{3\sqrt{5}i}{224} & 0 & \frac{\sqrt{3}i}{224} & 0 & -\frac{3\sqrt{15}i}{224} & 0 \\ -\frac{5\sqrt{10}i}{168} & 0 & \frac{i}{14} & 0 & -\frac{\sqrt{2}i}{56} & 0 & 0 & -\frac{3\sqrt{15}i}{224} & 0 & \frac{\sqrt{3}i}{224} & 0 & \frac{3\sqrt{5}i}{224} & 0 & -\frac{\sqrt{105}i}{224} \\ 0 & -\frac{5i}{42} & 0 & \frac{\sqrt{2}i}{56} & 0 & \frac{\sqrt{5}i}{28} & 0 & 0 & -\frac{3\sqrt{10}i}{224} & 0 & -\frac{\sqrt{6}i}{112} & 0 & \frac{\sqrt{30}i}{224} & 0 \\ 0 & 0 & -\frac{5\sqrt{10}i}{168} & 0 & -\frac{\sqrt{5}i}{28} & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}i}{224} & 0 & -\frac{3\sqrt{2}i}{112} & 0 & -\frac{\sqrt{42}i}{224} \end{bmatrix}$$

$$\boxed{\text{x169}} \quad \mathbb{Q}_{3,1}^{(1,1;a)}(E_u, 2) = \begin{bmatrix} \frac{15\sqrt{3}}{224} & 0 & -\frac{9\sqrt{30}}{224} & 0 & -\frac{9\sqrt{15}}{224} & 0 & 0 & -\frac{5\sqrt{2}}{112} & 0 & \frac{\sqrt{10}}{56} & 0 & \frac{\sqrt{6}}{112} & 0 & 0 \\ 0 & -\frac{3\sqrt{5}}{32} & 0 & \frac{3\sqrt{10}}{224} & 0 & -\frac{45}{224} & \frac{\sqrt{42}}{112} & 0 & 0 & 0 & \frac{\sqrt{30}}{112} & 0 & \frac{\sqrt{6}}{56} & 0 \\ \frac{45}{224} & 0 & -\frac{3\sqrt{10}}{224} & 0 & \frac{3\sqrt{5}}{32} & 0 & 0 & \frac{\sqrt{6}}{56} & 0 & \frac{\sqrt{30}}{112} & 0 & 0 & 0 & \frac{\sqrt{42}}{112} \\ 0 & \frac{9\sqrt{15}}{224} & 0 & \frac{9\sqrt{30}}{224} & 0 & -\frac{15\sqrt{3}}{224} & 0 & 0 & \frac{\sqrt{6}}{112} & 0 & \frac{\sqrt{10}}{56} & 0 & -\frac{5\sqrt{2}}{112} & 0 \\ 0 & -\frac{5\sqrt{3}}{84} & 0 & -\frac{5\sqrt{6}}{168} & 0 & 0 & -\frac{\sqrt{70}}{224} & 0 & \frac{\sqrt{30}}{112} & 0 & \frac{3\sqrt{2}}{224} & 0 & 0 & 0 \\ -\frac{5\sqrt{3}}{84} & 0 & \frac{\sqrt{30}}{168} & 0 & -\frac{\sqrt{15}}{42} & 0 & 0 & \frac{5\sqrt{2}}{224} & 0 & \frac{\sqrt{10}}{112} & 0 & \frac{3\sqrt{6}}{224} & 0 & 0 \\ 0 & \frac{\sqrt{30}}{168} & 0 & \frac{\sqrt{15}}{42} & 0 & -\frac{5\sqrt{6}}{168} & -\frac{3\sqrt{7}}{224} & 0 & \frac{5\sqrt{3}}{224} & 0 & -\frac{\sqrt{5}}{224} & 0 & \frac{9}{224} & 0 \\ -\frac{5\sqrt{6}}{168} & 0 & \frac{\sqrt{15}}{42} & 0 & \frac{\sqrt{30}}{168} & 0 & 0 & -\frac{9}{224} & 0 & \frac{\sqrt{5}}{224} & 0 & -\frac{5\sqrt{3}}{224} & 0 & \frac{3\sqrt{7}}{224} \\ 0 & -\frac{\sqrt{15}}{42} & 0 & \frac{\sqrt{30}}{168} & 0 & -\frac{5\sqrt{3}}{84} & 0 & 0 & -\frac{3\sqrt{6}}{224} & 0 & -\frac{\sqrt{10}}{112} & 0 & -\frac{5\sqrt{2}}{224} & 0 \\ 0 & 0 & -\frac{5\sqrt{6}}{168} & 0 & -\frac{5\sqrt{3}}{84} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{2}}{224} & 0 & -\frac{\sqrt{30}}{112} & 0 & \frac{\sqrt{70}}{224} \end{bmatrix}$$

$$\boxed{\text{x170}} \quad \mathbb{Q}_{3,2}^{(1,1;a)}(E_u, 2) = \begin{bmatrix} \frac{15\sqrt{3}i}{224} & 0 & \frac{9\sqrt{30}i}{224} & 0 & -\frac{9\sqrt{15}i}{224} & 0 & 0 & -\frac{5\sqrt{2}i}{112} & 0 & -\frac{\sqrt{10}i}{56} & 0 & \frac{\sqrt{6}i}{112} & 0 & 0 \\ 0 & -\frac{3\sqrt{5}i}{32} & 0 & -\frac{3\sqrt{10}i}{224} & 0 & -\frac{45i}{224} & -\frac{\sqrt{42}i}{112} & 0 & 0 & 0 & -\frac{\sqrt{30}i}{112} & 0 & \frac{\sqrt{6}i}{56} & 0 \\ -\frac{45i}{224} & 0 & -\frac{3\sqrt{10}i}{224} & 0 & -\frac{3\sqrt{5}i}{32} & 0 & 0 & -\frac{\sqrt{6}i}{56} & 0 & \frac{\sqrt{30}i}{112} & 0 & 0 & 0 & \frac{\sqrt{42}i}{112} \\ 0 & -\frac{9\sqrt{15}i}{224} & 0 & \frac{9\sqrt{30}i}{224} & 0 & \frac{15\sqrt{3}i}{224} & 0 & 0 & -\frac{\sqrt{6}i}{112} & 0 & \frac{\sqrt{10}i}{56} & 0 & \frac{5\sqrt{2}i}{112} & 0 \\ 0 & \frac{5\sqrt{3}i}{84} & 0 & -\frac{5\sqrt{6}i}{168} & 0 & 0 & -\frac{\sqrt{70}i}{224} & 0 & -\frac{\sqrt{30}i}{112} & 0 & \frac{3\sqrt{2}i}{224} & 0 & 0 & 0 \\ -\frac{5\sqrt{3}i}{84} & 0 & -\frac{\sqrt{30}i}{168} & 0 & -\frac{\sqrt{15}i}{42} & 0 & 0 & \frac{5\sqrt{2}i}{224} & 0 & -\frac{\sqrt{10}i}{112} & 0 & \frac{3\sqrt{6}i}{224} & 0 & 0 \\ 0 & \frac{\sqrt{30}i}{168} & 0 & -\frac{\sqrt{15}i}{42} & 0 & -\frac{5\sqrt{6}i}{168} & \frac{3\sqrt{7}i}{224} & 0 & \frac{5\sqrt{3}i}{224} & 0 & \frac{\sqrt{5}i}{224} & 0 & \frac{9i}{224} & 0 \\ \frac{5\sqrt{6}i}{168} & 0 & \frac{\sqrt{15}i}{42} & 0 & -\frac{\sqrt{30}i}{168} & 0 & 0 & \frac{9i}{224} & 0 & \frac{\sqrt{5}i}{224} & 0 & \frac{5\sqrt{3}i}{224} & 0 & \frac{3\sqrt{7}i}{224} \\ 0 & \frac{\sqrt{15}i}{42} & 0 & \frac{\sqrt{30}i}{168} & 0 & \frac{5\sqrt{3}i}{84} & 0 & 0 & \frac{3\sqrt{6}i}{224} & 0 & -\frac{\sqrt{10}i}{112} & 0 & \frac{5\sqrt{2}i}{224} & 0 \\ 0 & 0 & \frac{5\sqrt{6}i}{168} & 0 & -\frac{5\sqrt{3}i}{84} & 0 & 0 & 0 & 0 & \frac{3\sqrt{2}i}{224} & 0 & -\frac{\sqrt{30}i}{112} & 0 & -\frac{\sqrt{70}i}{224} \end{bmatrix}$$

$$\boxed{\text{x171}} \quad \mathbb{G}_2^{(a)}(A_{1u}) = \begin{bmatrix} 0 & \frac{3\sqrt{10}i}{35} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{i}{14} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{15}i}{35} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{5}i}{70} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{15}i}{35} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{5}i}{70} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{3\sqrt{10}i}{35} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{i}{14} & 0 & 0 \\ -\frac{\sqrt{10}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{14} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{10}i}{140} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3i}{14} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{10}i}{35} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{70} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{10}i}{35} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}i}{70} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{10}i}{140} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3i}{14} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{14} & 0 \end{bmatrix}$$

$$\boxed{\text{x172}} \quad \mathbb{G}_4^{(a)}(A_{1u}, 1) = \begin{bmatrix} 0 & -\frac{\sqrt{21}i}{84} & 0 & 0 & 0 & -\frac{\sqrt{105}i}{84} & 0 & 0 & -\frac{3\sqrt{210}i}{280} & 0 & 0 & 0 & -\frac{3\sqrt{70}i}{280} & 0 \\ 0 & 0 & \frac{\sqrt{14}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{42}i}{56} & 0 & 0 & 0 & -\frac{\sqrt{30}i}{40} \\ 0 & 0 & 0 & -\frac{\sqrt{14}i}{28} & 0 & 0 & -\frac{\sqrt{30}i}{40} & 0 & 0 & 0 & \frac{\sqrt{42}i}{56} & 0 & 0 & 0 \\ \frac{\sqrt{105}i}{84} & 0 & 0 & 0 & \frac{\sqrt{21}i}{84} & 0 & 0 & -\frac{3\sqrt{70}i}{280} & 0 & 0 & 0 & -\frac{3\sqrt{210}i}{280} & 0 & 0 \\ \frac{\sqrt{21}i}{84} & 0 & 0 & 0 & \frac{\sqrt{105}i}{84} & 0 & 0 & -\frac{\sqrt{14}i}{28} & 0 & 0 & 0 & -\frac{\sqrt{42}i}{84} & 0 & 0 \\ 0 & -\frac{\sqrt{21}i}{28} & 0 & 0 & 0 & \frac{\sqrt{105}i}{84} & 0 & 0 & \frac{\sqrt{210}i}{105} & 0 & 0 & 0 & -\frac{\sqrt{70}i}{70} & 0 \\ 0 & 0 & \frac{\sqrt{21}i}{42} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}i}{28} & 0 & 0 & 0 & -\frac{\sqrt{5}i}{20} \\ 0 & 0 & 0 & \frac{\sqrt{21}i}{42} & 0 & 0 & \frac{\sqrt{5}i}{20} & 0 & 0 & 0 & -\frac{\sqrt{7}i}{28} & 0 & 0 & 0 \\ \frac{\sqrt{105}i}{84} & 0 & 0 & 0 & -\frac{\sqrt{21}i}{28} & 0 & 0 & \frac{\sqrt{70}i}{70} & 0 & 0 & 0 & -\frac{\sqrt{210}i}{105} & 0 & 0 \\ 0 & \frac{\sqrt{105}i}{84} & 0 & 0 & 0 & \frac{\sqrt{21}i}{84} & 0 & 0 & \frac{\sqrt{42}i}{84} & 0 & 0 & 0 & \frac{\sqrt{14}i}{28} & 0 \end{bmatrix}$$

$$\boxed{\text{x173}} \quad \mathbb{G}_4^{(a)}(A_{1u}, 2) = \begin{bmatrix} 0 & -\frac{\sqrt{15}i}{84} & 0 & 0 & 0 & \frac{\sqrt{3}i}{12} & 0 & 0 & -\frac{3\sqrt{6}i}{56} & 0 & 0 & 0 & \frac{3\sqrt{2}i}{40} & 0 \\ 0 & 0 & \frac{\sqrt{10}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{56} & 0 & 0 & 0 & \frac{\sqrt{42}i}{40} \\ 0 & 0 & 0 & -\frac{\sqrt{10}i}{28} & 0 & 0 & \frac{\sqrt{42}i}{40} & 0 & 0 & 0 & \frac{\sqrt{30}i}{56} & 0 & 0 & 0 \\ -\frac{\sqrt{3}i}{12} & 0 & 0 & 0 & \frac{\sqrt{15}i}{84} & 0 & 0 & \frac{3\sqrt{2}i}{40} & 0 & 0 & 0 & -\frac{3\sqrt{6}i}{56} & 0 & 0 \\ \frac{\sqrt{15}i}{84} & 0 & 0 & 0 & -\frac{\sqrt{3}i}{12} & 0 & 0 & -\frac{\sqrt{10}i}{28} & 0 & 0 & 0 & \frac{\sqrt{30}i}{60} & 0 & 0 \\ 0 & -\frac{\sqrt{15}i}{28} & 0 & 0 & 0 & -\frac{\sqrt{3}i}{12} & 0 & 0 & \frac{\sqrt{6}i}{21} & 0 & 0 & 0 & \frac{\sqrt{2}i}{10} & 0 \\ 0 & 0 & \frac{\sqrt{15}i}{42} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}i}{28} & 0 & 0 & 0 & \frac{\sqrt{7}i}{20} \\ 0 & 0 & 0 & \frac{\sqrt{15}i}{42} & 0 & 0 & -\frac{\sqrt{7}i}{20} & 0 & 0 & 0 & -\frac{\sqrt{5}i}{28} & 0 & 0 & 0 \\ -\frac{\sqrt{3}i}{12} & 0 & 0 & 0 & -\frac{\sqrt{15}i}{28} & 0 & 0 & -\frac{\sqrt{2}i}{10} & 0 & 0 & 0 & -\frac{\sqrt{6}i}{21} & 0 & 0 \\ 0 & -\frac{\sqrt{3}i}{12} & 0 & 0 & 0 & \frac{\sqrt{15}i}{84} & 0 & 0 & -\frac{\sqrt{30}i}{60} & 0 & 0 & 0 & \frac{\sqrt{10}i}{28} & 0 \end{bmatrix}$$

$$\boxed{\text{x174}} \quad \mathbb{G}_4^{(a)}(A_{2u}) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}}{14} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{42}}{140} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{2}}{20} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{2}}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{7}}{14} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{42}}{140} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{14} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}}{70} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{14} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}}{35} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{10} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{7}}{14} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}}{35} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{7}}{14} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}}{70} & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x175}} \quad \mathbb{G}_2^{(a)}(B_{1u}) = \begin{bmatrix} 0 & 0 & 0 & \frac{\sqrt{15}i}{35} & 0 & 0 & \frac{\sqrt{7}i}{28} & 0 & 0 & 0 & \frac{\sqrt{5}i}{140} & 0 & 0 & 0 \\ -\frac{\sqrt{2}i}{7} & 0 & 0 & 0 & \frac{2\sqrt{10}i}{35} & 0 & 0 & \frac{\sqrt{3}i}{28} & 0 & 0 & 0 & \frac{i}{28} & 0 & 0 \\ 0 & -\frac{2\sqrt{10}i}{35} & 0 & 0 & 0 & \frac{\sqrt{2}i}{7} & 0 & 0 & \frac{i}{28} & 0 & 0 & 0 & \frac{\sqrt{3}i}{28} & 0 \\ 0 & 0 & -\frac{\sqrt{15}i}{35} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}i}{140} & 0 & 0 & 0 & \frac{\sqrt{7}i}{28} \\ 0 & 0 & -\frac{\sqrt{3}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{i}{14} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{3\sqrt{15}i}{140} & 0 & 0 & -\frac{\sqrt{7}i}{14} & 0 & 0 & 0 & \frac{2\sqrt{5}i}{35} & 0 & 0 & 0 \\ -\frac{\sqrt{3}i}{28} & 0 & 0 & 0 & -\frac{3\sqrt{15}i}{140} & 0 & 0 & -\frac{\sqrt{2}i}{7} & 0 & 0 & 0 & \frac{\sqrt{6}i}{14} & 0 & 0 \\ 0 & -\frac{3\sqrt{15}i}{140} & 0 & 0 & 0 & -\frac{\sqrt{3}i}{28} & 0 & 0 & -\frac{\sqrt{6}i}{14} & 0 & 0 & 0 & \frac{\sqrt{2}i}{7} & 0 \\ 0 & 0 & -\frac{3\sqrt{15}i}{140} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{2\sqrt{5}i}{35} & 0 & 0 & 0 & \frac{\sqrt{7}i}{14} \\ 0 & 0 & 0 & -\frac{\sqrt{3}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{i}{14} & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x176}} \quad \mathbb{G}_4^{(a)}(B_{1u}) = \begin{bmatrix} 0 & 0 & 0 & \frac{\sqrt{10}i}{28} & 0 & 0 & \frac{3\sqrt{42}i}{280} & 0 & 0 & 0 & \frac{9\sqrt{30}i}{280} & 0 & 0 & 0 \\ -\frac{\sqrt{3}i}{28} & 0 & 0 & 0 & -\frac{\sqrt{15}i}{28} & 0 & 0 & -\frac{33\sqrt{2}i}{280} & 0 & 0 & 0 & \frac{3\sqrt{6}i}{280} & 0 & 0 \\ 0 & \frac{\sqrt{15}i}{28} & 0 & 0 & 0 & \frac{\sqrt{3}i}{28} & 0 & 0 & \frac{3\sqrt{6}i}{280} & 0 & 0 & 0 & -\frac{33\sqrt{2}i}{280} & 0 \\ 0 & 0 & -\frac{\sqrt{10}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{9\sqrt{30}i}{280} & 0 & 0 & 0 & \frac{3\sqrt{42}i}{280} \\ 0 & 0 & -\frac{3\sqrt{2}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}i}{14} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{10}i}{28} & 0 & 0 & -\frac{3\sqrt{42}i}{140} & 0 & 0 & 0 & \frac{\sqrt{30}i}{140} & 0 & 0 & 0 \\ -\frac{3\sqrt{2}i}{28} & 0 & 0 & 0 & \frac{\sqrt{10}i}{28} & 0 & 0 & \frac{9\sqrt{3}i}{140} & 0 & 0 & 0 & -\frac{17i}{140} & 0 & 0 \\ 0 & \frac{\sqrt{10}i}{28} & 0 & 0 & 0 & -\frac{3\sqrt{2}i}{28} & 0 & 0 & \frac{17i}{140} & 0 & 0 & 0 & -\frac{9\sqrt{3}i}{140} & 0 \\ 0 & 0 & \frac{\sqrt{10}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}i}{140} & 0 & 0 & 0 & \frac{3\sqrt{42}i}{140} \\ 0 & 0 & 0 & -\frac{3\sqrt{2}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}i}{14} & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x177}} \quad \mathbb{G}_2^{(a)}(B_{2u}) = \begin{bmatrix} 0 & 0 & 0 & \frac{\sqrt{15}}{35} & 0 & 0 & -\frac{\sqrt{7}}{28} & 0 & 0 & 0 & \frac{\sqrt{5}}{140} & 0 & 0 & 0 \\ \frac{\sqrt{2}}{7} & 0 & 0 & 0 & \frac{2\sqrt{10}}{35} & 0 & 0 & -\frac{\sqrt{3}}{28} & 0 & 0 & 0 & \frac{1}{28} & 0 & 0 \\ 0 & \frac{2\sqrt{10}}{35} & 0 & 0 & 0 & \frac{\sqrt{2}}{7} & 0 & 0 & -\frac{1}{28} & 0 & 0 & 0 & \frac{\sqrt{3}}{28} & 0 \\ 0 & 0 & \frac{\sqrt{15}}{35} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{140} & 0 & 0 & 0 & \frac{\sqrt{7}}{28} \\ 0 & 0 & -\frac{\sqrt{3}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{1}{14} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{3\sqrt{15}}{140} & 0 & 0 & \frac{\sqrt{7}}{14} & 0 & 0 & 0 & \frac{2\sqrt{5}}{35} & 0 & 0 & 0 \\ \frac{\sqrt{3}}{28} & 0 & 0 & 0 & -\frac{3\sqrt{15}}{140} & 0 & 0 & \frac{\sqrt{2}}{7} & 0 & 0 & 0 & \frac{\sqrt{6}}{14} & 0 & 0 \\ 0 & \frac{3\sqrt{15}}{140} & 0 & 0 & 0 & -\frac{\sqrt{3}}{28} & 0 & 0 & \frac{\sqrt{6}}{14} & 0 & 0 & 0 & \frac{\sqrt{2}}{7} & 0 \\ 0 & 0 & \frac{3\sqrt{15}}{140} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{2\sqrt{5}}{35} & 0 & 0 & 0 & \frac{\sqrt{7}}{14} \\ 0 & 0 & 0 & \frac{\sqrt{3}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{1}{14} & 0 & 0 & 0 \end{bmatrix}$$



$$\boxed{\text{x178}} \quad \mathbb{G}_4^{(a)}(B_{2u}) = \begin{bmatrix} 0 & 0 & 0 & -\frac{\sqrt{10}}{28} & 0 & 0 & \frac{3\sqrt{42}}{280} & 0 & 0 & 0 & -\frac{9\sqrt{30}}{280} & 0 & 0 & 0 \\ -\frac{\sqrt{3}}{28} & 0 & 0 & 0 & \frac{\sqrt{15}}{28} & 0 & 0 & -\frac{33\sqrt{2}}{280} & 0 & 0 & 0 & -\frac{3\sqrt{6}}{280} & 0 & 0 \\ 0 & \frac{\sqrt{15}}{28} & 0 & 0 & 0 & -\frac{\sqrt{3}}{28} & 0 & 0 & \frac{3\sqrt{6}}{280} & 0 & 0 & 0 & \frac{33\sqrt{2}}{280} & 0 \\ 0 & 0 & -\frac{\sqrt{10}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{9\sqrt{30}}{280} & 0 & 0 & 0 & -\frac{3\sqrt{42}}{280} \\ 0 & 0 & \frac{3\sqrt{2}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{14} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{10}}{28} & 0 & 0 & -\frac{3\sqrt{42}}{140} & 0 & 0 & 0 & -\frac{\sqrt{30}}{140} & 0 & 0 & 0 \\ -\frac{3\sqrt{2}}{28} & 0 & 0 & 0 & -\frac{\sqrt{10}}{28} & 0 & 0 & \frac{9\sqrt{3}}{140} & 0 & 0 & 0 & \frac{17}{140} & 0 & 0 \\ 0 & \frac{\sqrt{10}}{28} & 0 & 0 & 0 & \frac{3\sqrt{2}}{28} & 0 & 0 & \frac{17}{140} & 0 & 0 & 0 & \frac{9\sqrt{3}}{140} & 0 \\ 0 & 0 & \frac{\sqrt{10}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}}{140} & 0 & 0 & 0 & -\frac{3\sqrt{42}}{140} \\ 0 & 0 & 0 & -\frac{3\sqrt{2}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{14} & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x179}} \quad \mathbb{G}_{2,1}^{(a)}(E_u) = \begin{bmatrix} \frac{\sqrt{6}}{14} & 0 & \frac{3\sqrt{15}}{70} & 0 & 0 & 0 & 0 & \frac{1}{14} & 0 & \frac{\sqrt{5}}{70} & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{10}}{70} & 0 & \frac{\sqrt{5}}{14} & 0 & 0 & 0 & 0 & \frac{1}{14} & 0 & \frac{\sqrt{15}}{70} & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{5}}{14} & 0 & \frac{\sqrt{10}}{70} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{70} & 0 & \frac{1}{14} & 0 & 0 \\ 0 & 0 & 0 & -\frac{3\sqrt{15}}{70} & 0 & -\frac{\sqrt{6}}{14} & 0 & 0 & 0 & 0 & \frac{\sqrt{5}}{70} & 0 & \frac{1}{14} & 0 \\ 0 & -\frac{\sqrt{6}}{28} & 0 & 0 & 0 & 0 & \frac{\sqrt{35}}{28} & 0 & \frac{\sqrt{15}}{28} & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{6}}{28} & 0 & -\frac{\sqrt{15}}{70} & 0 & 0 & 0 & 0 & \frac{1}{28} & 0 & \frac{11\sqrt{5}}{140} & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{15}}{70} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{28} & 0 & \frac{\sqrt{10}}{20} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{70} & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}}{20} & 0 & \frac{\sqrt{6}}{28} & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{15}}{70} & 0 & \frac{\sqrt{6}}{28} & 0 & 0 & 0 & 0 & -\frac{11\sqrt{5}}{140} & 0 & -\frac{1}{28} & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{28} & 0 & -\frac{\sqrt{35}}{28} \end{bmatrix}$$

$$\boxed{\text{x180}} \quad \mathbb{G}_{2,2}^{(a)}(E_u) = \begin{bmatrix} \frac{\sqrt{6}i}{14} & 0 & -\frac{3\sqrt{15}i}{70} & 0 & 0 & 0 & 0 & \frac{i}{14} & 0 & -\frac{\sqrt{5}i}{70} & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{10}i}{70} & 0 & -\frac{\sqrt{5}i}{14} & 0 & 0 & 0 & 0 & \frac{i}{14} & 0 & -\frac{\sqrt{15}i}{70} & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{5}i}{14} & 0 & -\frac{\sqrt{10}i}{70} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{70} & 0 & -\frac{i}{14} & 0 & 0 \\ 0 & 0 & 0 & -\frac{3\sqrt{15}i}{70} & 0 & \frac{\sqrt{6}i}{14} & 0 & 0 & 0 & 0 & \frac{\sqrt{5}i}{70} & 0 & -\frac{i}{14} & 0 \\ 0 & \frac{\sqrt{6}i}{28} & 0 & 0 & 0 & 0 & \frac{\sqrt{35}i}{28} & 0 & -\frac{\sqrt{15}i}{28} & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{6}i}{28} & 0 & \frac{\sqrt{15}i}{70} & 0 & 0 & 0 & 0 & \frac{i}{28} & 0 & -\frac{11\sqrt{5}i}{140} & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{15}i}{70} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}i}{28} & 0 & -\frac{\sqrt{10}i}{20} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{70} & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}i}{20} & 0 & -\frac{\sqrt{6}i}{28} & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{15}i}{70} & 0 & -\frac{\sqrt{6}i}{28} & 0 & 0 & 0 & 0 & -\frac{11\sqrt{5}i}{140} & 0 & \frac{i}{28} & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{6}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{28} & 0 & \frac{\sqrt{35}i}{28} \end{bmatrix}$$

$$\begin{aligned}
\boxed{\text{x181}} \quad \mathbb{G}_{4,1}^{(a)}(E_u, 1) &= \begin{bmatrix} \frac{\sqrt{7}}{112} & 0 & \frac{\sqrt{70}}{112} & 0 & \frac{\sqrt{35}}{112} & 0 & 0 & \frac{9\sqrt{42}}{560} & 0 & \frac{3\sqrt{210}}{280} & 0 & \frac{9\sqrt{14}}{560} & 0 & 0 \\ 0 & -\frac{\sqrt{105}}{112} & 0 & -\frac{\sqrt{210}}{112} & 0 & -\frac{\sqrt{21}}{112} & -\frac{3\sqrt{2}}{80} & 0 & -\frac{3\sqrt{42}}{140} & 0 & -\frac{3\sqrt{70}}{560} & 0 & \frac{3\sqrt{14}}{280} & 0 \\ \frac{\sqrt{21}}{112} & 0 & \frac{\sqrt{210}}{112} & 0 & \frac{\sqrt{105}}{112} & 0 & 0 & \frac{3\sqrt{14}}{280} & 0 & -\frac{3\sqrt{70}}{560} & 0 & -\frac{3\sqrt{42}}{140} & 0 & -\frac{3\sqrt{2}}{80} \\ 0 & -\frac{\sqrt{35}}{112} & 0 & -\frac{\sqrt{70}}{112} & 0 & -\frac{\sqrt{7}}{112} & 0 & 0 & \frac{9\sqrt{14}}{560} & 0 & \frac{3\sqrt{210}}{280} & 0 & \frac{9\sqrt{42}}{560} & 0 \\ 0 & -\frac{\sqrt{7}}{28} & 0 & -\frac{\sqrt{14}}{56} & 0 & 0 & \frac{\sqrt{30}}{80} & 0 & \frac{\sqrt{70}}{56} & 0 & \frac{\sqrt{42}}{112} & 0 & 0 & 0 \\ \frac{\sqrt{7}}{28} & 0 & \frac{\sqrt{70}}{56} & 0 & 0 & 0 & 0 & -\frac{13\sqrt{42}}{560} & 0 & -\frac{\sqrt{210}}{280} & 0 & \frac{\sqrt{14}}{80} & 0 & 0 \\ 0 & -\frac{\sqrt{70}}{56} & 0 & 0 & 0 & \frac{\sqrt{14}}{56} & \frac{3\sqrt{3}}{80} & 0 & \frac{\sqrt{7}}{560} & 0 & -\frac{\sqrt{105}}{80} & 0 & -\frac{\sqrt{21}}{560} & 0 \\ \frac{\sqrt{14}}{56} & 0 & 0 & 0 & -\frac{\sqrt{70}}{56} & 0 & 0 & \frac{\sqrt{21}}{560} & 0 & \frac{\sqrt{105}}{80} & 0 & -\frac{\sqrt{7}}{560} & 0 & -\frac{3\sqrt{3}}{80} \\ 0 & 0 & 0 & \frac{\sqrt{70}}{56} & 0 & \frac{\sqrt{7}}{28} & 0 & 0 & -\frac{\sqrt{14}}{80} & 0 & \frac{\sqrt{210}}{280} & 0 & \frac{13\sqrt{42}}{560} & 0 \\ 0 & 0 & -\frac{\sqrt{14}}{56} & 0 & -\frac{\sqrt{7}}{28} & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}}{112} & 0 & -\frac{\sqrt{70}}{56} & 0 & -\frac{\sqrt{30}}{80} \end{bmatrix} \\
\boxed{\text{x182}} \quad \mathbb{G}_{4,2}^{(a)}(E_u, 1) &= \begin{bmatrix} \frac{\sqrt{7}i}{112} & 0 & -\frac{\sqrt{70}i}{112} & 0 & \frac{\sqrt{35}i}{112} & 0 & 0 & \frac{9\sqrt{42}i}{560} & 0 & -\frac{3\sqrt{210}i}{280} & 0 & \frac{9\sqrt{14}i}{560} & 0 & 0 \\ 0 & -\frac{\sqrt{105}i}{112} & 0 & \frac{\sqrt{210}i}{112} & 0 & -\frac{\sqrt{21}i}{112} & \frac{3\sqrt{2}i}{80} & 0 & -\frac{3\sqrt{42}i}{140} & 0 & \frac{3\sqrt{70}i}{560} & 0 & \frac{3\sqrt{14}i}{280} & 0 \\ -\frac{\sqrt{21}i}{112} & 0 & \frac{\sqrt{210}i}{112} & 0 & -\frac{\sqrt{105}i}{112} & 0 & 0 & -\frac{3\sqrt{14}i}{280} & 0 & -\frac{3\sqrt{70}i}{560} & 0 & \frac{3\sqrt{42}i}{140} & 0 & -\frac{3\sqrt{2}i}{80} \\ 0 & \frac{\sqrt{35}i}{112} & 0 & -\frac{\sqrt{70}i}{112} & 0 & \frac{\sqrt{7}i}{112} & 0 & 0 & -\frac{9\sqrt{14}i}{560} & 0 & \frac{3\sqrt{210}i}{280} & 0 & -\frac{9\sqrt{42}i}{560} & 0 \\ 0 & \frac{\sqrt{7}i}{28} & 0 & -\frac{\sqrt{14}i}{56} & 0 & 0 & \frac{\sqrt{30}i}{80} & 0 & -\frac{\sqrt{70}i}{56} & 0 & \frac{\sqrt{42}i}{112} & 0 & 0 & 0 \\ \frac{\sqrt{7}i}{28} & 0 & -\frac{\sqrt{70}i}{56} & 0 & 0 & 0 & 0 & -\frac{13\sqrt{42}i}{560} & 0 & \frac{\sqrt{210}i}{280} & 0 & \frac{\sqrt{14}i}{80} & 0 & 0 \\ 0 & -\frac{\sqrt{70}i}{56} & 0 & 0 & 0 & \frac{\sqrt{14}i}{56} & -\frac{3\sqrt{3}i}{80} & 0 & \frac{\sqrt{7}i}{560} & 0 & \frac{\sqrt{105}i}{80} & 0 & -\frac{\sqrt{21}i}{560} & 0 \\ -\frac{\sqrt{14}i}{56} & 0 & 0 & 0 & \frac{\sqrt{70}i}{56} & 0 & 0 & -\frac{\sqrt{21}i}{560} & 0 & \frac{\sqrt{105}i}{80} & 0 & \frac{\sqrt{7}i}{560} & 0 & -\frac{3\sqrt{3}i}{80} \\ 0 & 0 & 0 & \frac{\sqrt{70}i}{56} & 0 & -\frac{\sqrt{7}i}{28} & 0 & 0 & \frac{\sqrt{14}i}{80} & 0 & \frac{\sqrt{210}i}{280} & 0 & -\frac{13\sqrt{42}i}{560} & 0 \\ 0 & 0 & \frac{\sqrt{14}i}{56} & 0 & -\frac{\sqrt{7}i}{28} & 0 & 0 & 0 & 0 & \frac{\sqrt{42}i}{112} & 0 & -\frac{\sqrt{70}i}{56} & 0 & \frac{\sqrt{30}i}{80} \end{bmatrix} \\
\boxed{\text{x183}} \quad \mathbb{G}_{4,1}^{(a)}(E_u, 2) &= \begin{bmatrix} \frac{1}{112} & 0 & \frac{\sqrt{10}}{112} & 0 & -\frac{\sqrt{5}}{16} & 0 & 0 & \frac{9\sqrt{6}}{560} & 0 & \frac{3\sqrt{30}}{280} & 0 & -\frac{9\sqrt{2}}{80} & 0 & 0 \\ 0 & -\frac{\sqrt{15}}{112} & 0 & -\frac{\sqrt{30}}{112} & 0 & \frac{\sqrt{3}}{16} & \frac{3\sqrt{14}}{80} & 0 & -\frac{3\sqrt{6}}{140} & 0 & -\frac{3\sqrt{10}}{560} & 0 & -\frac{3\sqrt{2}}{40} & 0 \\ -\frac{\sqrt{3}}{16} & 0 & \frac{\sqrt{30}}{112} & 0 & \frac{\sqrt{15}}{112} & 0 & 0 & -\frac{3\sqrt{2}}{40} & 0 & -\frac{3\sqrt{10}}{560} & 0 & -\frac{3\sqrt{6}}{140} & 0 & \frac{3\sqrt{14}}{80} \\ 0 & \frac{\sqrt{5}}{16} & 0 & -\frac{\sqrt{10}}{112} & 0 & -\frac{1}{112} & 0 & 0 & -\frac{9\sqrt{2}}{80} & 0 & \frac{3\sqrt{30}}{280} & 0 & \frac{9\sqrt{6}}{560} & 0 \\ 0 & -\frac{1}{28} & 0 & \frac{\sqrt{2}}{8} & 0 & 0 & \frac{\sqrt{210}}{560} & 0 & \frac{\sqrt{10}}{56} & 0 & -\frac{\sqrt{6}}{16} & 0 & 0 & 0 \\ \frac{1}{28} & 0 & \frac{\sqrt{10}}{56} & 0 & 0 & 0 & 0 & -\frac{13\sqrt{6}}{560} & 0 & -\frac{\sqrt{30}}{280} & 0 & -\frac{7\sqrt{2}}{80} & 0 & 0 \\ 0 & -\frac{\sqrt{10}}{56} & 0 & 0 & 0 & -\frac{\sqrt{2}}{8} & -\frac{3\sqrt{21}}{80} & 0 & \frac{1}{560} & 0 & -\frac{\sqrt{15}}{80} & 0 & \frac{\sqrt{3}}{80} & 0 \\ -\frac{\sqrt{2}}{8} & 0 & 0 & 0 & -\frac{\sqrt{10}}{56} & 0 & 0 & -\frac{\sqrt{3}}{80} & 0 & \frac{\sqrt{15}}{80} & 0 & -\frac{1}{560} & 0 & \frac{3\sqrt{21}}{80} \\ 0 & 0 & 0 & \frac{\sqrt{10}}{56} & 0 & \frac{1}{28} & 0 & 0 & \frac{7\sqrt{2}}{80} & 0 & \frac{\sqrt{30}}{280} & 0 & \frac{13\sqrt{6}}{560} & 0 \\ 0 & 0 & \frac{\sqrt{2}}{8} & 0 & -\frac{1}{28} & 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{16} & 0 & -\frac{\sqrt{10}}{56} & 0 & -\frac{\sqrt{210}}{560} \end{bmatrix}
\end{aligned}$$

$$\boxed{\text{x184}} \quad \mathbb{G}_{4,2}^{(a)}(E_u, 2) = \begin{bmatrix} \frac{i}{112} & 0 & -\frac{\sqrt{10}i}{112} & 0 & -\frac{\sqrt{5}i}{16} & 0 & 0 & \frac{9\sqrt{6}i}{560} & 0 & -\frac{3\sqrt{30}i}{280} & 0 & -\frac{9\sqrt{2}i}{80} & 0 & 0 \\ 0 & -\frac{\sqrt{15}i}{112} & 0 & \frac{\sqrt{30}i}{112} & 0 & \frac{\sqrt{3}i}{16} & -\frac{3\sqrt{14}i}{80} & 0 & -\frac{3\sqrt{6}i}{140} & 0 & \frac{3\sqrt{10}i}{560} & 0 & -\frac{3\sqrt{2}i}{40} & 0 \\ \frac{\sqrt{3}i}{16} & 0 & \frac{\sqrt{30}i}{112} & 0 & -\frac{\sqrt{15}i}{112} & 0 & 0 & \frac{3\sqrt{2}i}{40} & 0 & -\frac{3\sqrt{10}i}{560} & 0 & \frac{3\sqrt{6}i}{140} & 0 & \frac{3\sqrt{14}i}{80} \\ 0 & -\frac{\sqrt{5}i}{16} & 0 & -\frac{\sqrt{10}i}{112} & 0 & \frac{i}{112} & 0 & 0 & \frac{9\sqrt{2}i}{80} & 0 & \frac{3\sqrt{30}i}{280} & 0 & -\frac{9\sqrt{6}i}{560} & 0 \\ 0 & \frac{i}{28} & 0 & \frac{\sqrt{2}i}{8} & 0 & 0 & \frac{\sqrt{210}i}{560} & 0 & -\frac{\sqrt{10}i}{56} & 0 & -\frac{\sqrt{6}i}{16} & 0 & 0 & 0 \\ \frac{i}{28} & 0 & -\frac{\sqrt{10}i}{56} & 0 & 0 & 0 & 0 & -\frac{13\sqrt{6}i}{560} & 0 & \frac{\sqrt{30}i}{280} & 0 & -\frac{7\sqrt{2}i}{80} & 0 & 0 \\ 0 & -\frac{\sqrt{10}i}{56} & 0 & 0 & 0 & -\frac{\sqrt{2}i}{8} & \frac{3\sqrt{21}i}{80} & 0 & \frac{i}{560} & 0 & \frac{\sqrt{15}i}{80} & 0 & \frac{\sqrt{3}i}{80} & 0 \\ \frac{\sqrt{2}i}{8} & 0 & 0 & 0 & \frac{\sqrt{10}i}{56} & 0 & 0 & \frac{\sqrt{3}i}{80} & 0 & \frac{\sqrt{15}i}{80} & 0 & \frac{i}{560} & 0 & \frac{3\sqrt{21}i}{80} \\ 0 & 0 & 0 & \frac{\sqrt{10}i}{56} & 0 & -\frac{i}{28} & 0 & 0 & -\frac{7\sqrt{2}i}{80} & 0 & \frac{\sqrt{30}i}{280} & 0 & -\frac{13\sqrt{6}i}{560} & 0 \\ 0 & 0 & -\frac{\sqrt{2}i}{8} & 0 & -\frac{i}{28} & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}i}{16} & 0 & -\frac{\sqrt{10}i}{56} & 0 & \frac{\sqrt{210}i}{560} \end{bmatrix}$$

$$\boxed{\text{x185}} \quad \mathbb{G}_2^{(1,-1;a)}(A_{1u}) = \begin{bmatrix} 0 & -\frac{3\sqrt{6}i}{70} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{2\sqrt{15}i}{35} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{3i}{70} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{6\sqrt{3}i}{35} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{3i}{70} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{6\sqrt{3}i}{35} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{3\sqrt{6}i}{70} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{2\sqrt{15}i}{35} & 0 & 0 \\ \frac{\sqrt{6}i}{21} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3i}{14} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{6}i}{105} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{15}i}{70} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{4\sqrt{6}i}{105} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{2}i}{70} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{4\sqrt{6}i}{105} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{2}i}{70} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{6}i}{105} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{15}i}{70} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}i}{21} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3i}{14} & 0 \end{bmatrix}$$

$$\boxed{\text{x186}} \quad \mathbb{G}_4^{(1,-1;a)}(A_{1u}, 1) = \begin{bmatrix} 0 & \frac{\sqrt{7}i}{168} & 0 & 0 & 0 & \frac{\sqrt{35}i}{168} & 0 & 0 & \frac{\sqrt{70}i}{56} & 0 & 0 & 0 & \frac{\sqrt{210}i}{168} & 0 \\ 0 & 0 & -\frac{\sqrt{42}i}{168} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{14}i}{168} & 0 & 0 & 0 & \frac{\sqrt{10}i}{24} \\ 0 & 0 & 0 & \frac{\sqrt{42}i}{168} & 0 & 0 & \frac{\sqrt{10}i}{24} & 0 & 0 & 0 & -\frac{5\sqrt{14}i}{168} & 0 & 0 & 0 \\ -\frac{\sqrt{35}i}{168} & 0 & 0 & 0 & -\frac{\sqrt{7}i}{168} & 0 & 0 & \frac{\sqrt{210}i}{168} & 0 & 0 & 0 & \frac{\sqrt{70}i}{56} & 0 & 0 \\ -\frac{\sqrt{7}i}{84} & 0 & 0 & 0 & -\frac{\sqrt{35}i}{84} & 0 & 0 & -\frac{5\sqrt{42}i}{168} & 0 & 0 & 0 & -\frac{5\sqrt{14}i}{168} & 0 & 0 \\ 0 & \frac{\sqrt{7}i}{28} & 0 & 0 & 0 & -\frac{\sqrt{35}i}{84} & 0 & 0 & \frac{\sqrt{70}i}{42} & 0 & 0 & 0 & -\frac{\sqrt{210}i}{84} & 0 \\ 0 & 0 & -\frac{\sqrt{7}i}{42} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{21}i}{168} & 0 & 0 & 0 & -\frac{\sqrt{15}i}{24} \\ 0 & 0 & 0 & -\frac{\sqrt{7}i}{42} & 0 & 0 & \frac{\sqrt{15}i}{24} & 0 & 0 & 0 & -\frac{5\sqrt{21}i}{168} & 0 & 0 & 0 \\ -\frac{\sqrt{35}i}{84} & 0 & 0 & 0 & \frac{\sqrt{7}i}{28} & 0 & 0 & \frac{\sqrt{210}i}{84} & 0 & 0 & 0 & -\frac{\sqrt{70}i}{42} & 0 & 0 \\ 0 & -\frac{\sqrt{35}i}{84} & 0 & 0 & 0 & -\frac{\sqrt{7}i}{84} & 0 & 0 & \frac{5\sqrt{14}i}{168} & 0 & 0 & 0 & \frac{5\sqrt{42}i}{168} & 0 \end{bmatrix}$$

$$\boxed{\text{x187}} \quad \mathbb{G}_4^{(1,-1;a)}(A_{1u}, 2) = \begin{bmatrix} 0 & \frac{\sqrt{5}i}{168} & 0 & 0 & 0 & -\frac{i}{24} & 0 & 0 & \frac{5\sqrt{2}i}{56} & 0 & 0 & 0 & -\frac{\sqrt{6}i}{24} & 0 \\ 0 & 0 & -\frac{\sqrt{30}i}{168} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{10}i}{168} & 0 & 0 & 0 & -\frac{\sqrt{14}i}{24} \\ 0 & 0 & 0 & \frac{\sqrt{30}i}{168} & 0 & 0 & -\frac{\sqrt{14}i}{24} & 0 & 0 & 0 & -\frac{5\sqrt{10}i}{168} & 0 & 0 & 0 \\ \frac{i}{24} & 0 & 0 & 0 & -\frac{\sqrt{5}i}{168} & 0 & 0 & -\frac{\sqrt{6}i}{24} & 0 & 0 & 0 & \frac{5\sqrt{2}i}{56} & 0 & 0 \\ -\frac{\sqrt{5}i}{84} & 0 & 0 & 0 & \frac{i}{12} & 0 & 0 & -\frac{5\sqrt{30}i}{168} & 0 & 0 & 0 & \frac{\sqrt{10}i}{24} & 0 & 0 \\ 0 & \frac{\sqrt{5}i}{28} & 0 & 0 & 0 & \frac{i}{12} & 0 & 0 & \frac{5\sqrt{2}i}{42} & 0 & 0 & 0 & \frac{\sqrt{6}i}{12} & 0 \\ 0 & 0 & -\frac{\sqrt{5}i}{42} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{15}i}{168} & 0 & 0 & 0 & \frac{\sqrt{21}i}{24} \\ 0 & 0 & 0 & -\frac{\sqrt{5}i}{42} & 0 & 0 & -\frac{\sqrt{21}i}{24} & 0 & 0 & 0 & -\frac{5\sqrt{15}i}{168} & 0 & 0 & 0 \\ \frac{i}{12} & 0 & 0 & 0 & \frac{\sqrt{5}i}{28} & 0 & 0 & -\frac{\sqrt{6}i}{12} & 0 & 0 & 0 & -\frac{5\sqrt{2}i}{42} & 0 & 0 \\ 0 & \frac{i}{12} & 0 & 0 & 0 & -\frac{\sqrt{5}i}{84} & 0 & 0 & -\frac{\sqrt{10}i}{24} & 0 & 0 & 0 & \frac{5\sqrt{30}i}{168} & 0 \end{bmatrix}$$

$$\boxed{\text{x188}} \quad \mathbb{G}_6^{(1,-1;a)}(A_{1u}, 1) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{33}i}{264} & 0 & 0 & -\frac{7\sqrt{11}i}{88} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{55}i}{88} & 0 & 0 & \frac{7\sqrt{165}i}{264} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{66}i}{264} & 0 & 0 & -\frac{\sqrt{2310}i}{264} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2310}i}{264} & 0 & 0 & -\frac{5\sqrt{66}i}{264} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{7\sqrt{165}i}{264} & 0 & 0 & 0 & \frac{\sqrt{55}i}{88} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{7\sqrt{11}i}{88} & 0 & 0 & 0 & -\frac{\sqrt{33}i}{264} & 0 \end{bmatrix}$$

$$\boxed{\text{x189}} \quad \mathbb{G}_6^{(1,-1;a)}(A_{1u}, 2) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{231}i}{264} & 0 & 0 & \frac{\sqrt{77}i}{88} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{385}i}{88} & 0 & 0 & -\frac{\sqrt{1155}i}{264} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{462}i}{264} & 0 & 0 & \frac{\sqrt{330}i}{264} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{330}i}{264} & 0 & 0 & 0 & -\frac{5\sqrt{462}i}{264} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{1155}i}{264} & 0 & 0 & 0 & \frac{\sqrt{385}i}{88} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{77}i}{88} & 0 & 0 & 0 & -\frac{\sqrt{231}i}{264} & 0 \end{bmatrix}$$

$$\boxed{\text{x190}} \quad \mathbb{G}_4^{(1,-1;a)}(A_{2u}) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{84} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}}{28} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{12} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{12} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{21}}{84} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}}{28} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{21}}{42} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}}{84} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}}{42} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}}{14} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{1}{4} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{1}{4} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{21}}{42} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}}{14} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{21}}{42} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}}{84} & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x191}} \quad \mathbb{G}_6^{(1,-1;a)}(A_{2u}) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{154}}{44} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2310}}{132} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{165}}{66} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{165}}{66} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2310}}{132} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{154}}{44} & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x192}} \quad \mathbb{G}_2^{(1,-1;a)}(B_{1u}) = \begin{bmatrix} 0 & 0 & 0 & -\frac{3i}{70} & 0 & 0 & -\frac{\sqrt{105}i}{35} & 0 & 0 & 0 & -\frac{\sqrt{3}i}{35} & 0 & 0 & 0 \\ \frac{\sqrt{30}i}{70} & 0 & 0 & 0 & -\frac{\sqrt{6}i}{35} & 0 & 0 & -\frac{3\sqrt{5}i}{35} & 0 & 0 & 0 & -\frac{\sqrt{15}i}{35} & 0 & 0 \\ 0 & \frac{\sqrt{6}i}{35} & 0 & 0 & 0 & -\frac{\sqrt{30}i}{70} & 0 & 0 & -\frac{\sqrt{15}i}{35} & 0 & 0 & 0 & -\frac{3\sqrt{5}i}{35} & 0 \\ 0 & 0 & \frac{3i}{70} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{35} & 0 & 0 & 0 & -\frac{\sqrt{105}i}{35} \\ 0 & 0 & \frac{\sqrt{5}i}{35} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{70} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{3i}{35} & 0 & 0 & -\frac{\sqrt{105}i}{70} & 0 & 0 & 0 & \frac{2\sqrt{3}i}{35} & 0 & 0 & 0 \\ \frac{\sqrt{5}i}{35} & 0 & 0 & 0 & \frac{3i}{35} & 0 & 0 & -\frac{\sqrt{30}i}{35} & 0 & 0 & 0 & \frac{3\sqrt{10}i}{70} & 0 & 0 \\ 0 & \frac{3i}{35} & 0 & 0 & 0 & \frac{\sqrt{5}i}{35} & 0 & 0 & -\frac{3\sqrt{10}i}{70} & 0 & 0 & 0 & \frac{\sqrt{30}i}{35} & 0 \\ 0 & 0 & \frac{3i}{35} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{2\sqrt{3}i}{35} & 0 & 0 & 0 & \frac{\sqrt{105}i}{70} \\ 0 & 0 & 0 & \frac{\sqrt{5}i}{35} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{70} & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x193}} \quad \mathbb{G}_4^{(1,-1;a)}(B_{1u}) = \begin{bmatrix} 0 & 0 & 0 & -\frac{\sqrt{30}i}{168} & 0 & 0 & -\frac{\sqrt{14}i}{56} & 0 & 0 & 0 & -\frac{3\sqrt{10}i}{56} & 0 & 0 & 0 \\ \frac{i}{56} & 0 & 0 & 0 & \frac{\sqrt{5}i}{56} & 0 & 0 & \frac{11\sqrt{6}i}{168} & 0 & 0 & 0 & -\frac{\sqrt{2}i}{56} & 0 & 0 \\ 0 & -\frac{\sqrt{5}i}{56} & 0 & 0 & 0 & -\frac{i}{56} & 0 & 0 & -\frac{\sqrt{2}i}{56} & 0 & 0 & 0 & \frac{11\sqrt{6}i}{168} & 0 \\ 0 & 0 & \frac{\sqrt{30}i}{168} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{10}i}{56} & 0 & 0 & 0 & -\frac{\sqrt{14}i}{56} \\ 0 & 0 & \frac{\sqrt{6}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{2}i}{28} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{30}i}{84} & 0 & 0 & -\frac{3\sqrt{14}i}{56} & 0 & 0 & 0 & \frac{\sqrt{10}i}{56} & 0 & 0 & 0 \\ \frac{\sqrt{6}i}{28} & 0 & 0 & 0 & -\frac{\sqrt{30}i}{84} & 0 & 0 & \frac{9i}{56} & 0 & 0 & 0 & -\frac{17\sqrt{3}i}{168} & 0 & 0 \\ 0 & -\frac{\sqrt{30}i}{84} & 0 & 0 & 0 & \frac{\sqrt{6}i}{28} & 0 & 0 & \frac{17\sqrt{3}i}{168} & 0 & 0 & 0 & -\frac{9i}{56} & 0 \\ 0 & 0 & -\frac{\sqrt{30}i}{84} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}i}{56} & 0 & 0 & 0 & \frac{3\sqrt{14}i}{56} \\ 0 & 0 & 0 & \frac{\sqrt{6}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{2}i}{28} & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x194}} \quad \mathbb{G}_6^{(1,-1;a)}(B_{1u}, 1) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}i}{24} & 0 & 0 & 0 & \frac{\sqrt{5}i}{8} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{i}{24} & 0 & 0 & \frac{\sqrt{35}i}{24} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}i}{24} & 0 & 0 & -\frac{\sqrt{42}i}{24} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{42}i}{24} & 0 & 0 & \frac{\sqrt{14}i}{24} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}i}{24} & 0 & 0 & 0 & -\frac{i}{24} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{8} & 0 & 0 & 0 & \frac{\sqrt{7}i}{24} & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x195}} \quad \mathbb{G}_6^{(1,-1;a)}(B_{1u}, 2) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{385}i}{264} & 0 & 0 & 0 & \frac{\sqrt{11}i}{8} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{55}i}{264} & 0 & 0 & -\frac{5\sqrt{77}i}{264} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{770}i}{264} & 0 & 0 & \frac{\sqrt{2310}i}{264} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2310}i}{264} & 0 & 0 & -\frac{\sqrt{770}i}{264} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{77}i}{264} & 0 & 0 & 0 & \frac{\sqrt{55}i}{264} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{11}i}{8} & 0 & 0 & -\frac{\sqrt{385}i}{264} & 0 & 0 & 0 & 0 \end{bmatrix}$$



$$\boxed{\text{x199}} \quad \mathbb{G}_6^{(1,-1;a)}(B_{2u},2) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{77}}{66} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{11}}{66} & 0 & 0 & 0 & -\frac{\sqrt{385}}{66} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{154}}{66} & 0 & 0 & 0 & \frac{\sqrt{462}}{66} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{462}}{66} & 0 & 0 & 0 & -\frac{\sqrt{154}}{66} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{385}}{66} & 0 & 0 & 0 & \frac{\sqrt{11}}{66} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{77}}{66} & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x200}} \quad \mathbb{G}_{2,1}^{(1,-1;a)}(E_u) = \begin{bmatrix} -\frac{3\sqrt{10}}{140} & 0 & -\frac{9}{140} & 0 & 0 & 0 & 0 & 0 & -\frac{2\sqrt{15}}{35} & 0 & -\frac{2\sqrt{3}}{35} & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{6}}{140} & 0 & -\frac{\sqrt{3}}{28} & 0 & 0 & 0 & 0 & 0 & -\frac{2\sqrt{15}}{35} & 0 & -\frac{6}{35} & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{3}}{28} & 0 & -\frac{\sqrt{6}}{140} & 0 & 0 & 0 & 0 & 0 & -\frac{6}{35} & 0 & -\frac{2\sqrt{15}}{35} & 0 & 0 \\ 0 & 0 & 0 & \frac{9}{140} & 0 & \frac{3\sqrt{10}}{140} & 0 & 0 & 0 & 0 & -\frac{2\sqrt{3}}{35} & 0 & -\frac{2\sqrt{15}}{35} & 0 & 0 \\ 0 & \frac{\sqrt{10}}{35} & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{28} & 0 & \frac{3}{28} & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{10}}{35} & 0 & \frac{2}{35} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{140} & 0 & \frac{11\sqrt{3}}{140} & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{2}{35} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{10}}{140} & 0 & \frac{\sqrt{6}}{20} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{2}{35} & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{20} & 0 & \frac{3\sqrt{10}}{140} & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{2}{35} & 0 & -\frac{\sqrt{10}}{35} & 0 & 0 & 0 & 0 & -\frac{11\sqrt{3}}{140} & 0 & -\frac{\sqrt{15}}{140} & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{10}}{35} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3}{28} & 0 & -\frac{\sqrt{21}}{28} & 0 \end{bmatrix}$$

$$\boxed{\text{x201}} \quad \mathbb{G}_{2,2}^{(1,-1;a)}(E_u) = \begin{bmatrix} -\frac{3\sqrt{10}i}{140} & 0 & \frac{9i}{140} & 0 & 0 & 0 & 0 & 0 & -\frac{2\sqrt{15}i}{35} & 0 & \frac{2\sqrt{3}i}{35} & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{6}i}{140} & 0 & \frac{\sqrt{3}i}{28} & 0 & 0 & 0 & 0 & 0 & -\frac{2\sqrt{15}i}{35} & 0 & \frac{6i}{35} & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{3}i}{28} & 0 & \frac{\sqrt{6}i}{140} & 0 & 0 & 0 & 0 & 0 & -\frac{6i}{35} & 0 & \frac{2\sqrt{15}i}{35} & 0 & 0 \\ 0 & 0 & 0 & \frac{9i}{140} & 0 & -\frac{3\sqrt{10}i}{140} & 0 & 0 & 0 & 0 & 0 & -\frac{2\sqrt{3}i}{35} & 0 & \frac{2\sqrt{15}i}{35} & 0 \\ 0 & -\frac{\sqrt{10}i}{35} & 0 & 0 & 0 & 0 & \frac{\sqrt{21}i}{28} & 0 & -\frac{3i}{28} & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{10}i}{35} & 0 & -\frac{2i}{35} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{140} & 0 & -\frac{11\sqrt{3}i}{140} & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{2i}{35} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{10}i}{140} & 0 & -\frac{\sqrt{6}i}{20} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{2i}{35} & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}i}{20} & 0 & -\frac{3\sqrt{10}i}{140} & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{2i}{35} & 0 & \frac{\sqrt{10}i}{35} & 0 & 0 & 0 & 0 & -\frac{11\sqrt{3}i}{140} & 0 & \frac{\sqrt{15}i}{140} & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{10}i}{35} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3i}{28} & 0 & \frac{\sqrt{21}i}{28} & 0 \end{bmatrix}$$



$$\boxed{\text{x202}} \quad \mathbb{G}_{4,1}^{(1,-1;a)}(E_u, 1) = \begin{bmatrix} -\frac{\sqrt{21}}{672} & 0 & -\frac{\sqrt{210}}{672} & 0 & -\frac{\sqrt{105}}{672} & 0 & 0 & -\frac{3\sqrt{14}}{112} & 0 & -\frac{\sqrt{70}}{56} & 0 & -\frac{\sqrt{42}}{112} & 0 & 0 \\ 0 & \frac{\sqrt{35}}{224} & 0 & \frac{\sqrt{70}}{224} & 0 & \frac{\sqrt{7}}{224} & \frac{\sqrt{6}}{48} & 0 & \frac{\sqrt{14}}{28} & 0 & \frac{\sqrt{210}}{336} & 0 & -\frac{\sqrt{42}}{168} & 0 \\ -\frac{\sqrt{7}}{224} & 0 & -\frac{\sqrt{70}}{224} & 0 & -\frac{\sqrt{35}}{224} & 0 & 0 & -\frac{\sqrt{42}}{168} & 0 & \frac{\sqrt{210}}{336} & 0 & \frac{\sqrt{14}}{28} & 0 & \frac{\sqrt{6}}{48} \\ 0 & \frac{\sqrt{105}}{672} & 0 & \frac{\sqrt{210}}{672} & 0 & \frac{\sqrt{21}}{672} & 0 & 0 & -\frac{\sqrt{42}}{112} & 0 & -\frac{\sqrt{70}}{56} & 0 & -\frac{3\sqrt{14}}{112} & 0 \\ 0 & \frac{\sqrt{21}}{84} & 0 & \frac{\sqrt{42}}{168} & 0 & 0 & \frac{\sqrt{10}}{32} & 0 & \frac{5\sqrt{210}}{336} & 0 & \frac{5\sqrt{14}}{224} & 0 & 0 & 0 \\ -\frac{\sqrt{21}}{84} & 0 & -\frac{\sqrt{210}}{168} & 0 & 0 & 0 & 0 & -\frac{13\sqrt{14}}{224} & 0 & -\frac{\sqrt{70}}{112} & 0 & \frac{\sqrt{42}}{96} & 0 & 0 \\ 0 & \frac{\sqrt{210}}{168} & 0 & 0 & 0 & -\frac{\sqrt{42}}{168} & \frac{3}{32} & 0 & \frac{\sqrt{21}}{672} & 0 & -\frac{\sqrt{35}}{32} & 0 & -\frac{\sqrt{7}}{224} & 0 \\ -\frac{\sqrt{42}}{168} & 0 & 0 & 0 & \frac{\sqrt{210}}{168} & 0 & 0 & \frac{\sqrt{7}}{224} & 0 & \frac{\sqrt{35}}{32} & 0 & -\frac{\sqrt{21}}{672} & 0 & -\frac{3}{32} \\ 0 & 0 & 0 & -\frac{\sqrt{210}}{168} & 0 & -\frac{\sqrt{21}}{84} & 0 & 0 & -\frac{\sqrt{42}}{96} & 0 & \frac{\sqrt{70}}{112} & 0 & \frac{13\sqrt{14}}{224} & 0 \\ 0 & 0 & \frac{\sqrt{42}}{168} & 0 & \frac{\sqrt{21}}{84} & 0 & 0 & 0 & 0 & -\frac{5\sqrt{14}}{224} & 0 & -\frac{5\sqrt{210}}{336} & 0 & -\frac{\sqrt{10}}{32} \end{bmatrix}$$

$$\boxed{\text{x203}} \quad \mathbb{G}_{4,2}^{(1,-1;a)}(E_u, 1) = \begin{bmatrix} -\frac{\sqrt{21}i}{672} & 0 & \frac{\sqrt{210}i}{672} & 0 & -\frac{\sqrt{105}i}{672} & 0 & 0 & -\frac{3\sqrt{14}i}{112} & 0 & \frac{\sqrt{70}i}{56} & 0 & -\frac{\sqrt{42}i}{112} & 0 & 0 \\ 0 & \frac{\sqrt{35}i}{224} & 0 & -\frac{\sqrt{70}i}{224} & 0 & \frac{\sqrt{7}i}{224} & -\frac{\sqrt{6}i}{48} & 0 & \frac{\sqrt{14}i}{28} & 0 & -\frac{\sqrt{210}i}{336} & 0 & -\frac{\sqrt{42}i}{168} & 0 \\ \frac{\sqrt{7}i}{224} & 0 & -\frac{\sqrt{70}i}{224} & 0 & \frac{\sqrt{35}i}{224} & 0 & 0 & \frac{\sqrt{42}i}{168} & 0 & \frac{\sqrt{210}i}{336} & 0 & -\frac{\sqrt{14}i}{28} & 0 & \frac{\sqrt{6}i}{48} \\ 0 & -\frac{\sqrt{105}i}{672} & 0 & \frac{\sqrt{210}i}{672} & 0 & -\frac{\sqrt{21}i}{672} & 0 & 0 & \frac{\sqrt{42}i}{112} & 0 & -\frac{\sqrt{70}i}{56} & 0 & \frac{3\sqrt{14}i}{112} & 0 \\ 0 & -\frac{\sqrt{21}i}{84} & 0 & \frac{\sqrt{42}i}{168} & 0 & 0 & \frac{\sqrt{10}i}{32} & 0 & -\frac{5\sqrt{210}i}{336} & 0 & \frac{5\sqrt{14}i}{224} & 0 & 0 & 0 \\ -\frac{\sqrt{21}i}{84} & 0 & \frac{\sqrt{210}i}{168} & 0 & 0 & 0 & 0 & -\frac{13\sqrt{14}i}{224} & 0 & \frac{\sqrt{70}i}{112} & 0 & \frac{\sqrt{42}i}{96} & 0 & 0 \\ 0 & \frac{\sqrt{210}i}{168} & 0 & 0 & 0 & -\frac{\sqrt{42}i}{168} & -\frac{3i}{32} & 0 & \frac{\sqrt{21}i}{672} & 0 & \frac{\sqrt{35}i}{32} & 0 & -\frac{\sqrt{7}i}{224} & 0 \\ \frac{\sqrt{42}i}{168} & 0 & 0 & 0 & -\frac{\sqrt{210}i}{168} & 0 & 0 & -\frac{\sqrt{7}i}{224} & 0 & \frac{\sqrt{35}i}{32} & 0 & \frac{\sqrt{21}i}{672} & 0 & -\frac{3i}{32} \\ 0 & 0 & 0 & -\frac{\sqrt{210}i}{168} & 0 & \frac{\sqrt{21}i}{84} & 0 & 0 & \frac{\sqrt{42}i}{96} & 0 & \frac{\sqrt{70}i}{112} & 0 & -\frac{13\sqrt{14}i}{224} & 0 \\ 0 & 0 & -\frac{\sqrt{42}i}{168} & 0 & \frac{\sqrt{21}i}{84} & 0 & 0 & 0 & 0 & \frac{5\sqrt{14}i}{224} & 0 & -\frac{5\sqrt{210}i}{336} & 0 & \frac{\sqrt{10}i}{32} \end{bmatrix}$$

$$\boxed{\text{x204}} \quad \mathbb{G}_{4,1}^{(1,-1;a)}(E_u, 2) = \begin{bmatrix} -\frac{\sqrt{3}}{672} & 0 & -\frac{\sqrt{30}}{672} & 0 & \frac{\sqrt{15}}{96} & 0 & 0 & -\frac{3\sqrt{2}}{112} & 0 & -\frac{\sqrt{10}}{56} & 0 & \frac{\sqrt{6}}{16} & 0 & 0 \\ 0 & \frac{\sqrt{5}}{224} & 0 & \frac{\sqrt{10}}{224} & 0 & -\frac{1}{32} & -\frac{\sqrt{42}}{48} & 0 & \frac{\sqrt{2}}{28} & 0 & \frac{\sqrt{30}}{336} & 0 & \frac{\sqrt{6}}{24} & 0 \\ \frac{1}{32} & 0 & -\frac{\sqrt{10}}{224} & 0 & -\frac{\sqrt{5}}{224} & 0 & 0 & \frac{\sqrt{6}}{24} & 0 & \frac{\sqrt{30}}{336} & 0 & \frac{\sqrt{2}}{28} & 0 & -\frac{\sqrt{42}}{48} \\ 0 & -\frac{\sqrt{15}}{96} & 0 & \frac{\sqrt{30}}{672} & 0 & \frac{\sqrt{3}}{672} & 0 & 0 & \frac{\sqrt{6}}{16} & 0 & -\frac{\sqrt{10}}{56} & 0 & -\frac{3\sqrt{2}}{112} & 0 \\ 0 & \frac{\sqrt{3}}{84} & 0 & -\frac{\sqrt{6}}{24} & 0 & 0 & \frac{\sqrt{70}}{224} & 0 & \frac{5\sqrt{30}}{336} & 0 & -\frac{5\sqrt{2}}{32} & 0 & 0 & 0 \\ -\frac{\sqrt{3}}{84} & 0 & -\frac{\sqrt{30}}{168} & 0 & 0 & 0 & 0 & -\frac{13\sqrt{2}}{224} & 0 & -\frac{\sqrt{10}}{112} & 0 & -\frac{7\sqrt{6}}{96} & 0 & 0 \\ 0 & \frac{\sqrt{30}}{168} & 0 & 0 & 0 & \frac{\sqrt{6}}{24} & -\frac{3\sqrt{7}}{32} & 0 & \frac{\sqrt{3}}{672} & 0 & -\frac{\sqrt{5}}{32} & 0 & \frac{1}{32} & 0 \\ \frac{\sqrt{6}}{24} & 0 & 0 & 0 & \frac{\sqrt{30}}{168} & 0 & 0 & -\frac{1}{32} & 0 & \frac{\sqrt{5}}{32} & 0 & -\frac{\sqrt{3}}{672} & 0 & \frac{3\sqrt{7}}{32} \\ 0 & 0 & 0 & -\frac{\sqrt{30}}{168} & 0 & -\frac{\sqrt{3}}{84} & 0 & 0 & \frac{7\sqrt{6}}{96} & 0 & \frac{\sqrt{10}}{112} & 0 & \frac{13\sqrt{2}}{224} & 0 \\ 0 & 0 & -\frac{\sqrt{6}}{24} & 0 & \frac{\sqrt{3}}{84} & 0 & 0 & 0 & 0 & \frac{5\sqrt{2}}{32} & 0 & -\frac{5\sqrt{30}}{336} & 0 & -\frac{\sqrt{70}}{224} \end{bmatrix}$$

$$\boxed{\text{x205}} \quad \mathbb{G}_{4,2}^{(1,-1;a)}(E_u, 2) = \begin{bmatrix} -\frac{\sqrt{3}i}{672} & 0 & \frac{\sqrt{30}i}{672} & 0 & \frac{\sqrt{15}i}{96} & 0 & 0 & -\frac{3\sqrt{2}i}{112} & 0 & \frac{\sqrt{10}i}{56} & 0 & \frac{\sqrt{6}i}{16} & 0 & 0 \\ 0 & \frac{\sqrt{5}i}{224} & 0 & -\frac{\sqrt{10}i}{224} & 0 & -\frac{i}{32} & \frac{\sqrt{42}i}{48} & 0 & \frac{\sqrt{2}i}{28} & 0 & -\frac{\sqrt{30}i}{336} & 0 & \frac{\sqrt{6}i}{24} & 0 \\ -\frac{i}{32} & 0 & -\frac{\sqrt{10}i}{224} & 0 & \frac{\sqrt{5}i}{224} & 0 & 0 & -\frac{\sqrt{6}i}{24} & 0 & \frac{\sqrt{30}i}{336} & 0 & -\frac{\sqrt{2}i}{28} & 0 & -\frac{\sqrt{42}i}{48} \\ 0 & \frac{\sqrt{15}i}{96} & 0 & \frac{\sqrt{30}i}{672} & 0 & -\frac{\sqrt{3}i}{672} & 0 & 0 & -\frac{\sqrt{6}i}{16} & 0 & -\frac{\sqrt{10}i}{336} & 0 & \frac{3\sqrt{2}i}{112} & 0 \\ 0 & -\frac{\sqrt{3}i}{84} & 0 & -\frac{\sqrt{6}i}{24} & 0 & 0 & \frac{\sqrt{70}i}{224} & 0 & -\frac{5\sqrt{30}i}{336} & 0 & -\frac{5\sqrt{2}i}{32} & 0 & 0 & 0 \\ -\frac{\sqrt{3}i}{84} & 0 & \frac{\sqrt{30}i}{168} & 0 & 0 & 0 & 0 & -\frac{13\sqrt{2}i}{224} & 0 & \frac{\sqrt{10}i}{112} & 0 & -\frac{7\sqrt{6}i}{96} & 0 & 0 \\ 0 & \frac{\sqrt{30}i}{168} & 0 & 0 & 0 & \frac{\sqrt{6}i}{24} & \frac{3\sqrt{7}i}{32} & 0 & \frac{\sqrt{3}i}{672} & 0 & \frac{\sqrt{5}i}{32} & 0 & \frac{i}{32} & 0 \\ -\frac{\sqrt{6}i}{24} & 0 & 0 & 0 & -\frac{\sqrt{30}i}{168} & 0 & 0 & \frac{i}{32} & 0 & \frac{\sqrt{5}i}{32} & 0 & \frac{\sqrt{3}i}{672} & 0 & \frac{3\sqrt{7}i}{32} \\ 0 & 0 & 0 & -\frac{\sqrt{30}i}{168} & 0 & \frac{\sqrt{3}i}{84} & 0 & 0 & -\frac{7\sqrt{6}i}{96} & 0 & \frac{\sqrt{10}i}{112} & 0 & -\frac{13\sqrt{2}i}{224} & 0 \\ 0 & 0 & \frac{\sqrt{6}i}{24} & 0 & \frac{\sqrt{3}i}{84} & 0 & 0 & 0 & 0 & -\frac{5\sqrt{2}i}{32} & 0 & -\frac{5\sqrt{30}i}{336} & 0 & \frac{\sqrt{70}i}{224} \end{bmatrix}$$

$$\boxed{\text{x206}} \quad \mathbb{G}_{6,1}^{(1,-1;a)}(E_u, 1) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{66}}{1056} & 0 & \frac{\sqrt{154}}{352} & 0 & -\frac{\sqrt{2310}}{352} & 0 & -\frac{\sqrt{462}}{96} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2310}}{1056} & 0 & -\frac{5\sqrt{462}}{1056} & 0 & \frac{3\sqrt{770}}{352} & 0 & \frac{\sqrt{330}}{96} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{165}}{176} & 0 & \frac{\sqrt{385}}{176} & 0 & \frac{5\sqrt{231}}{528} & 0 & -\frac{\sqrt{1155}}{176} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{1155}}{176} & 0 & -\frac{5\sqrt{231}}{528} & 0 & -\frac{\sqrt{385}}{176} & 0 & \frac{\sqrt{165}}{176} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{330}}{96} & 0 & -\frac{3\sqrt{770}}{352} & 0 & \frac{5\sqrt{462}}{1056} & 0 & \frac{\sqrt{2310}}{1056} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{462}}{96} & 0 & \frac{\sqrt{2310}}{352} & 0 & -\frac{\sqrt{154}}{352} & 0 & -\frac{\sqrt{66}}{1056} \end{bmatrix}$$

$$\boxed{\text{x207}} \quad \mathbb{G}_{6,2}^{(1,-1;a)}(E_u, 1) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{66}i}{1056} & 0 & -\frac{\sqrt{154}i}{352} & 0 & -\frac{\sqrt{2310}i}{352} & 0 & \frac{\sqrt{462}i}{96} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2310}i}{1056} & 0 & \frac{5\sqrt{462}i}{1056} & 0 & \frac{3\sqrt{770}i}{352} & 0 & -\frac{\sqrt{330}i}{96} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{165}i}{176} & 0 & \frac{\sqrt{385}i}{176} & 0 & -\frac{5\sqrt{231}i}{528} & 0 & -\frac{\sqrt{1155}i}{176} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{1155}i}{176} & 0 & -\frac{5\sqrt{231}i}{528} & 0 & \frac{\sqrt{385}i}{176} & 0 & \frac{\sqrt{165}i}{176} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{330}i}{96} & 0 & \frac{3\sqrt{770}i}{352} & 0 & \frac{5\sqrt{462}i}{1056} & 0 & -\frac{\sqrt{2310}i}{1056} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{462}i}{96} & 0 & -\frac{\sqrt{2310}i}{352} & 0 & -\frac{\sqrt{154}i}{352} & 0 & \frac{\sqrt{66}i}{1056} \end{bmatrix}$$

x208

x209

x210

$$\boxed{\text{x211}} \quad \mathbb{G}_{6,2}^{(1,-1;a)}(E_u, 3) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{55}i}{2112} & 0 & -\frac{\sqrt{1155}i}{2112} & 0 & -\frac{9\sqrt{77}i}{704} & 0 & -\frac{\sqrt{385}i}{64} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{77}i}{2112} & 0 & \frac{5\sqrt{385}i}{2112} & 0 & \frac{9\sqrt{231}i}{704} & 0 & \frac{5\sqrt{11}i}{64} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{9\sqrt{22}i}{704} & 0 & \frac{5\sqrt{462}i}{2112} & 0 & -\frac{5\sqrt{770}i}{2112} & 0 & -\frac{9\sqrt{154}i}{704} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{9\sqrt{154}i}{704} & 0 & -\frac{5\sqrt{770}i}{2112} & 0 & \frac{5\sqrt{462}i}{2112} & 0 & \frac{9\sqrt{22}i}{704} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{11}i}{64} & 0 & \frac{9\sqrt{231}i}{704} & 0 & \frac{5\sqrt{385}i}{2112} & 0 & -\frac{5\sqrt{77}i}{2112} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{385}i}{64} & 0 & -\frac{9\sqrt{77}i}{704} & 0 & -\frac{\sqrt{1155}i}{2112} & 0 & \frac{\sqrt{55}i}{2112} & 0 \end{bmatrix}$$

$$\boxed{\text{x212}} \quad \mathbb{G}_2^{(1,0;a)}(A_{1u}) = \begin{bmatrix} 0 & \frac{\sqrt{15}i}{35} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}i}{14} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{10}i}{70} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{30}i}{70} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{10}i}{70} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{30}i}{70} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{35} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}i}{14} & 0 & 0 & 0 \\ -\frac{\sqrt{15}i}{14} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{15}i}{70} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{2\sqrt{15}i}{35} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{70} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{2\sqrt{15}i}{35} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}i}{70} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{70} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}i}{28} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{14} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{10}i}{28} & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x213}} \quad \mathbb{G}_4^{(1,0;a)}(A_{1u}, 1) = \begin{bmatrix} 0 & -\frac{\sqrt{105}i}{840} & 0 & 0 & 0 & -\frac{\sqrt{21}i}{168} & 0 & 0 & \frac{9\sqrt{42}i}{280} & 0 & 0 & 0 & \frac{9\sqrt{14}i}{280} & 0 & 0 \\ 0 & 0 & \frac{\sqrt{70}i}{280} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{210}i}{280} & 0 & 0 & 0 & \frac{3\sqrt{6}i}{40} & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{70}i}{280} & 0 & 0 & \frac{3\sqrt{6}i}{40} & 0 & 0 & 0 & -\frac{3\sqrt{210}i}{280} & 0 & 0 & 0 & 0 \\ \frac{\sqrt{21}i}{168} & 0 & 0 & 0 & \frac{\sqrt{105}i}{840} & 0 & 0 & \frac{9\sqrt{14}i}{280} & 0 & 0 & 0 & \frac{9\sqrt{42}i}{280} & 0 & 0 & 0 \\ \frac{\sqrt{105}i}{140} & 0 & 0 & 0 & \frac{\sqrt{21}i}{28} & 0 & 0 & \frac{\sqrt{70}i}{280} & 0 & 0 & 0 & \frac{\sqrt{210}i}{840} & 0 & 0 & 0 \\ 0 & -\frac{3\sqrt{105}i}{140} & 0 & 0 & 0 & \frac{\sqrt{21}i}{28} & 0 & 0 & -\frac{\sqrt{42}i}{210} & 0 & 0 & 0 & \frac{\sqrt{14}i}{140} & 0 & 0 \\ 0 & 0 & \frac{\sqrt{105}i}{70} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}i}{280} & 0 & 0 & 0 & \frac{i}{40} & 0 \\ 0 & 0 & 0 & \frac{\sqrt{105}i}{70} & 0 & 0 & -\frac{i}{40} & 0 & 0 & 0 & \frac{\sqrt{35}i}{280} & 0 & 0 & 0 & 0 \\ \frac{\sqrt{21}i}{28} & 0 & 0 & 0 & -\frac{3\sqrt{105}i}{140} & 0 & 0 & -\frac{\sqrt{14}i}{140} & 0 & 0 & 0 & \frac{\sqrt{42}i}{210} & 0 & 0 & 0 \\ 0 & \frac{\sqrt{21}i}{28} & 0 & 0 & 0 & \frac{\sqrt{105}i}{140} & 0 & 0 & -\frac{\sqrt{210}i}{840} & 0 & 0 & 0 & -\frac{\sqrt{70}i}{280} & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x214}} \quad \mathbb{G}_4^{(1,0;a)}(A_{1u}, 2) = \begin{bmatrix} 0 & -\frac{\sqrt{3}i}{168} & 0 & 0 & 0 & \frac{\sqrt{15}i}{120} & 0 & 0 & \frac{9\sqrt{30}i}{280} & 0 & 0 & 0 & -\frac{9\sqrt{10}i}{200} & 0 \\ 0 & 0 & \frac{\sqrt{2}i}{56} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{6}i}{56} & 0 & 0 & 0 & -\frac{3\sqrt{210}i}{200} \\ 0 & 0 & 0 & -\frac{\sqrt{2}i}{56} & 0 & 0 & -\frac{3\sqrt{210}i}{200} & 0 & 0 & 0 & -\frac{3\sqrt{6}i}{56} & 0 & 0 & 0 \\ -\frac{\sqrt{15}i}{120} & 0 & 0 & 0 & \frac{\sqrt{3}i}{168} & 0 & 0 & -\frac{9\sqrt{10}i}{200} & 0 & 0 & 0 & \frac{9\sqrt{30}i}{280} & 0 & 0 \\ \frac{\sqrt{3}i}{28} & 0 & 0 & 0 & -\frac{\sqrt{15}i}{20} & 0 & 0 & \frac{\sqrt{2}i}{56} & 0 & 0 & 0 & -\frac{\sqrt{6}i}{120} & 0 & 0 \\ 0 & -\frac{3\sqrt{3}i}{28} & 0 & 0 & 0 & -\frac{\sqrt{15}i}{20} & 0 & 0 & -\frac{\sqrt{30}i}{210} & 0 & 0 & 0 & -\frac{\sqrt{10}i}{100} & 0 \\ 0 & 0 & \frac{\sqrt{3}i}{14} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{i}{56} & 0 & 0 & 0 & -\frac{\sqrt{35}i}{200} \\ 0 & 0 & 0 & \frac{\sqrt{3}i}{14} & 0 & 0 & \frac{\sqrt{35}i}{200} & 0 & 0 & 0 & \frac{i}{56} & 0 & 0 & 0 \\ -\frac{\sqrt{15}i}{20} & 0 & 0 & 0 & -\frac{3\sqrt{3}i}{28} & 0 & 0 & \frac{\sqrt{10}i}{100} & 0 & 0 & 0 & \frac{\sqrt{30}i}{210} & 0 & 0 \\ 0 & -\frac{\sqrt{15}i}{20} & 0 & 0 & 0 & \frac{\sqrt{3}i}{28} & 0 & 0 & \frac{\sqrt{6}i}{120} & 0 & 0 & 0 & -\frac{\sqrt{2}i}{56} & 0 \end{bmatrix}$$

$$\boxed{\text{x215}} \quad \mathbb{G}_4^{(1,0;a)}(A_{2u}) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}}{140} & 0 & 0 & 0 & 0 & 0 & \frac{9\sqrt{210}}{700} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{9\sqrt{10}}{100} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{9\sqrt{10}}{100} & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{35}}{140} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{9\sqrt{210}}{700} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{3\sqrt{35}}{70} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}}{140} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{35}}{70} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{210}}{350} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{100} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{100} & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{3\sqrt{35}}{70} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{210}}{350} & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{3\sqrt{35}}{70} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}}{140} & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x216}} \quad \mathbb{G}_2^{(1,0;a)}(B_{1u}) = \begin{bmatrix} 0 & 0 & 0 & \frac{\sqrt{10}i}{70} & 0 & 0 & -\frac{\sqrt{42}i}{28} & 0 & 0 & 0 & -\frac{\sqrt{30}i}{140} & 0 & 0 & 0 \\ -\frac{\sqrt{3}i}{21} & 0 & 0 & 0 & \frac{2\sqrt{15}i}{105} & 0 & 0 & -\frac{3\sqrt{2}i}{28} & 0 & 0 & 0 & -\frac{\sqrt{6}i}{28} & 0 & 0 \\ 0 & -\frac{2\sqrt{15}i}{105} & 0 & 0 & 0 & \frac{\sqrt{3}i}{21} & 0 & 0 & -\frac{\sqrt{6}i}{28} & 0 & 0 & 0 & -\frac{3\sqrt{2}i}{28} & 0 \\ 0 & 0 & -\frac{\sqrt{10}i}{70} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}i}{140} & 0 & 0 & 0 & -\frac{\sqrt{42}i}{28} \\ 0 & 0 & -\frac{3\sqrt{2}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}i}{84} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{9\sqrt{10}i}{140} & 0 & 0 & \frac{\sqrt{42}i}{84} & 0 & 0 & 0 & -\frac{\sqrt{30}i}{105} & 0 & 0 & 0 \\ -\frac{3\sqrt{2}i}{28} & 0 & 0 & 0 & -\frac{9\sqrt{10}i}{140} & 0 & 0 & \frac{\sqrt{3}i}{21} & 0 & 0 & 0 & -\frac{i}{14} & 0 & 0 \\ 0 & -\frac{9\sqrt{10}i}{140} & 0 & 0 & 0 & -\frac{3\sqrt{2}i}{28} & 0 & 0 & \frac{i}{14} & 0 & 0 & 0 & -\frac{\sqrt{3}i}{21} & 0 \\ 0 & 0 & -\frac{9\sqrt{10}i}{140} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{105} & 0 & 0 & 0 & -\frac{\sqrt{42}i}{84} \\ 0 & 0 & 0 & -\frac{3\sqrt{2}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}i}{84} & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x217}} \quad \mathbb{G}_4^{(1,0;a)}(B_{1u}) = \begin{bmatrix} 0 & 0 & 0 & \frac{\sqrt{2}i}{56} & 0 & 0 & -\frac{9\sqrt{210}i}{1400} & 0 & 0 & 0 & -\frac{27\sqrt{6}i}{280} & 0 & 0 & 0 \\ -\frac{\sqrt{15}i}{280} & 0 & 0 & 0 & -\frac{\sqrt{3}i}{56} & 0 & 0 & \frac{99\sqrt{10}i}{1400} & 0 & 0 & 0 & -\frac{9\sqrt{30}i}{1400} & 0 & 0 \\ 0 & \frac{\sqrt{3}i}{56} & 0 & 0 & 0 & \frac{\sqrt{15}i}{280} & 0 & 0 & -\frac{9\sqrt{30}i}{1400} & 0 & 0 & 0 & \frac{99\sqrt{10}i}{1400} & 0 \\ 0 & 0 & -\frac{\sqrt{2}i}{56} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{27\sqrt{6}i}{280} & 0 & 0 & 0 & -\frac{9\sqrt{210}i}{1400} \\ 0 & 0 & -\frac{9\sqrt{10}i}{140} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}i}{140} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{3\sqrt{2}i}{28} & 0 & 0 & \frac{3\sqrt{210}i}{1400} & 0 & 0 & 0 & -\frac{\sqrt{6}i}{280} & 0 & 0 & 0 \\ -\frac{9\sqrt{10}i}{140} & 0 & 0 & 0 & \frac{3\sqrt{2}i}{28} & 0 & 0 & -\frac{9\sqrt{15}i}{1400} & 0 & 0 & 0 & \frac{17\sqrt{5}i}{1400} & 0 & 0 \\ 0 & \frac{3\sqrt{2}i}{28} & 0 & 0 & 0 & -\frac{9\sqrt{10}i}{140} & 0 & 0 & -\frac{17\sqrt{5}i}{1400} & 0 & 0 & 0 & \frac{9\sqrt{15}i}{1400} & 0 \\ 0 & 0 & \frac{3\sqrt{2}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}i}{280} & 0 & 0 & 0 & -\frac{3\sqrt{210}i}{1400} \\ 0 & 0 & 0 & -\frac{9\sqrt{10}i}{140} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{140} & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x218}} \quad \mathbb{G}_2^{(1,0;a)}(B_{2u}) = \begin{bmatrix} 0 & 0 & 0 & \frac{\sqrt{10}}{70} & 0 & 0 & \frac{\sqrt{42}}{28} & 0 & 0 & 0 & -\frac{\sqrt{30}}{140} & 0 & 0 & 0 \\ \frac{\sqrt{3}}{21} & 0 & 0 & 0 & \frac{2\sqrt{15}}{105} & 0 & 0 & \frac{3\sqrt{2}}{28} & 0 & 0 & 0 & -\frac{\sqrt{6}}{28} & 0 & 0 \\ 0 & \frac{2\sqrt{15}}{105} & 0 & 0 & 0 & \frac{\sqrt{3}}{21} & 0 & 0 & \frac{\sqrt{6}}{28} & 0 & 0 & 0 & -\frac{3\sqrt{2}}{28} & 0 \\ 0 & 0 & \frac{\sqrt{10}}{70} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{140} & 0 & 0 & 0 & -\frac{\sqrt{42}}{28} \\ 0 & 0 & -\frac{3\sqrt{2}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{84} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{9\sqrt{10}}{140} & 0 & 0 & -\frac{\sqrt{42}}{84} & 0 & 0 & 0 & -\frac{\sqrt{30}}{105} & 0 & 0 & 0 \\ \frac{3\sqrt{2}}{28} & 0 & 0 & 0 & -\frac{9\sqrt{10}}{140} & 0 & 0 & -\frac{\sqrt{3}}{21} & 0 & 0 & 0 & -\frac{1}{14} & 0 & 0 \\ 0 & \frac{9\sqrt{10}}{140} & 0 & 0 & 0 & -\frac{3\sqrt{2}}{28} & 0 & 0 & -\frac{1}{14} & 0 & 0 & 0 & -\frac{\sqrt{3}}{21} & 0 \\ 0 & 0 & \frac{9\sqrt{10}}{140} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}}{105} & 0 & 0 & 0 & -\frac{\sqrt{42}}{84} \\ 0 & 0 & 0 & \frac{3\sqrt{2}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{84} & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x219}} \quad \mathbb{G}_4^{(1,0;a)}(B_{2u}) = \begin{bmatrix} 0 & 0 & 0 & -\frac{\sqrt{2}}{56} & 0 & 0 & -\frac{9\sqrt{210}}{1400} & 0 & 0 & 0 & \frac{27\sqrt{6}}{280} & 0 & 0 & 0 \\ -\frac{\sqrt{15}}{280} & 0 & 0 & 0 & \frac{\sqrt{3}}{56} & 0 & 0 & \frac{99\sqrt{10}}{1400} & 0 & 0 & 0 & \frac{9\sqrt{30}}{1400} & 0 & 0 \\ 0 & \frac{\sqrt{3}}{56} & 0 & 0 & 0 & -\frac{\sqrt{15}}{280} & 0 & 0 & -\frac{9\sqrt{30}}{1400} & 0 & 0 & 0 & -\frac{99\sqrt{10}}{1400} & 0 \\ 0 & 0 & -\frac{\sqrt{2}}{56} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{27\sqrt{6}}{280} & 0 & 0 & 0 & \frac{9\sqrt{210}}{1400} \\ 0 & 0 & \frac{9\sqrt{10}}{140} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{140} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{3\sqrt{2}}{28} & 0 & 0 & \frac{3\sqrt{210}}{1400} & 0 & 0 & 0 & \frac{\sqrt{6}}{280} & 0 & 0 & 0 \\ -\frac{9\sqrt{10}}{140} & 0 & 0 & 0 & -\frac{3\sqrt{2}}{28} & 0 & 0 & -\frac{9\sqrt{15}}{1400} & 0 & 0 & 0 & -\frac{17\sqrt{5}}{1400} & 0 & 0 \\ 0 & \frac{3\sqrt{2}}{28} & 0 & 0 & 0 & \frac{9\sqrt{10}}{140} & 0 & 0 & -\frac{17\sqrt{5}}{1400} & 0 & 0 & 0 & -\frac{9\sqrt{15}}{1400} & 0 \\ 0 & 0 & \frac{3\sqrt{2}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{280} & 0 & 0 & 0 & \frac{3\sqrt{210}}{1400} \\ 0 & 0 & 0 & -\frac{9\sqrt{10}}{140} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{140} & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x220}} \quad \mathbb{G}_{2,1}^{(1,0;a)}(E_u) = \begin{bmatrix} \frac{1}{14} & 0 & \frac{3\sqrt{10}}{140} & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{14} & 0 & -\frac{\sqrt{30}}{70} & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{15}}{210} & 0 & \frac{\sqrt{30}}{84} & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{14} & 0 & -\frac{3\sqrt{10}}{70} & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{30}}{84} & 0 & \frac{\sqrt{15}}{210} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{10}}{70} & 0 & -\frac{\sqrt{6}}{14} & 0 & 0 \\ 0 & 0 & 0 & -\frac{3\sqrt{10}}{140} & 0 & -\frac{1}{14} & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}}{70} & 0 & -\frac{\sqrt{6}}{14} & 0 \\ 0 & -\frac{3}{14} & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}}{168} & 0 & -\frac{\sqrt{10}}{56} & 0 & 0 & 0 & 0 & 0 \\ \frac{3}{14} & 0 & -\frac{3\sqrt{10}}{70} & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{168} & 0 & -\frac{11\sqrt{30}}{840} & 0 & 0 & 0 & 0 \\ 0 & \frac{3\sqrt{10}}{70} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{1}{28} & 0 & -\frac{\sqrt{15}}{60} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{3\sqrt{10}}{70} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{60} & 0 & -\frac{1}{28} & 0 & 0 \\ 0 & 0 & 0 & -\frac{3\sqrt{10}}{70} & 0 & \frac{3}{14} & 0 & 0 & 0 & 0 & \frac{11\sqrt{30}}{840} & 0 & \frac{\sqrt{6}}{168} & 0 \\ 0 & 0 & 0 & 0 & -\frac{3}{14} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{10}}{56} & 0 & \frac{\sqrt{210}}{168} \end{bmatrix}$$

$$\boxed{\text{x221}} \quad \mathbb{G}_{2,2}^{(1,0;a)}(E_u) = \begin{bmatrix} \frac{i}{14} & 0 & -\frac{3\sqrt{10}i}{140} & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}i}{14} & 0 & \frac{\sqrt{30}i}{70} & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{15}i}{210} & 0 & -\frac{\sqrt{30}i}{84} & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}i}{14} & 0 & \frac{3\sqrt{10}i}{70} & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{30}i}{84} & 0 & -\frac{\sqrt{15}i}{210} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{10}i}{70} & 0 & \frac{\sqrt{6}i}{14} & 0 & 0 \\ 0 & 0 & 0 & -\frac{3\sqrt{10}i}{140} & 0 & \frac{i}{14} & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}i}{70} & 0 & \frac{\sqrt{6}i}{14} & 0 \\ 0 & \frac{3i}{14} & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}i}{168} & 0 & \frac{\sqrt{10}i}{56} & 0 & 0 & 0 & 0 & 0 \\ \frac{3i}{14} & 0 & \frac{3\sqrt{10}i}{70} & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}i}{168} & 0 & \frac{11\sqrt{30}i}{840} & 0 & 0 & 0 & 0 \\ 0 & \frac{3\sqrt{10}i}{70} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{i}{28} & 0 & \frac{\sqrt{15}i}{60} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{3\sqrt{10}i}{70} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{60} & 0 & \frac{i}{28} & 0 & 0 \\ 0 & 0 & 0 & -\frac{3\sqrt{10}i}{70} & 0 & -\frac{3i}{14} & 0 & 0 & 0 & 0 & \frac{11\sqrt{30}i}{840} & 0 & -\frac{\sqrt{6}i}{168} & 0 \\ 0 & 0 & 0 & 0 & -\frac{3i}{14} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{10}i}{56} & 0 & -\frac{\sqrt{210}i}{168} \end{bmatrix}$$

$$\boxed{\text{x222}} \quad \mathbb{G}_{4,1}^{(1,0;a)}(E_u, 1) = \begin{bmatrix} \frac{\sqrt{35}}{1120} & 0 & \frac{\sqrt{14}}{224} & 0 & \frac{\sqrt{7}}{224} & 0 & 0 & -\frac{27\sqrt{210}}{2800} & 0 & -\frac{9\sqrt{42}}{280} & 0 & -\frac{27\sqrt{70}}{2800} & 0 & 0 \\ 0 & -\frac{\sqrt{21}}{224} & 0 & -\frac{\sqrt{42}}{224} & 0 & -\frac{\sqrt{105}}{1120} & \frac{9\sqrt{10}}{400} & 0 & \frac{9\sqrt{210}}{700} & 0 & \frac{9\sqrt{14}}{560} & 0 & -\frac{9\sqrt{70}}{1400} & 0 \\ \frac{\sqrt{105}}{1120} & 0 & \frac{\sqrt{42}}{224} & 0 & \frac{\sqrt{21}}{224} & 0 & 0 & -\frac{9\sqrt{70}}{1400} & 0 & \frac{9\sqrt{14}}{560} & 0 & \frac{9\sqrt{210}}{700} & 0 & \frac{9\sqrt{10}}{400} \\ 0 & -\frac{\sqrt{7}}{224} & 0 & -\frac{\sqrt{14}}{224} & 0 & -\frac{\sqrt{35}}{1120} & 0 & 0 & -\frac{27\sqrt{70}}{2800} & 0 & -\frac{9\sqrt{42}}{280} & 0 & -\frac{27\sqrt{210}}{2800} & 0 \\ 0 & -\frac{3\sqrt{35}}{140} & 0 & -\frac{3\sqrt{70}}{280} & 0 & 0 & -\frac{\sqrt{6}}{160} & 0 & -\frac{\sqrt{14}}{112} & 0 & -\frac{\sqrt{210}}{1120} & 0 & 0 & 0 \\ \frac{3\sqrt{35}}{140} & 0 & \frac{3\sqrt{14}}{56} & 0 & 0 & 0 & 0 & \frac{13\sqrt{210}}{5600} & 0 & \frac{\sqrt{42}}{560} & 0 & -\frac{\sqrt{70}}{800} & 0 & 0 \\ 0 & -\frac{3\sqrt{14}}{56} & 0 & 0 & 0 & \frac{3\sqrt{70}}{280} & -\frac{3\sqrt{15}}{800} & 0 & -\frac{\sqrt{35}}{5600} & 0 & \frac{\sqrt{21}}{160} & 0 & \frac{\sqrt{105}}{5600} & 0 \\ \frac{3\sqrt{70}}{280} & 0 & 0 & 0 & -\frac{3\sqrt{14}}{56} & 0 & 0 & -\frac{\sqrt{105}}{5600} & 0 & -\frac{\sqrt{21}}{160} & 0 & \frac{\sqrt{35}}{5600} & 0 & \frac{3\sqrt{15}}{800} \\ 0 & 0 & 0 & \frac{3\sqrt{14}}{56} & 0 & \frac{3\sqrt{35}}{140} & 0 & 0 & \frac{\sqrt{70}}{800} & 0 & -\frac{\sqrt{42}}{560} & 0 & -\frac{13\sqrt{210}}{5600} & 0 \\ 0 & 0 & -\frac{3\sqrt{70}}{280} & 0 & -\frac{3\sqrt{35}}{140} & 0 & 0 & 0 & 0 & \frac{\sqrt{210}}{1120} & 0 & \frac{\sqrt{14}}{112} & 0 & \frac{\sqrt{6}}{160} \end{bmatrix}$$

$$\boxed{x223} \quad \mathbb{G}_{4,2}^{(1,0;a)}(E_u, 1) = \begin{bmatrix} \frac{\sqrt{35}i}{1120} & 0 & -\frac{\sqrt{14}i}{224} & 0 & \frac{\sqrt{7}i}{224} & 0 & 0 & -\frac{27\sqrt{210}i}{2800} & 0 & \frac{9\sqrt{42}i}{280} & 0 & -\frac{27\sqrt{70}i}{2800} & 0 & 0 \\ 0 & -\frac{\sqrt{21}i}{224} & 0 & \frac{\sqrt{42}i}{224} & 0 & -\frac{\sqrt{105}i}{1120} & -\frac{9\sqrt{10}i}{400} & 0 & \frac{9\sqrt{210}i}{700} & 0 & -\frac{9\sqrt{14}i}{560} & 0 & -\frac{9\sqrt{70}i}{1400} & 0 \\ -\frac{\sqrt{105}i}{1120} & 0 & \frac{\sqrt{42}i}{224} & 0 & -\frac{\sqrt{21}i}{224} & 0 & 0 & \frac{9\sqrt{70}i}{1400} & 0 & \frac{9\sqrt{14}i}{560} & 0 & -\frac{9\sqrt{210}i}{700} & 0 & \frac{9\sqrt{10}i}{400} \\ 0 & \frac{\sqrt{7}i}{224} & 0 & -\frac{\sqrt{14}i}{224} & 0 & \frac{\sqrt{35}i}{1120} & 0 & 0 & \frac{27\sqrt{70}i}{2800} & 0 & -\frac{9\sqrt{42}i}{280} & 0 & \frac{27\sqrt{210}i}{2800} & 0 \\ 0 & \frac{3\sqrt{35}i}{140} & 0 & -\frac{3\sqrt{70}i}{280} & 0 & 0 & -\frac{\sqrt{6}i}{160} & 0 & \frac{\sqrt{14}i}{112} & 0 & -\frac{\sqrt{210}i}{1120} & 0 & 0 & 0 \\ \frac{3\sqrt{35}i}{140} & 0 & -\frac{3\sqrt{14}i}{56} & 0 & 0 & 0 & 0 & \frac{13\sqrt{210}i}{5600} & 0 & -\frac{\sqrt{42}i}{560} & 0 & -\frac{\sqrt{70}i}{800} & 0 & 0 \\ 0 & -\frac{3\sqrt{14}i}{56} & 0 & 0 & 0 & \frac{3\sqrt{70}i}{280} & \frac{3\sqrt{15}i}{800} & 0 & -\frac{\sqrt{35}i}{5600} & 0 & -\frac{\sqrt{21}i}{160} & 0 & \frac{\sqrt{105}i}{5600} & 0 \\ -\frac{3\sqrt{70}i}{280} & 0 & 0 & 0 & \frac{3\sqrt{14}i}{56} & 0 & 0 & \frac{\sqrt{105}i}{5600} & 0 & -\frac{\sqrt{21}i}{160} & 0 & -\frac{\sqrt{35}i}{5600} & 0 & \frac{3\sqrt{15}i}{800} \\ 0 & 0 & 0 & \frac{3\sqrt{14}i}{56} & 0 & -\frac{3\sqrt{35}i}{140} & 0 & 0 & -\frac{\sqrt{70}i}{800} & 0 & -\frac{\sqrt{42}i}{560} & 0 & \frac{13\sqrt{210}i}{5600} & 0 \\ 0 & 0 & \frac{3\sqrt{70}i}{280} & 0 & -\frac{3\sqrt{35}i}{140} & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}i}{1120} & 0 & \frac{\sqrt{14}i}{112} & 0 & -\frac{\sqrt{6}i}{160} \end{bmatrix}$$

$$\boxed{x224} \quad \mathbb{G}_{4,1}^{(1,0;a)}(E_u, 2) = \begin{bmatrix} \frac{\sqrt{5}}{1120} & 0 & \frac{\sqrt{2}}{224} & 0 & -\frac{1}{32} & 0 & 0 & -\frac{27\sqrt{30}}{2800} & 0 & -\frac{9\sqrt{6}}{280} & 0 & \frac{27\sqrt{10}}{400} & 0 & 0 \\ 0 & -\frac{\sqrt{3}}{224} & 0 & -\frac{\sqrt{6}}{224} & 0 & \frac{\sqrt{15}}{160} & -\frac{9\sqrt{70}}{400} & 0 & \frac{9\sqrt{30}}{700} & 0 & \frac{9\sqrt{2}}{560} & 0 & \frac{9\sqrt{10}}{200} & 0 \\ -\frac{\sqrt{15}}{160} & 0 & \frac{\sqrt{6}}{224} & 0 & \frac{\sqrt{3}}{224} & 0 & 0 & \frac{9\sqrt{10}}{200} & 0 & \frac{9\sqrt{2}}{560} & 0 & \frac{9\sqrt{30}}{700} & 0 & -\frac{9\sqrt{70}}{400} \\ 0 & \frac{1}{32} & 0 & -\frac{\sqrt{2}}{224} & 0 & -\frac{\sqrt{5}}{1120} & 0 & 0 & \frac{27\sqrt{10}}{400} & 0 & -\frac{9\sqrt{6}}{280} & 0 & -\frac{27\sqrt{30}}{2800} & 0 \\ 0 & -\frac{3\sqrt{5}}{140} & 0 & \frac{3\sqrt{10}}{40} & 0 & 0 & -\frac{\sqrt{42}}{1120} & 0 & -\frac{\sqrt{2}}{112} & 0 & \frac{\sqrt{30}}{160} & 0 & 0 & 0 \\ \frac{3\sqrt{5}}{140} & 0 & \frac{3\sqrt{2}}{56} & 0 & 0 & 0 & 0 & \frac{13\sqrt{30}}{5600} & 0 & \frac{\sqrt{6}}{560} & 0 & \frac{7\sqrt{10}}{800} & 0 & 0 \\ 0 & -\frac{3\sqrt{2}}{56} & 0 & 0 & 0 & -\frac{3\sqrt{10}}{40} & \frac{3\sqrt{105}}{800} & 0 & -\frac{\sqrt{5}}{5600} & 0 & \frac{\sqrt{3}}{160} & 0 & -\frac{\sqrt{15}}{800} & 0 \\ -\frac{3\sqrt{10}}{40} & 0 & 0 & 0 & -\frac{3\sqrt{2}}{56} & 0 & 0 & \frac{\sqrt{15}}{800} & 0 & -\frac{\sqrt{3}}{160} & 0 & \frac{\sqrt{5}}{5600} & 0 & -\frac{3\sqrt{105}}{800} \\ 0 & 0 & 0 & \frac{3\sqrt{2}}{56} & 0 & \frac{3\sqrt{5}}{140} & 0 & 0 & -\frac{7\sqrt{10}}{800} & 0 & -\frac{\sqrt{6}}{560} & 0 & -\frac{13\sqrt{30}}{5600} & 0 \\ 0 & 0 & \frac{3\sqrt{10}}{40} & 0 & -\frac{3\sqrt{5}}{140} & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}}{160} & 0 & \frac{\sqrt{2}}{112} & 0 & \frac{\sqrt{42}}{1120} \end{bmatrix}$$

$$\boxed{x225} \quad \mathbb{G}_{4,2}^{(1,0;a)}(E_u, 2) = \begin{bmatrix} \frac{\sqrt{5}i}{1120} & 0 & -\frac{\sqrt{2}i}{224} & 0 & -\frac{i}{32} & 0 & 0 & -\frac{27\sqrt{30}i}{2800} & 0 & \frac{9\sqrt{6}i}{280} & 0 & \frac{27\sqrt{10}i}{400} & 0 & 0 \\ 0 & -\frac{\sqrt{3}i}{224} & 0 & \frac{\sqrt{6}i}{224} & 0 & \frac{\sqrt{15}i}{160} & \frac{9\sqrt{70}i}{400} & 0 & \frac{9\sqrt{30}i}{700} & 0 & -\frac{9\sqrt{2}i}{560} & 0 & \frac{9\sqrt{10}i}{200} & 0 \\ \frac{\sqrt{15}i}{160} & 0 & \frac{\sqrt{6}i}{224} & 0 & -\frac{\sqrt{3}i}{224} & 0 & 0 & -\frac{9\sqrt{10}i}{200} & 0 & \frac{9\sqrt{2}i}{560} & 0 & -\frac{9\sqrt{30}i}{700} & 0 & -\frac{9\sqrt{70}i}{400} \\ 0 & -\frac{i}{32} & 0 & -\frac{\sqrt{2}i}{224} & 0 & \frac{\sqrt{5}i}{1120} & 0 & 0 & -\frac{27\sqrt{10}i}{400} & 0 & -\frac{9\sqrt{6}i}{280} & 0 & \frac{27\sqrt{30}i}{2800} & 0 \\ 0 & \frac{3\sqrt{5}i}{140} & 0 & \frac{3\sqrt{10}i}{40} & 0 & 0 & -\frac{\sqrt{42}i}{1120} & 0 & \frac{\sqrt{2}i}{112} & 0 & \frac{\sqrt{30}i}{160} & 0 & 0 & 0 \\ \frac{3\sqrt{5}i}{140} & 0 & -\frac{3\sqrt{2}i}{56} & 0 & 0 & 0 & 0 & \frac{13\sqrt{30}i}{5600} & 0 & -\frac{\sqrt{6}i}{560} & 0 & \frac{7\sqrt{10}i}{800} & 0 & 0 \\ 0 & -\frac{3\sqrt{2}i}{56} & 0 & 0 & 0 & -\frac{3\sqrt{10}i}{40} & -\frac{3\sqrt{105}i}{800} & 0 & -\frac{\sqrt{5}i}{5600} & 0 & -\frac{\sqrt{3}i}{160} & 0 & -\frac{\sqrt{15}i}{800} & 0 \\ \frac{3\sqrt{10}i}{40} & 0 & 0 & 0 & \frac{3\sqrt{2}i}{56} & 0 & 0 & -\frac{\sqrt{15}i}{800} & 0 & -\frac{\sqrt{3}i}{160} & 0 & -\frac{\sqrt{5}i}{5600} & 0 & -\frac{3\sqrt{105}i}{800} \\ 0 & 0 & 0 & \frac{3\sqrt{2}i}{56} & 0 & -\frac{3\sqrt{5}i}{140} & 0 & 0 & \frac{7\sqrt{10}i}{800} & 0 & -\frac{\sqrt{6}i}{560} & 0 & \frac{13\sqrt{30}i}{5600} & 0 \\ 0 & 0 & -\frac{3\sqrt{10}i}{40} & 0 & -\frac{3\sqrt{5}i}{140} & 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{160} & 0 & \frac{\sqrt{2}i}{112} & 0 & -\frac{\sqrt{42}i}{1120} \end{bmatrix}$$



$$\boxed{\text{x226}} \quad \mathbb{G}_0^{(1,1;a)}(A_{1u}) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{3}i}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{3}i}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{3}i}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{3}i}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x227}} \quad \mathbb{G}_2^{(1,1;a)}(A_{1u}) = \begin{bmatrix} 0 & \frac{12i}{35} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{10}i}{140} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{2\sqrt{6}i}{35} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{9\sqrt{2}i}{140} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{2\sqrt{6}i}{35} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{9\sqrt{2}i}{140} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{12i}{35} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{10}i}{140} & 0 & 0 \\ \frac{3i}{14} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}i}{21} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{3i}{70} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}i}{35} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{6i}{35} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{2\sqrt{3}i}{105} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{6i}{35} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{2\sqrt{3}i}{105} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{3i}{70} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{10}i}{35} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{3i}{14} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}i}{21} & 0 \end{bmatrix}$$

$$\boxed{\text{x228}} \quad \mathbb{G}_4^{(1,1;a)}(A_{1u}, 1) = \begin{bmatrix} 0 & -\frac{\sqrt{770}i}{210} & 0 & 0 & 0 & -\frac{\sqrt{154}i}{42} & 0 & 0 & \frac{\sqrt{77}i}{140} & 0 & 0 & 0 & \frac{\sqrt{231}i}{420} & 0 \\ 0 & 0 & \frac{\sqrt{1155}i}{105} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{385}i}{420} & 0 & 0 & 0 & \frac{\sqrt{11}i}{60} \\ 0 & 0 & 0 & -\frac{\sqrt{1155}i}{105} & 0 & 0 & \frac{\sqrt{11}i}{60} & 0 & 0 & 0 & -\frac{\sqrt{385}i}{420} & 0 & 0 & 0 \\ \frac{\sqrt{154}i}{42} & 0 & 0 & 0 & \frac{\sqrt{770}i}{210} & 0 & 0 & \frac{\sqrt{231}i}{420} & 0 & 0 & 0 & \frac{\sqrt{77}i}{140} & 0 & 0 \\ -\frac{\sqrt{770}i}{840} & 0 & 0 & 0 & -\frac{\sqrt{154}i}{168} & 0 & 0 & \frac{\sqrt{1155}i}{1155} & 0 & 0 & 0 & \frac{\sqrt{385}i}{1155} & 0 & 0 \\ 0 & \frac{\sqrt{770}i}{280} & 0 & 0 & 0 & -\frac{\sqrt{154}i}{168} & 0 & 0 & -\frac{4\sqrt{77}i}{1155} & 0 & 0 & 0 & \frac{2\sqrt{231}i}{1155} & 0 \\ 0 & 0 & -\frac{\sqrt{770}i}{420} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2310}i}{2310} & 0 & 0 & 0 & \frac{\sqrt{66}i}{330} \\ 0 & 0 & 0 & -\frac{\sqrt{770}i}{420} & 0 & 0 & -\frac{\sqrt{66}i}{330} & 0 & 0 & 0 & \frac{\sqrt{2310}i}{2310} & 0 & 0 & 0 \\ -\frac{\sqrt{154}i}{168} & 0 & 0 & 0 & \frac{\sqrt{770}i}{280} & 0 & 0 & -\frac{2\sqrt{231}i}{1155} & 0 & 0 & 0 & \frac{4\sqrt{77}i}{1155} & 0 & 0 \\ 0 & -\frac{\sqrt{154}i}{168} & 0 & 0 & 0 & -\frac{\sqrt{770}i}{840} & 0 & 0 & -\frac{\sqrt{385}i}{1155} & 0 & 0 & 0 & -\frac{\sqrt{1155}i}{1155} & 0 \end{bmatrix}$$

$$\boxed{\text{x229}} \quad \mathbb{G}_4^{(1,1;a)}(A_{1u}, 2) = \begin{bmatrix} 0 & -\frac{\sqrt{22}i}{42} & 0 & 0 & 0 & \frac{\sqrt{110}i}{30} & 0 & 0 & \frac{\sqrt{55}i}{140} & 0 & 0 & 0 & -\frac{\sqrt{165}i}{300} & 0 \\ 0 & 0 & \frac{\sqrt{33}i}{21} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{11}i}{84} & 0 & 0 & 0 & -\frac{\sqrt{385}i}{300} \\ 0 & 0 & 0 & -\frac{\sqrt{33}i}{21} & 0 & 0 & -\frac{\sqrt{385}i}{300} & 0 & 0 & 0 & -\frac{\sqrt{11}i}{84} & 0 & 0 & 0 \\ -\frac{\sqrt{110}i}{30} & 0 & 0 & 0 & \frac{\sqrt{22}i}{42} & 0 & 0 & -\frac{\sqrt{165}i}{300} & 0 & 0 & 0 & \frac{\sqrt{55}i}{140} & 0 & 0 \\ -\frac{\sqrt{22}i}{168} & 0 & 0 & 0 & \frac{\sqrt{110}i}{120} & 0 & 0 & \frac{\sqrt{33}i}{231} & 0 & 0 & 0 & -\frac{\sqrt{11}i}{165} & 0 & 0 \\ 0 & \frac{\sqrt{22}i}{56} & 0 & 0 & 0 & \frac{\sqrt{110}i}{120} & 0 & 0 & -\frac{4\sqrt{55}i}{1155} & 0 & 0 & 0 & -\frac{2\sqrt{165}i}{825} & 0 \\ 0 & 0 & -\frac{\sqrt{22}i}{84} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{66}i}{462} & 0 & 0 & 0 & -\frac{\sqrt{2310}i}{1650} \\ 0 & 0 & 0 & -\frac{\sqrt{22}i}{84} & 0 & 0 & \frac{\sqrt{2310}i}{1650} & 0 & 0 & 0 & \frac{\sqrt{66}i}{462} & 0 & 0 & 0 \\ \frac{\sqrt{110}i}{120} & 0 & 0 & 0 & \frac{\sqrt{22}i}{56} & 0 & 0 & \frac{2\sqrt{165}i}{825} & 0 & 0 & 0 & \frac{4\sqrt{55}i}{1155} & 0 & 0 \\ 0 & \frac{\sqrt{110}i}{120} & 0 & 0 & 0 & -\frac{\sqrt{22}i}{168} & 0 & 0 & \frac{\sqrt{11}i}{165} & 0 & 0 & 0 & -\frac{\sqrt{33}i}{231} & 0 \end{bmatrix}$$

$$\boxed{\text{x230}} \quad \mathbb{G}_4^{(1,1;a)}(A_{2u}) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2310}}{105} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{385}}{350} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{165}}{150} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{165}}{150} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{2310}}{105} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{385}}{350} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{2310}}{420} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{2\sqrt{231}}{1155} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2310}}{420} & 0 & 0 & 0 & 0 & 0 & \frac{4\sqrt{385}}{1925} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{110}}{275} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{110}}{275} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{2310}}{420} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{4\sqrt{385}}{1925} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{2310}}{420} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{2\sqrt{231}}{1155} & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x231}} \quad \mathbb{G}_2^{(1,1;a)}(B_{1u}) = \begin{bmatrix} 0 & 0 & 0 & \frac{2\sqrt{6}i}{35} & 0 & 0 & -\frac{3\sqrt{70}i}{280} & 0 & 0 & 0 & -\frac{3\sqrt{2}i}{280} & 0 & 0 & 0 \\ -\frac{4\sqrt{5}i}{35} & 0 & 0 & 0 & \frac{8i}{35} & 0 & 0 & -\frac{3\sqrt{30}i}{280} & 0 & 0 & 0 & -\frac{3\sqrt{10}i}{280} & 0 & 0 \\ 0 & -\frac{8i}{35} & 0 & 0 & 0 & \frac{4\sqrt{5}i}{35} & 0 & 0 & -\frac{3\sqrt{10}i}{280} & 0 & 0 & 0 & -\frac{3\sqrt{30}i}{280} & 0 \\ 0 & 0 & -\frac{2\sqrt{6}i}{35} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{2}i}{280} & 0 & 0 & 0 & -\frac{3\sqrt{70}i}{280} \\ 0 & 0 & \frac{3\sqrt{30}i}{140} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}i}{105} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{9\sqrt{6}i}{140} & 0 & 0 & \frac{\sqrt{70}i}{105} & 0 & 0 & 0 & -\frac{4\sqrt{2}i}{105} & 0 & 0 & 0 \\ \frac{3\sqrt{30}i}{140} & 0 & 0 & 0 & \frac{9\sqrt{6}i}{140} & 0 & 0 & \frac{4\sqrt{5}i}{105} & 0 & 0 & 0 & -\frac{2\sqrt{15}i}{105} & 0 & 0 \\ 0 & \frac{9\sqrt{6}i}{140} & 0 & 0 & 0 & \frac{3\sqrt{30}i}{140} & 0 & 0 & \frac{2\sqrt{15}i}{105} & 0 & 0 & 0 & -\frac{4\sqrt{5}i}{105} & 0 \\ 0 & 0 & \frac{9\sqrt{6}i}{140} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{4\sqrt{2}i}{105} & 0 & 0 & 0 & -\frac{\sqrt{70}i}{105} \\ 0 & 0 & 0 & \frac{3\sqrt{30}i}{140} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{10}i}{105} & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x232}} \quad \mathbb{G}_4^{(1,1;a)}(B_{1u}) = \begin{bmatrix} 0 & 0 & 0 & \frac{\sqrt{33}i}{21} & 0 & 0 & -\frac{\sqrt{385}i}{700} & 0 & 0 & 0 & -\frac{3\sqrt{11}i}{140} & 0 & 0 & 0 \\ -\frac{\sqrt{110}i}{70} & 0 & 0 & 0 & -\frac{\sqrt{22}i}{14} & 0 & 0 & \frac{11\sqrt{165}i}{2100} & 0 & 0 & 0 & -\frac{\sqrt{55}i}{700} & 0 & 0 \\ 0 & \frac{\sqrt{22}i}{14} & 0 & 0 & 0 & \frac{\sqrt{110}i}{70} & 0 & 0 & -\frac{\sqrt{55}i}{700} & 0 & 0 & 0 & \frac{11\sqrt{165}i}{2100} & 0 \\ 0 & 0 & -\frac{\sqrt{33}i}{21} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{11}i}{140} & 0 & 0 & 0 & -\frac{\sqrt{385}i}{700} \\ 0 & 0 & \frac{\sqrt{165}i}{140} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{2\sqrt{55}i}{385} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{33}i}{84} & 0 & 0 & \frac{3\sqrt{385}i}{1925} & 0 & 0 & 0 & -\frac{\sqrt{11}i}{385} & 0 & 0 & 0 \\ \frac{\sqrt{165}i}{140} & 0 & 0 & 0 & -\frac{\sqrt{33}i}{84} & 0 & 0 & -\frac{9\sqrt{110}i}{3850} & 0 & 0 & 0 & \frac{17\sqrt{330}i}{11550} & 0 & 0 \\ 0 & -\frac{\sqrt{33}i}{84} & 0 & 0 & 0 & \frac{\sqrt{165}i}{140} & 0 & 0 & -\frac{17\sqrt{330}i}{11550} & 0 & 0 & 0 & \frac{9\sqrt{110}i}{3850} & 0 \\ 0 & 0 & -\frac{\sqrt{33}i}{84} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{11}i}{385} & 0 & 0 & 0 & -\frac{3\sqrt{385}i}{1925} \\ 0 & 0 & 0 & \frac{\sqrt{165}i}{140} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{2\sqrt{55}i}{385} & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x233}} \quad \mathbb{G}_2^{(1,1;a)}(B_{2u}) = \begin{bmatrix} 0 & 0 & 0 & \frac{2\sqrt{6}}{35} & 0 & 0 & \frac{3\sqrt{70}}{280} & 0 & 0 & 0 & -\frac{3\sqrt{2}}{280} & 0 & 0 & 0 \\ \frac{4\sqrt{5}}{35} & 0 & 0 & 0 & \frac{8}{35} & 0 & 0 & \frac{3\sqrt{30}}{280} & 0 & 0 & 0 & -\frac{3\sqrt{10}}{280} & 0 & 0 \\ 0 & \frac{8}{35} & 0 & 0 & 0 & \frac{4\sqrt{5}}{35} & 0 & 0 & \frac{3\sqrt{10}}{280} & 0 & 0 & 0 & -\frac{3\sqrt{30}}{280} & 0 \\ 0 & 0 & \frac{2\sqrt{6}}{35} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{2}}{280} & 0 & 0 & 0 & -\frac{3\sqrt{70}}{280} \\ 0 & 0 & \frac{3\sqrt{30}}{140} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}}{105} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{9\sqrt{6}}{140} & 0 & 0 & -\frac{\sqrt{70}}{105} & 0 & 0 & 0 & -\frac{4\sqrt{2}}{105} & 0 & 0 & 0 \\ -\frac{3\sqrt{30}}{140} & 0 & 0 & 0 & \frac{9\sqrt{6}}{140} & 0 & 0 & -\frac{4\sqrt{5}}{105} & 0 & 0 & 0 & -\frac{2\sqrt{15}}{105} & 0 & 0 \\ 0 & -\frac{9\sqrt{6}}{140} & 0 & 0 & 0 & \frac{3\sqrt{30}}{140} & 0 & 0 & -\frac{2\sqrt{15}}{105} & 0 & 0 & 0 & -\frac{4\sqrt{5}}{105} & 0 \\ 0 & 0 & -\frac{9\sqrt{6}}{140} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{4\sqrt{2}}{105} & 0 & 0 & 0 & -\frac{\sqrt{70}}{105} \\ 0 & 0 & 0 & -\frac{3\sqrt{30}}{140} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}}{105} & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x234}} \quad \mathbb{G}_4^{(1,1;a)}(B_{2u}) = \begin{bmatrix} 0 & 0 & 0 & -\frac{\sqrt{33}}{21} & 0 & 0 & -\frac{\sqrt{385}}{700} & 0 & 0 & 0 & \frac{3\sqrt{11}}{140} & 0 & 0 & 0 \\ -\frac{\sqrt{110}}{70} & 0 & 0 & 0 & \frac{\sqrt{22}}{14} & 0 & 0 & \frac{11\sqrt{165}}{2100} & 0 & 0 & 0 & \frac{\sqrt{55}}{700} & 0 & 0 \\ 0 & \frac{\sqrt{22}}{14} & 0 & 0 & 0 & -\frac{\sqrt{110}}{70} & 0 & 0 & -\frac{\sqrt{55}}{700} & 0 & 0 & 0 & -\frac{11\sqrt{165}}{2100} & 0 \\ 0 & 0 & -\frac{\sqrt{33}}{21} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{11}}{140} & 0 & 0 & 0 & \frac{\sqrt{385}}{700} \\ 0 & 0 & -\frac{\sqrt{165}}{140} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{2\sqrt{55}}{385} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{33}}{84} & 0 & 0 & \frac{3\sqrt{385}}{1925} & 0 & 0 & 0 & \frac{\sqrt{11}}{385} & 0 & 0 & 0 \\ \frac{\sqrt{165}}{140} & 0 & 0 & 0 & \frac{\sqrt{33}}{84} & 0 & 0 & -\frac{9\sqrt{110}}{3850} & 0 & 0 & 0 & -\frac{17\sqrt{330}}{11550} & 0 & 0 \\ 0 & -\frac{\sqrt{33}}{84} & 0 & 0 & 0 & -\frac{\sqrt{165}}{140} & 0 & 0 & -\frac{17\sqrt{330}}{11550} & 0 & 0 & 0 & -\frac{9\sqrt{110}}{3850} & 0 \\ 0 & 0 & -\frac{\sqrt{33}}{84} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{11}}{385} & 0 & 0 & 0 & \frac{3\sqrt{385}}{1925} \\ 0 & 0 & 0 & \frac{\sqrt{165}}{140} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{2\sqrt{55}}{385} & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x235}} \quad \mathbb{G}_{2,1}^{(1,1;a)}(E_u) = \begin{bmatrix} \frac{2\sqrt{15}}{35} & 0 & \frac{3\sqrt{6}}{35} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{10}}{140} & 0 & -\frac{3\sqrt{2}}{140} & 0 & 0 & 0 & 0 \\ 0 & -\frac{2}{35} & 0 & \frac{\sqrt{2}}{7} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{10}}{140} & 0 & -\frac{3\sqrt{6}}{140} & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{2}}{7} & 0 & \frac{2}{35} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{6}}{140} & 0 & -\frac{3\sqrt{10}}{140} & 0 & 0 \\ 0 & 0 & 0 & -\frac{3\sqrt{6}}{35} & 0 & -\frac{2\sqrt{15}}{35} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{2}}{140} & 0 & -\frac{3\sqrt{10}}{140} & 0 \\ 0 & \frac{3\sqrt{15}}{70} & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}}{42} & 0 & -\frac{\sqrt{6}}{42} & 0 & 0 & 0 & 0 & 0 \\ -\frac{3\sqrt{15}}{70} & 0 & \frac{3\sqrt{6}}{70} & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}}{210} & 0 & -\frac{11\sqrt{2}}{210} & 0 & 0 & 0 & 0 \\ 0 & -\frac{3\sqrt{6}}{70} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{105} & 0 & -\frac{1}{15} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{3\sqrt{6}}{70} & 0 & 0 & 0 & 0 & \frac{1}{15} & 0 & -\frac{\sqrt{15}}{105} & 0 & 0 \\ 0 & 0 & 0 & \frac{3\sqrt{6}}{70} & 0 & -\frac{3\sqrt{15}}{70} & 0 & 0 & 0 & 0 & \frac{11\sqrt{2}}{210} & 0 & \frac{\sqrt{10}}{210} & 0 \\ 0 & 0 & 0 & 0 & \frac{3\sqrt{15}}{70} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{42} & 0 & \frac{\sqrt{14}}{42} \end{bmatrix}$$

$$\boxed{\text{x236}} \quad \mathbb{G}_{2,2}^{(1,1;a)}(E_u) = \begin{bmatrix} \frac{2\sqrt{15}i}{35} & 0 & -\frac{3\sqrt{6}i}{35} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{10}i}{140} & 0 & \frac{3\sqrt{2}i}{140} & 0 & 0 & 0 & 0 \\ 0 & -\frac{2i}{35} & 0 & -\frac{\sqrt{2}i}{7} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{10}i}{140} & 0 & \frac{3\sqrt{6}i}{140} & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{2}i}{7} & 0 & -\frac{2i}{35} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{6}i}{140} & 0 & \frac{3\sqrt{10}i}{140} & 0 & 0 \\ 0 & 0 & 0 & -\frac{3\sqrt{6}i}{35} & 0 & \frac{2\sqrt{15}i}{35} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{2}i}{140} & 0 & \frac{3\sqrt{10}i}{140} & 0 \\ 0 & -\frac{3\sqrt{15}i}{70} & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}i}{42} & 0 & \frac{\sqrt{6}i}{42} & 0 & 0 & 0 & 0 & 0 \\ -\frac{3\sqrt{15}i}{70} & 0 & -\frac{3\sqrt{6}i}{70} & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}i}{210} & 0 & \frac{11\sqrt{2}i}{210} & 0 & 0 & 0 & 0 \\ 0 & -\frac{3\sqrt{6}i}{70} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{105} & 0 & \frac{i}{15} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{3\sqrt{6}i}{70} & 0 & 0 & 0 & 0 & \frac{i}{15} & 0 & \frac{\sqrt{15}i}{105} & 0 & 0 \\ 0 & 0 & 0 & \frac{3\sqrt{6}i}{70} & 0 & \frac{3\sqrt{15}i}{70} & 0 & 0 & 0 & 0 & \frac{11\sqrt{2}i}{210} & 0 & -\frac{\sqrt{10}i}{210} & 0 \\ 0 & 0 & 0 & 0 & \frac{3\sqrt{15}i}{70} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}i}{42} & 0 & -\frac{\sqrt{14}i}{42} \end{bmatrix}$$

$$\boxed{\text{x237}} \quad \mathbb{G}_{4,1}^{(1,1;a)}(E_u, 1) = \begin{bmatrix} \frac{\sqrt{2310}}{840} & 0 & \frac{\sqrt{231}}{84} & 0 & \frac{\sqrt{462}}{168} & 0 & 0 & -\frac{3\sqrt{385}}{1400} & 0 & -\frac{\sqrt{77}}{140} & 0 & -\frac{\sqrt{1155}}{1400} & 0 & 0 \\ 0 & -\frac{\sqrt{154}}{56} & 0 & -\frac{\sqrt{77}}{28} & 0 & -\frac{\sqrt{770}}{280} & \frac{\sqrt{165}}{600} & 0 & \frac{\sqrt{385}}{350} & 0 & \frac{\sqrt{231}}{840} & 0 & -\frac{\sqrt{1155}}{2100} & 0 \\ \frac{\sqrt{770}}{280} & 0 & \frac{\sqrt{77}}{28} & 0 & \frac{\sqrt{154}}{56} & 0 & 0 & -\frac{\sqrt{1155}}{2100} & 0 & \frac{\sqrt{231}}{840} & 0 & \frac{\sqrt{385}}{350} & 0 & \frac{\sqrt{165}}{600} \\ 0 & -\frac{\sqrt{462}}{168} & 0 & -\frac{\sqrt{231}}{84} & 0 & -\frac{\sqrt{2310}}{840} & 0 & 0 & -\frac{\sqrt{1155}}{1400} & 0 & -\frac{\sqrt{77}}{140} & 0 & -\frac{3\sqrt{385}}{1400} & 0 \\ 0 & \frac{\sqrt{2310}}{840} & 0 & \frac{\sqrt{1155}}{840} & 0 & 0 & -\frac{\sqrt{11}}{220} & 0 & -\frac{\sqrt{231}}{462} & 0 & -\frac{\sqrt{385}}{1540} & 0 & 0 & 0 \\ -\frac{\sqrt{2310}}{840} & 0 & -\frac{\sqrt{231}}{168} & 0 & 0 & 0 & 0 & \frac{13\sqrt{385}}{7700} & 0 & \frac{\sqrt{77}}{770} & 0 & -\frac{\sqrt{1155}}{3300} & 0 & 0 \\ 0 & \frac{\sqrt{231}}{168} & 0 & 0 & 0 & -\frac{\sqrt{1155}}{840} & -\frac{3\sqrt{110}}{2200} & 0 & -\frac{\sqrt{2310}}{46200} & 0 & \frac{\sqrt{154}}{440} & 0 & \frac{\sqrt{770}}{15400} & 0 \\ -\frac{\sqrt{1155}}{840} & 0 & 0 & 0 & \frac{\sqrt{231}}{168} & 0 & 0 & -\frac{\sqrt{770}}{15400} & 0 & -\frac{\sqrt{154}}{440} & 0 & \frac{\sqrt{2310}}{46200} & 0 & \frac{3\sqrt{110}}{2200} \\ 0 & 0 & 0 & -\frac{\sqrt{231}}{168} & 0 & -\frac{\sqrt{2310}}{840} & 0 & 0 & \frac{\sqrt{1155}}{3300} & 0 & -\frac{\sqrt{77}}{770} & 0 & -\frac{13\sqrt{385}}{7700} & 0 \\ 0 & 0 & \frac{\sqrt{1155}}{840} & 0 & \frac{\sqrt{2310}}{840} & 0 & 0 & 0 & 0 & \frac{\sqrt{385}}{1540} & 0 & \frac{\sqrt{231}}{462} & 0 & \frac{\sqrt{11}}{220} \end{bmatrix}$$

$$\boxed{\text{x238}} \quad \mathbb{G}_{4,2}^{(1,1;a)}(E_u, 1) = \begin{bmatrix} \frac{\sqrt{2310}i}{840} & 0 & -\frac{\sqrt{231}i}{84} & 0 & \frac{\sqrt{462}i}{168} & 0 & 0 & -\frac{3\sqrt{385}i}{1400} & 0 & \frac{\sqrt{77}i}{140} & 0 & -\frac{\sqrt{1155}i}{1400} & 0 & 0 \\ 0 & -\frac{\sqrt{154}i}{56} & 0 & \frac{\sqrt{77}i}{28} & 0 & -\frac{\sqrt{770}i}{280} & -\frac{\sqrt{165}i}{600} & 0 & \frac{\sqrt{385}i}{350} & 0 & -\frac{\sqrt{231}i}{840} & 0 & -\frac{\sqrt{1155}i}{2100} & 0 \\ -\frac{\sqrt{770}i}{280} & 0 & \frac{\sqrt{77}i}{28} & 0 & -\frac{\sqrt{154}i}{56} & 0 & 0 & \frac{\sqrt{1155}i}{2100} & 0 & \frac{\sqrt{231}i}{840} & 0 & -\frac{\sqrt{385}i}{350} & 0 & \frac{\sqrt{165}i}{600} \\ 0 & \frac{\sqrt{462}i}{168} & 0 & -\frac{\sqrt{231}i}{84} & 0 & \frac{\sqrt{2310}i}{840} & 0 & 0 & \frac{\sqrt{1155}i}{1400} & 0 & -\frac{\sqrt{77}i}{140} & 0 & \frac{3\sqrt{385}i}{1400} & 0 \\ 0 & -\frac{\sqrt{2310}i}{840} & 0 & \frac{\sqrt{1155}i}{840} & 0 & 0 & -\frac{\sqrt{11}i}{220} & 0 & \frac{\sqrt{231}i}{462} & 0 & -\frac{\sqrt{385}i}{1540} & 0 & 0 & 0 \\ -\frac{\sqrt{2310}i}{840} & 0 & \frac{\sqrt{231}i}{168} & 0 & 0 & 0 & 0 & \frac{13\sqrt{385}i}{7700} & 0 & -\frac{\sqrt{77}i}{770} & 0 & -\frac{\sqrt{1155}i}{3300} & 0 & 0 \\ 0 & \frac{\sqrt{231}i}{168} & 0 & 0 & 0 & -\frac{\sqrt{1155}i}{840} & \frac{3\sqrt{110}i}{2200} & 0 & -\frac{\sqrt{2310}i}{46200} & 0 & -\frac{\sqrt{154}i}{440} & 0 & \frac{\sqrt{770}i}{15400} & 0 \\ \frac{\sqrt{1155}i}{840} & 0 & 0 & 0 & -\frac{\sqrt{231}i}{168} & 0 & 0 & \frac{\sqrt{770}i}{15400} & 0 & -\frac{\sqrt{154}i}{440} & 0 & -\frac{\sqrt{2310}i}{46200} & 0 & \frac{3\sqrt{110}i}{2200} \\ 0 & 0 & 0 & -\frac{\sqrt{231}i}{168} & 0 & \frac{\sqrt{2310}i}{840} & 0 & 0 & -\frac{\sqrt{1155}i}{3300} & 0 & -\frac{\sqrt{77}i}{770} & 0 & \frac{13\sqrt{385}i}{7700} & 0 \\ 0 & 0 & -\frac{\sqrt{1155}i}{840} & 0 & \frac{\sqrt{2310}i}{840} & 0 & 0 & 0 & 0 & -\frac{\sqrt{385}i}{1540} & 0 & \frac{\sqrt{231}i}{462} & 0 & -\frac{\sqrt{11}i}{220} \end{bmatrix}$$

$$\boxed{\text{x239}} \quad \mathbb{G}_{4,1}^{(1,1;a)}(E_u, 2) = \begin{bmatrix} \frac{\sqrt{330}}{840} & 0 & \frac{\sqrt{33}}{84} & 0 & -\frac{\sqrt{66}}{24} & 0 & 0 & -\frac{3\sqrt{55}}{1400} & 0 & -\frac{\sqrt{11}}{140} & 0 & \frac{\sqrt{165}}{200} & 0 & 0 \\ 0 & -\frac{\sqrt{22}}{56} & 0 & -\frac{\sqrt{11}}{28} & 0 & \frac{\sqrt{110}}{40} & -\frac{\sqrt{1155}}{600} & 0 & \frac{\sqrt{55}}{350} & 0 & \frac{\sqrt{33}}{840} & 0 & \frac{\sqrt{165}}{300} & 0 \\ -\frac{\sqrt{110}}{40} & 0 & \frac{\sqrt{11}}{28} & 0 & \frac{\sqrt{22}}{56} & 0 & 0 & \frac{\sqrt{165}}{300} & 0 & \frac{\sqrt{33}}{840} & 0 & \frac{\sqrt{55}}{350} & 0 & -\frac{\sqrt{1155}}{600} \\ 0 & \frac{\sqrt{66}}{24} & 0 & -\frac{\sqrt{33}}{84} & 0 & -\frac{\sqrt{330}}{840} & 0 & 0 & \frac{\sqrt{165}}{200} & 0 & -\frac{\sqrt{11}}{140} & 0 & -\frac{3\sqrt{55}}{1400} & 0 \\ 0 & \frac{\sqrt{330}}{840} & 0 & -\frac{\sqrt{165}}{120} & 0 & 0 & -\frac{\sqrt{77}}{1540} & 0 & -\frac{\sqrt{33}}{462} & 0 & \frac{\sqrt{55}}{220} & 0 & 0 & 0 \\ -\frac{\sqrt{330}}{840} & 0 & -\frac{\sqrt{33}}{168} & 0 & 0 & 0 & 0 & \frac{13\sqrt{55}}{7700} & 0 & \frac{\sqrt{11}}{770} & 0 & \frac{7\sqrt{165}}{3300} & 0 & 0 \\ 0 & \frac{\sqrt{33}}{168} & 0 & 0 & 0 & \frac{\sqrt{165}}{120} & \frac{3\sqrt{770}}{2200} & 0 & -\frac{\sqrt{330}}{46200} & 0 & \frac{\sqrt{22}}{440} & 0 & -\frac{\sqrt{110}}{2200} & 0 \\ \frac{\sqrt{165}}{120} & 0 & 0 & 0 & \frac{\sqrt{33}}{168} & 0 & 0 & \frac{\sqrt{110}}{2200} & 0 & -\frac{\sqrt{22}}{440} & 0 & \frac{\sqrt{330}}{46200} & 0 & -\frac{3\sqrt{770}}{2200} \\ 0 & 0 & 0 & -\frac{\sqrt{33}}{168} & 0 & -\frac{\sqrt{330}}{840} & 0 & 0 & -\frac{7\sqrt{165}}{3300} & 0 & -\frac{\sqrt{11}}{770} & 0 & -\frac{13\sqrt{55}}{7700} & 0 \\ 0 & 0 & -\frac{\sqrt{165}}{120} & 0 & \frac{\sqrt{330}}{840} & 0 & 0 & 0 & 0 & -\frac{\sqrt{55}}{220} & 0 & \frac{\sqrt{33}}{462} & 0 & \frac{\sqrt{77}}{1540} \end{bmatrix}$$

$$\boxed{\text{x240}} \quad \mathbb{G}_{4,2}^{(1,1;a)}(E_u, 2) = \begin{bmatrix} \frac{\sqrt{330}i}{840} & 0 & -\frac{\sqrt{33}i}{84} & 0 & -\frac{\sqrt{66}i}{24} & 0 & 0 & -\frac{3\sqrt{55}i}{1400} & 0 & \frac{\sqrt{11}i}{140} & 0 & \frac{\sqrt{165}i}{200} & 0 & 0 \\ 0 & -\frac{\sqrt{22}i}{56} & 0 & \frac{\sqrt{11}i}{28} & 0 & \frac{\sqrt{110}i}{40} & \frac{\sqrt{1155}i}{600} & 0 & \frac{\sqrt{55}i}{350} & 0 & -\frac{\sqrt{33}i}{840} & 0 & \frac{\sqrt{165}i}{300} & 0 \\ \frac{\sqrt{110}i}{40} & 0 & \frac{\sqrt{11}i}{28} & 0 & -\frac{\sqrt{22}i}{56} & 0 & 0 & -\frac{\sqrt{165}i}{300} & 0 & \frac{\sqrt{33}i}{840} & 0 & -\frac{\sqrt{55}i}{350} & 0 & -\frac{\sqrt{1155}i}{600} \\ 0 & -\frac{\sqrt{66}i}{24} & 0 & -\frac{\sqrt{33}i}{84} & 0 & \frac{\sqrt{330}i}{840} & 0 & 0 & -\frac{\sqrt{165}i}{200} & 0 & -\frac{\sqrt{11}i}{140} & 0 & \frac{3\sqrt{55}i}{1400} & 0 \\ 0 & -\frac{\sqrt{330}i}{840} & 0 & -\frac{\sqrt{165}i}{120} & 0 & 0 & -\frac{\sqrt{77}i}{1540} & 0 & \frac{\sqrt{33}i}{462} & 0 & \frac{\sqrt{55}i}{220} & 0 & 0 & 0 \\ -\frac{\sqrt{330}i}{840} & 0 & \frac{\sqrt{33}i}{168} & 0 & 0 & 0 & 0 & \frac{13\sqrt{55}i}{7700} & 0 & -\frac{\sqrt{11}i}{770} & 0 & \frac{7\sqrt{165}i}{3300} & 0 & 0 \\ 0 & \frac{\sqrt{33}i}{168} & 0 & 0 & 0 & \frac{\sqrt{165}i}{120} & -\frac{3\sqrt{770}i}{2200} & 0 & -\frac{\sqrt{330}i}{46200} & 0 & -\frac{\sqrt{22}i}{440} & 0 & -\frac{\sqrt{110}i}{2200} & 0 \\ -\frac{\sqrt{165}i}{120} & 0 & 0 & 0 & -\frac{\sqrt{33}i}{168} & 0 & 0 & -\frac{\sqrt{110}i}{2200} & 0 & -\frac{\sqrt{22}i}{440} & 0 & -\frac{\sqrt{330}i}{46200} & 0 & -\frac{3\sqrt{770}i}{2200} \\ 0 & 0 & 0 & -\frac{\sqrt{33}i}{168} & 0 & \frac{\sqrt{330}i}{840} & 0 & 0 & \frac{7\sqrt{165}i}{3300} & 0 & -\frac{\sqrt{11}i}{770} & 0 & \frac{13\sqrt{55}i}{7700} & 0 \\ 0 & 0 & \frac{\sqrt{165}i}{120} & 0 & \frac{\sqrt{330}i}{840} & 0 & 0 & 0 & 0 & \frac{\sqrt{55}i}{220} & 0 & \frac{\sqrt{33}i}{462} & 0 & -\frac{\sqrt{77}i}{1540} \end{bmatrix}$$

$$\boxed{\text{x241}} \quad \mathbb{M}_2^{(a)}(A_{1u}) = \begin{bmatrix} 0 & \frac{3\sqrt{10}}{35} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{1}{14} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{15}}{35} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{5}}{70} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{15}}{35} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{5}}{70} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{3\sqrt{10}}{35} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{1}{14} & 0 & 0 \\ -\frac{\sqrt{10}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{14} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{10}}{140} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3}{14} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{10}}{35} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{70} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{10}}{35} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}}{70} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{10}}{140} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3}{14} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{14} & 0 \end{bmatrix}$$

$$\boxed{\text{x242}} \quad \mathbb{M}_4^{(a)}(A_{1u}, 1) = \begin{bmatrix} 0 & -\frac{\sqrt{21}}{84} & 0 & 0 & 0 & -\frac{\sqrt{105}}{84} & 0 & 0 & -\frac{3\sqrt{210}}{280} & 0 & 0 & 0 & -\frac{3\sqrt{70}}{280} & 0 \\ 0 & 0 & \frac{\sqrt{14}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{42}}{56} & 0 & 0 & 0 & -\frac{\sqrt{30}}{40} \\ 0 & 0 & 0 & -\frac{\sqrt{14}}{28} & 0 & 0 & -\frac{\sqrt{30}}{40} & 0 & 0 & 0 & \frac{\sqrt{42}}{56} & 0 & 0 & 0 \\ \frac{\sqrt{105}}{84} & 0 & 0 & 0 & \frac{\sqrt{21}}{84} & 0 & 0 & -\frac{3\sqrt{70}}{280} & 0 & 0 & 0 & -\frac{3\sqrt{210}}{280} & 0 & 0 \\ \frac{\sqrt{21}}{84} & 0 & 0 & 0 & \frac{\sqrt{105}}{84} & 0 & 0 & -\frac{\sqrt{14}}{28} & 0 & 0 & 0 & -\frac{\sqrt{42}}{84} & 0 & 0 \\ 0 & -\frac{\sqrt{21}}{28} & 0 & 0 & 0 & \frac{\sqrt{105}}{84} & 0 & 0 & \frac{\sqrt{210}}{105} & 0 & 0 & 0 & -\frac{\sqrt{70}}{70} & 0 \\ 0 & 0 & \frac{\sqrt{21}}{42} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{28} & 0 & 0 & 0 & -\frac{\sqrt{5}}{20} \\ 0 & 0 & 0 & \frac{\sqrt{21}}{42} & 0 & 0 & \frac{\sqrt{5}}{20} & 0 & 0 & 0 & -\frac{\sqrt{7}}{28} & 0 & 0 & 0 \\ \frac{\sqrt{105}}{84} & 0 & 0 & 0 & -\frac{\sqrt{21}}{28} & 0 & 0 & \frac{\sqrt{70}}{70} & 0 & 0 & 0 & -\frac{\sqrt{210}}{105} & 0 & 0 \\ 0 & \frac{\sqrt{105}}{84} & 0 & 0 & 0 & \frac{\sqrt{21}}{84} & 0 & 0 & \frac{\sqrt{42}}{84} & 0 & 0 & 0 & \frac{\sqrt{14}}{28} & 0 \end{bmatrix}$$

$$\boxed{\text{x243}} \quad \mathbb{M}_4^{(a)}(A_{1u}, 2) = \begin{bmatrix} 0 & -\frac{\sqrt{15}}{84} & 0 & 0 & 0 & \frac{\sqrt{3}}{12} & 0 & 0 & -\frac{3\sqrt{6}}{56} & 0 & 0 & 0 & \frac{3\sqrt{2}}{40} & 0 \\ 0 & 0 & \frac{\sqrt{10}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{56} & 0 & 0 & 0 & \frac{\sqrt{42}}{40} \\ 0 & 0 & 0 & -\frac{\sqrt{10}}{28} & 0 & 0 & \frac{\sqrt{42}}{40} & 0 & 0 & 0 & \frac{\sqrt{30}}{56} & 0 & 0 & 0 \\ -\frac{\sqrt{3}}{12} & 0 & 0 & 0 & \frac{\sqrt{15}}{84} & 0 & 0 & \frac{3\sqrt{2}}{40} & 0 & 0 & 0 & -\frac{3\sqrt{6}}{56} & 0 & 0 \\ \frac{\sqrt{15}}{84} & 0 & 0 & 0 & -\frac{\sqrt{3}}{12} & 0 & 0 & -\frac{\sqrt{10}}{28} & 0 & 0 & 0 & \frac{\sqrt{30}}{60} & 0 & 0 \\ 0 & -\frac{\sqrt{15}}{28} & 0 & 0 & 0 & -\frac{\sqrt{3}}{12} & 0 & 0 & \frac{\sqrt{6}}{21} & 0 & 0 & 0 & \frac{\sqrt{2}}{10} & 0 \\ 0 & 0 & \frac{\sqrt{15}}{42} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}}{28} & 0 & 0 & 0 & \frac{\sqrt{7}}{20} \\ 0 & 0 & 0 & \frac{\sqrt{15}}{42} & 0 & 0 & -\frac{\sqrt{7}}{20} & 0 & 0 & 0 & -\frac{\sqrt{5}}{28} & 0 & 0 & 0 \\ -\frac{\sqrt{3}}{12} & 0 & 0 & 0 & -\frac{\sqrt{15}}{28} & 0 & 0 & -\frac{\sqrt{2}}{10} & 0 & 0 & 0 & -\frac{\sqrt{6}}{21} & 0 & 0 \\ 0 & -\frac{\sqrt{3}}{12} & 0 & 0 & 0 & \frac{\sqrt{15}}{84} & 0 & 0 & -\frac{\sqrt{30}}{60} & 0 & 0 & 0 & \frac{\sqrt{10}}{28} & 0 \end{bmatrix}$$

$$\boxed{\text{x244}} \quad \mathbb{M}_4^{(a)}(A_{2u}) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}i}{14} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{42}i}{140} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{2}i}{20} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{2}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{7}i}{14} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{42}i}{140} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{7}i}{14} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{70}i}{70} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}i}{14} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{42}i}{35} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{10} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{7}i}{14} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{42}i}{35} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{7}i}{14} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{70}i}{70} & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x245}} \quad \mathbb{M}_2^{(a)}(B_{1u}) = \begin{bmatrix} 0 & 0 & 0 & \frac{\sqrt{15}}{35} & 0 & 0 & \frac{\sqrt{7}}{28} & 0 & 0 & 0 & \frac{\sqrt{5}}{140} & 0 & 0 & 0 \\ -\frac{\sqrt{2}}{7} & 0 & 0 & 0 & \frac{2\sqrt{10}}{35} & 0 & 0 & \frac{\sqrt{3}}{28} & 0 & 0 & 0 & \frac{1}{28} & 0 & 0 \\ 0 & -\frac{2\sqrt{10}}{35} & 0 & 0 & 0 & \frac{\sqrt{2}}{7} & 0 & 0 & \frac{1}{28} & 0 & 0 & 0 & \frac{\sqrt{3}}{28} & 0 \\ 0 & 0 & -\frac{\sqrt{15}}{35} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}}{140} & 0 & 0 & 0 & \frac{\sqrt{7}}{28} \\ 0 & 0 & -\frac{\sqrt{3}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{1}{14} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{3\sqrt{15}}{140} & 0 & 0 & -\frac{\sqrt{7}}{14} & 0 & 0 & 0 & \frac{2\sqrt{5}}{35} & 0 & 0 & 0 \\ -\frac{\sqrt{3}}{28} & 0 & 0 & 0 & -\frac{3\sqrt{15}}{140} & 0 & 0 & -\frac{\sqrt{2}}{7} & 0 & 0 & 0 & \frac{\sqrt{6}}{14} & 0 & 0 \\ 0 & -\frac{3\sqrt{15}}{140} & 0 & 0 & 0 & -\frac{\sqrt{3}}{28} & 0 & 0 & -\frac{\sqrt{6}}{14} & 0 & 0 & 0 & \frac{\sqrt{2}}{7} & 0 \\ 0 & 0 & -\frac{3\sqrt{15}}{140} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{2\sqrt{5}}{35} & 0 & 0 & 0 & \frac{\sqrt{7}}{14} \\ 0 & 0 & 0 & -\frac{\sqrt{3}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{1}{14} & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x246}} \quad \mathbb{M}_4^{(a)}(B_{1u}) = \begin{bmatrix} 0 & 0 & 0 & \frac{\sqrt{10}}{28} & 0 & 0 & \frac{3\sqrt{42}}{280} & 0 & 0 & 0 & \frac{9\sqrt{30}}{280} & 0 & 0 & 0 \\ -\frac{\sqrt{3}}{28} & 0 & 0 & 0 & -\frac{\sqrt{15}}{28} & 0 & 0 & -\frac{33\sqrt{2}}{280} & 0 & 0 & 0 & \frac{3\sqrt{6}}{280} & 0 & 0 \\ 0 & \frac{\sqrt{15}}{28} & 0 & 0 & 0 & \frac{\sqrt{3}}{28} & 0 & 0 & \frac{3\sqrt{6}}{280} & 0 & 0 & 0 & -\frac{33\sqrt{2}}{280} & 0 \\ 0 & 0 & -\frac{\sqrt{10}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{9\sqrt{30}}{280} & 0 & 0 & 0 & \frac{3\sqrt{42}}{280} \\ 0 & 0 & -\frac{3\sqrt{2}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{14} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{10}}{28} & 0 & 0 & -\frac{3\sqrt{42}}{140} & 0 & 0 & 0 & \frac{\sqrt{30}}{140} & 0 & 0 & 0 \\ -\frac{3\sqrt{2}}{28} & 0 & 0 & 0 & \frac{\sqrt{10}}{28} & 0 & 0 & \frac{9\sqrt{3}}{140} & 0 & 0 & 0 & -\frac{17}{140} & 0 & 0 \\ 0 & \frac{\sqrt{10}}{28} & 0 & 0 & 0 & -\frac{3\sqrt{2}}{28} & 0 & 0 & \frac{17}{140} & 0 & 0 & 0 & -\frac{9\sqrt{3}}{140} & 0 \\ 0 & 0 & \frac{\sqrt{10}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}}{140} & 0 & 0 & 0 & \frac{3\sqrt{42}}{140} \\ 0 & 0 & 0 & -\frac{3\sqrt{2}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{14} & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x247}} \quad \mathbb{M}_2^{(a)}(B_{2u}) = \begin{bmatrix} 0 & 0 & 0 & -\frac{\sqrt{15}i}{35} & 0 & 0 & \frac{\sqrt{7}i}{28} & 0 & 0 & 0 & -\frac{\sqrt{5}i}{140} & 0 & 0 & 0 \\ -\frac{\sqrt{2}i}{7} & 0 & 0 & 0 & -\frac{2\sqrt{10}i}{35} & 0 & 0 & \frac{\sqrt{3}i}{28} & 0 & 0 & 0 & -\frac{i}{28} & 0 & 0 \\ 0 & -\frac{2\sqrt{10}i}{35} & 0 & 0 & 0 & -\frac{\sqrt{2}i}{7} & 0 & 0 & \frac{i}{28} & 0 & 0 & 0 & -\frac{\sqrt{3}i}{28} & 0 \\ 0 & 0 & -\frac{\sqrt{15}i}{35} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}i}{140} & 0 & 0 & 0 & -\frac{\sqrt{7}i}{28} \\ 0 & 0 & \frac{\sqrt{3}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{i}{14} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{3\sqrt{15}i}{140} & 0 & 0 & -\frac{\sqrt{7}i}{14} & 0 & 0 & 0 & -\frac{2\sqrt{5}i}{35} & 0 & 0 & 0 \\ -\frac{\sqrt{3}i}{28} & 0 & 0 & 0 & \frac{3\sqrt{15}i}{140} & 0 & 0 & -\frac{\sqrt{2}i}{7} & 0 & 0 & 0 & -\frac{\sqrt{6}i}{14} & 0 & 0 \\ 0 & -\frac{3\sqrt{15}i}{140} & 0 & 0 & 0 & \frac{\sqrt{3}i}{28} & 0 & 0 & -\frac{\sqrt{6}i}{14} & 0 & 0 & 0 & -\frac{\sqrt{2}i}{7} & 0 \\ 0 & 0 & -\frac{3\sqrt{15}i}{140} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{2\sqrt{5}i}{35} & 0 & 0 & 0 & -\frac{\sqrt{7}i}{14} \\ 0 & 0 & 0 & -\frac{\sqrt{3}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{i}{14} & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x248}} \quad \mathbb{M}_4^{(a)}(B_{2u}) = \begin{bmatrix} 0 & 0 & 0 & \frac{\sqrt{10}i}{28} & 0 & 0 & -\frac{3\sqrt{42}i}{280} & 0 & 0 & 0 & \frac{9\sqrt{30}i}{280} & 0 & 0 & 0 \\ \frac{\sqrt{3}i}{28} & 0 & 0 & 0 & -\frac{\sqrt{15}i}{28} & 0 & 0 & \frac{33\sqrt{2}i}{280} & 0 & 0 & 0 & \frac{3\sqrt{6}i}{280} & 0 & 0 \\ 0 & -\frac{\sqrt{15}i}{28} & 0 & 0 & 0 & \frac{\sqrt{3}i}{28} & 0 & 0 & -\frac{3\sqrt{6}i}{280} & 0 & 0 & 0 & -\frac{33\sqrt{2}i}{280} & 0 \\ 0 & 0 & \frac{\sqrt{10}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{9\sqrt{30}i}{280} & 0 & 0 & 0 & \frac{3\sqrt{42}i}{280} \\ 0 & 0 & -\frac{3\sqrt{2}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}i}{14} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{10}i}{28} & 0 & 0 & \frac{3\sqrt{42}i}{140} & 0 & 0 & 0 & \frac{\sqrt{30}i}{140} & 0 & 0 & 0 \\ \frac{3\sqrt{2}i}{28} & 0 & 0 & 0 & \frac{\sqrt{10}i}{28} & 0 & 0 & -\frac{9\sqrt{3}i}{140} & 0 & 0 & 0 & -\frac{17i}{140} & 0 & 0 \\ 0 & -\frac{\sqrt{10}i}{28} & 0 & 0 & 0 & -\frac{3\sqrt{2}i}{28} & 0 & 0 & -\frac{17i}{140} & 0 & 0 & 0 & -\frac{9\sqrt{3}i}{140} & 0 \\ 0 & 0 & -\frac{\sqrt{10}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{140} & 0 & 0 & 0 & \frac{3\sqrt{42}i}{140} \\ 0 & 0 & 0 & \frac{3\sqrt{2}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}i}{14} & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x249}} \quad \mathbb{M}_{2,1}^{(a)}(E_u) = \begin{bmatrix} -\frac{\sqrt{6}i}{14} & 0 & -\frac{3\sqrt{15}i}{70} & 0 & 0 & 0 & 0 & -\frac{i}{14} & 0 & -\frac{\sqrt{5}i}{70} & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{10}i}{70} & 0 & -\frac{\sqrt{5}i}{14} & 0 & 0 & 0 & 0 & -\frac{i}{14} & 0 & -\frac{\sqrt{15}i}{70} & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{5}i}{14} & 0 & -\frac{\sqrt{10}i}{70} & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{70} & 0 & -\frac{i}{14} & 0 & 0 \\ 0 & 0 & 0 & \frac{3\sqrt{15}i}{70} & 0 & \frac{\sqrt{6}i}{14} & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{70} & 0 & -\frac{i}{14} & 0 \\ 0 & \frac{\sqrt{6}i}{28} & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}i}{28} & 0 & -\frac{\sqrt{15}i}{28} & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{6}i}{28} & 0 & \frac{\sqrt{15}i}{70} & 0 & 0 & 0 & 0 & -\frac{i}{28} & 0 & -\frac{11\sqrt{5}i}{140} & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{15}i}{70} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}i}{28} & 0 & -\frac{\sqrt{10}i}{20} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{70} & 0 & 0 & 0 & 0 & \frac{\sqrt{10}i}{20} & 0 & -\frac{\sqrt{6}i}{28} & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{15}i}{70} & 0 & -\frac{\sqrt{6}i}{28} & 0 & 0 & 0 & 0 & \frac{11\sqrt{5}i}{140} & 0 & \frac{i}{28} & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{6}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{28} & 0 & \frac{\sqrt{35}i}{28} \end{bmatrix}$$



$$\boxed{\text{x250}} \quad \mathbb{M}_{2,2}^{(a)}(E_u) = \begin{bmatrix} \frac{\sqrt{6}}{14} & 0 & -\frac{3\sqrt{15}}{70} & 0 & 0 & 0 & 0 & \frac{1}{14} & 0 & -\frac{\sqrt{5}}{70} & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{10}}{70} & 0 & -\frac{\sqrt{5}}{14} & 0 & 0 & 0 & 0 & \frac{1}{14} & 0 & -\frac{\sqrt{15}}{70} & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{5}}{14} & 0 & -\frac{\sqrt{10}}{70} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{70} & 0 & -\frac{1}{14} & 0 & 0 \\ 0 & 0 & 0 & -\frac{3\sqrt{15}}{70} & 0 & \frac{\sqrt{6}}{14} & 0 & 0 & 0 & 0 & \frac{\sqrt{5}}{70} & 0 & -\frac{1}{14} & 0 \\ 0 & \frac{\sqrt{6}}{28} & 0 & 0 & 0 & 0 & \frac{\sqrt{35}}{28} & 0 & -\frac{\sqrt{15}}{28} & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{6}}{28} & 0 & \frac{\sqrt{15}}{70} & 0 & 0 & 0 & 0 & \frac{1}{28} & 0 & -\frac{11\sqrt{5}}{140} & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{15}}{70} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{28} & 0 & -\frac{\sqrt{10}}{20} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{70} & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}}{20} & 0 & -\frac{\sqrt{6}}{28} & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{15}}{70} & 0 & -\frac{\sqrt{6}}{28} & 0 & 0 & 0 & 0 & -\frac{11\sqrt{5}}{140} & 0 & \frac{1}{28} & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{28} & 0 & \frac{\sqrt{35}}{28} \end{bmatrix}$$

$$\boxed{\text{x251}} \quad \mathbb{M}_{4,1}^{(a)}(E_u, 1) = \begin{bmatrix} -\frac{\sqrt{7}i}{112} & 0 & -\frac{\sqrt{70}i}{112} & 0 & -\frac{\sqrt{35}i}{112} & 0 & 0 & -\frac{9\sqrt{42}i}{560} & 0 & -\frac{3\sqrt{210}i}{280} & 0 & -\frac{9\sqrt{14}i}{560} & 0 & 0 \\ 0 & \frac{\sqrt{105}i}{112} & 0 & \frac{\sqrt{210}i}{112} & 0 & \frac{\sqrt{21}i}{112} & \frac{3\sqrt{2}i}{80} & 0 & \frac{3\sqrt{42}i}{140} & 0 & \frac{3\sqrt{70}i}{560} & 0 & -\frac{3\sqrt{14}i}{280} & 0 \\ -\frac{\sqrt{21}i}{112} & 0 & -\frac{\sqrt{210}i}{112} & 0 & -\frac{\sqrt{105}i}{112} & 0 & 0 & -\frac{3\sqrt{14}i}{280} & 0 & \frac{3\sqrt{70}i}{560} & 0 & \frac{3\sqrt{42}i}{140} & 0 & \frac{3\sqrt{2}i}{80} \\ 0 & \frac{\sqrt{35}i}{112} & 0 & \frac{\sqrt{70}i}{112} & 0 & \frac{\sqrt{7}i}{112} & 0 & 0 & -\frac{9\sqrt{14}i}{560} & 0 & -\frac{3\sqrt{210}i}{280} & 0 & -\frac{9\sqrt{42}i}{560} & 0 \\ 0 & \frac{\sqrt{7}i}{28} & 0 & \frac{\sqrt{14}i}{56} & 0 & 0 & -\frac{\sqrt{30}i}{80} & 0 & -\frac{\sqrt{70}i}{56} & 0 & -\frac{\sqrt{42}i}{112} & 0 & 0 & 0 \\ -\frac{\sqrt{7}i}{28} & 0 & -\frac{\sqrt{70}i}{56} & 0 & 0 & 0 & 0 & \frac{13\sqrt{42}i}{560} & 0 & \frac{\sqrt{210}i}{280} & 0 & -\frac{\sqrt{14}i}{80} & 0 & 0 \\ 0 & \frac{\sqrt{70}i}{56} & 0 & 0 & 0 & -\frac{\sqrt{14}i}{56} & -\frac{3\sqrt{3}i}{80} & 0 & -\frac{\sqrt{7}i}{560} & 0 & \frac{\sqrt{105}i}{80} & 0 & \frac{\sqrt{21}i}{560} & 0 \\ -\frac{\sqrt{14}i}{56} & 0 & 0 & 0 & \frac{\sqrt{70}i}{56} & 0 & 0 & -\frac{\sqrt{21}i}{560} & 0 & -\frac{\sqrt{105}i}{80} & 0 & \frac{\sqrt{7}i}{560} & 0 & \frac{3\sqrt{3}i}{80} \\ 0 & 0 & 0 & -\frac{\sqrt{70}i}{56} & 0 & -\frac{\sqrt{7}i}{28} & 0 & 0 & \frac{\sqrt{14}i}{80} & 0 & -\frac{\sqrt{210}i}{280} & 0 & -\frac{13\sqrt{42}i}{560} & 0 \\ 0 & 0 & \frac{\sqrt{14}i}{56} & 0 & \frac{\sqrt{7}i}{28} & 0 & 0 & 0 & 0 & \frac{\sqrt{42}i}{112} & 0 & \frac{\sqrt{70}i}{56} & 0 & \frac{\sqrt{30}i}{80} \end{bmatrix}$$

$$\boxed{\text{x252}} \quad \mathbb{M}_{4,2}^{(a)}(E_u, 1) = \begin{bmatrix} \frac{\sqrt{7}}{112} & 0 & -\frac{\sqrt{70}}{112} & 0 & \frac{\sqrt{35}}{112} & 0 & 0 & \frac{9\sqrt{42}}{560} & 0 & -\frac{3\sqrt{210}}{280} & 0 & \frac{9\sqrt{14}}{560} & 0 & 0 \\ 0 & -\frac{\sqrt{105}}{112} & 0 & \frac{\sqrt{210}}{112} & 0 & -\frac{\sqrt{21}}{112} & \frac{3\sqrt{2}}{80} & 0 & -\frac{3\sqrt{42}}{140} & 0 & \frac{3\sqrt{70}}{560} & 0 & \frac{3\sqrt{14}}{280} & 0 \\ -\frac{\sqrt{21}}{112} & 0 & \frac{\sqrt{210}}{112} & 0 & -\frac{\sqrt{105}}{112} & 0 & 0 & -\frac{3\sqrt{14}}{280} & 0 & -\frac{3\sqrt{70}}{560} & 0 & \frac{3\sqrt{42}}{140} & 0 & -\frac{3\sqrt{2}}{80} \\ 0 & \frac{\sqrt{35}}{112} & 0 & -\frac{\sqrt{70}}{112} & 0 & \frac{\sqrt{7}}{112} & 0 & 0 & -\frac{9\sqrt{14}}{560} & 0 & \frac{3\sqrt{210}}{280} & 0 & -\frac{9\sqrt{42}}{560} & 0 \\ 0 & \frac{\sqrt{7}}{28} & 0 & -\frac{\sqrt{14}}{56} & 0 & 0 & \frac{\sqrt{30}}{80} & 0 & -\frac{\sqrt{70}}{56} & 0 & \frac{\sqrt{42}}{112} & 0 & 0 & 0 \\ \frac{\sqrt{7}}{28} & 0 & -\frac{\sqrt{70}}{56} & 0 & 0 & 0 & 0 & -\frac{13\sqrt{42}}{560} & 0 & \frac{\sqrt{210}}{280} & 0 & \frac{\sqrt{14}}{80} & 0 & 0 \\ 0 & -\frac{\sqrt{70}}{56} & 0 & 0 & 0 & \frac{\sqrt{14}}{56} & -\frac{3\sqrt{3}}{80} & 0 & \frac{\sqrt{7}}{560} & 0 & \frac{\sqrt{105}}{80} & 0 & -\frac{\sqrt{21}}{560} & 0 \\ -\frac{\sqrt{14}}{56} & 0 & 0 & 0 & \frac{\sqrt{70}}{56} & 0 & 0 & -\frac{\sqrt{21}}{560} & 0 & \frac{\sqrt{105}}{80} & 0 & \frac{\sqrt{7}}{560} & 0 & -\frac{3\sqrt{3}}{80} \\ 0 & 0 & 0 & \frac{\sqrt{70}}{56} & 0 & -\frac{\sqrt{7}}{28} & 0 & 0 & \frac{\sqrt{14}}{80} & 0 & \frac{\sqrt{210}}{280} & 0 & -\frac{13\sqrt{42}}{560} & 0 \\ 0 & 0 & \frac{\sqrt{14}}{56} & 0 & -\frac{\sqrt{7}}{28} & 0 & 0 & 0 & 0 & \frac{\sqrt{42}}{112} & 0 & -\frac{\sqrt{70}}{56} & 0 & \frac{\sqrt{30}}{80} \end{bmatrix}$$

$$\boxed{\text{x253}} \quad \mathbb{M}_{4,1}^{(a)}(E_u, 2) = \begin{bmatrix} -\frac{i}{112} & 0 & -\frac{\sqrt{10}i}{112} & 0 & \frac{\sqrt{5}i}{16} & 0 & 0 & -\frac{9\sqrt{6}i}{560} & 0 & -\frac{3\sqrt{30}i}{280} & 0 & \frac{9\sqrt{2}i}{80} & 0 & 0 \\ 0 & \frac{\sqrt{15}i}{112} & 0 & \frac{\sqrt{30}i}{112} & 0 & -\frac{\sqrt{3}i}{16} & -\frac{3\sqrt{14}i}{80} & 0 & \frac{3\sqrt{6}i}{140} & 0 & \frac{3\sqrt{10}i}{560} & 0 & \frac{3\sqrt{2}i}{40} & 0 \\ \frac{\sqrt{3}i}{16} & 0 & -\frac{\sqrt{30}i}{112} & 0 & -\frac{\sqrt{15}i}{112} & 0 & 0 & \frac{3\sqrt{2}i}{40} & 0 & \frac{3\sqrt{10}i}{560} & 0 & \frac{3\sqrt{6}i}{140} & 0 & -\frac{3\sqrt{14}i}{80} \\ 0 & -\frac{\sqrt{5}i}{16} & 0 & \frac{\sqrt{10}i}{112} & 0 & \frac{i}{112} & 0 & 0 & \frac{9\sqrt{2}i}{80} & 0 & -\frac{3\sqrt{30}i}{280} & 0 & -\frac{9\sqrt{6}i}{560} & 0 \\ 0 & \frac{i}{28} & 0 & -\frac{\sqrt{2}i}{8} & 0 & 0 & -\frac{\sqrt{210}i}{560} & 0 & -\frac{\sqrt{10}i}{56} & 0 & \frac{\sqrt{6}i}{16} & 0 & 0 & 0 \\ -\frac{i}{28} & 0 & -\frac{\sqrt{10}i}{56} & 0 & 0 & 0 & 0 & \frac{13\sqrt{6}i}{560} & 0 & \frac{\sqrt{30}i}{280} & 0 & \frac{7\sqrt{2}i}{80} & 0 & 0 \\ 0 & \frac{\sqrt{10}i}{56} & 0 & 0 & 0 & \frac{\sqrt{2}i}{8} & \frac{3\sqrt{21}i}{80} & 0 & -\frac{i}{560} & 0 & \frac{\sqrt{15}i}{80} & 0 & -\frac{\sqrt{3}i}{80} & 0 \\ \frac{\sqrt{2}i}{8} & 0 & 0 & 0 & \frac{\sqrt{10}i}{56} & 0 & 0 & \frac{\sqrt{3}i}{80} & 0 & -\frac{\sqrt{15}i}{80} & 0 & \frac{i}{560} & 0 & -\frac{3\sqrt{21}i}{80} \\ 0 & 0 & 0 & -\frac{\sqrt{10}i}{56} & 0 & -\frac{i}{28} & 0 & 0 & -\frac{7\sqrt{2}i}{80} & 0 & -\frac{\sqrt{30}i}{280} & 0 & -\frac{13\sqrt{6}i}{560} & 0 \\ 0 & 0 & -\frac{\sqrt{2}i}{8} & 0 & \frac{i}{28} & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}i}{16} & 0 & \frac{\sqrt{10}i}{56} & 0 & \frac{\sqrt{210}i}{560} \end{bmatrix}$$

$$\boxed{\text{x254}} \quad \mathbb{M}_{4,2}^{(a)}(E_u, 2) = \begin{bmatrix} \frac{1}{112} & 0 & -\frac{\sqrt{10}}{112} & 0 & -\frac{\sqrt{5}}{16} & 0 & 0 & \frac{9\sqrt{6}}{560} & 0 & -\frac{3\sqrt{30}}{280} & 0 & -\frac{9\sqrt{2}}{80} & 0 & 0 \\ 0 & -\frac{\sqrt{15}}{112} & 0 & \frac{\sqrt{30}}{112} & 0 & \frac{\sqrt{3}}{16} & -\frac{3\sqrt{14}}{80} & 0 & -\frac{3\sqrt{6}}{140} & 0 & \frac{3\sqrt{10}}{560} & 0 & -\frac{3\sqrt{2}}{40} & 0 \\ \frac{\sqrt{3}}{16} & 0 & \frac{\sqrt{30}}{112} & 0 & -\frac{\sqrt{15}}{112} & 0 & 0 & \frac{3\sqrt{2}}{40} & 0 & -\frac{3\sqrt{10}}{560} & 0 & \frac{3\sqrt{6}}{140} & 0 & \frac{3\sqrt{14}}{80} \\ 0 & -\frac{\sqrt{5}}{16} & 0 & -\frac{\sqrt{10}}{112} & 0 & \frac{1}{112} & 0 & 0 & \frac{9\sqrt{2}}{80} & 0 & \frac{3\sqrt{30}}{280} & 0 & -\frac{9\sqrt{6}}{560} & 0 \\ 0 & \frac{1}{28} & 0 & \frac{\sqrt{2}}{8} & 0 & 0 & \frac{\sqrt{210}}{560} & 0 & -\frac{\sqrt{10}}{56} & 0 & -\frac{\sqrt{6}}{16} & 0 & 0 & 0 \\ \frac{1}{28} & 0 & -\frac{\sqrt{10}}{56} & 0 & 0 & 0 & 0 & -\frac{13\sqrt{6}}{560} & 0 & \frac{\sqrt{30}}{280} & 0 & -\frac{7\sqrt{2}}{80} & 0 & 0 \\ 0 & -\frac{\sqrt{10}}{56} & 0 & 0 & 0 & -\frac{\sqrt{2}}{8} & \frac{3\sqrt{21}}{80} & 0 & \frac{1}{560} & 0 & \frac{\sqrt{15}}{80} & 0 & \frac{\sqrt{3}}{80} & 0 \\ \frac{\sqrt{2}}{8} & 0 & 0 & 0 & \frac{\sqrt{10}}{56} & 0 & 0 & \frac{\sqrt{3}}{80} & 0 & \frac{\sqrt{15}}{80} & 0 & \frac{1}{560} & 0 & \frac{3\sqrt{21}}{80} \\ 0 & 0 & 0 & \frac{\sqrt{10}}{56} & 0 & -\frac{1}{28} & 0 & 0 & -\frac{7\sqrt{2}}{80} & 0 & \frac{\sqrt{30}}{280} & 0 & -\frac{13\sqrt{6}}{560} & 0 \\ 0 & 0 & -\frac{\sqrt{2}}{8} & 0 & -\frac{1}{28} & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{16} & 0 & -\frac{\sqrt{10}}{56} & 0 & \frac{\sqrt{210}}{560} \end{bmatrix}$$

$$\boxed{\text{x255}} \quad \mathbb{M}_2^{(1,-1;a)}(A_{1u}) = \begin{bmatrix} 0 & -\frac{3\sqrt{6}}{70} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{2\sqrt{15}}{35} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{3}{70} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{6\sqrt{3}}{35} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{3}{70} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{6\sqrt{3}}{35} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{3\sqrt{6}}{70} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{2\sqrt{15}}{35} & 0 & 0 \\ \frac{\sqrt{6}}{21} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3}{14} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{6}}{105} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{15}}{70} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{4\sqrt{6}}{105} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{2}}{70} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{4\sqrt{6}}{105} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{2}}{70} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{105} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{15}}{70} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{21} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3}{14} & 0 \end{bmatrix}$$

$$\boxed{\text{x256}} \quad \mathbb{M}_4^{(1,-1;a)}(A_{1u}, 1) = \begin{bmatrix} 0 & \frac{\sqrt{7}}{168} & 0 & 0 & 0 & \frac{\sqrt{35}}{168} & 0 & 0 & \frac{\sqrt{70}}{56} & 0 & 0 & 0 & \frac{\sqrt{210}}{168} & 0 \\ 0 & 0 & -\frac{\sqrt{42}}{168} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{14}}{168} & 0 & 0 & 0 & \frac{\sqrt{10}}{24} \\ 0 & 0 & 0 & \frac{\sqrt{42}}{168} & 0 & 0 & \frac{\sqrt{10}}{24} & 0 & 0 & 0 & -\frac{5\sqrt{14}}{168} & 0 & 0 & 0 \\ -\frac{\sqrt{35}}{168} & 0 & 0 & 0 & -\frac{\sqrt{7}}{168} & 0 & 0 & \frac{\sqrt{210}}{168} & 0 & 0 & 0 & \frac{\sqrt{70}}{56} & 0 & 0 \\ -\frac{\sqrt{7}}{84} & 0 & 0 & 0 & -\frac{\sqrt{35}}{84} & 0 & 0 & -\frac{5\sqrt{42}}{168} & 0 & 0 & 0 & -\frac{5\sqrt{14}}{168} & 0 & 0 \\ 0 & \frac{\sqrt{7}}{28} & 0 & 0 & 0 & -\frac{\sqrt{35}}{84} & 0 & 0 & \frac{\sqrt{70}}{42} & 0 & 0 & 0 & -\frac{\sqrt{210}}{84} & 0 \\ 0 & 0 & -\frac{\sqrt{7}}{42} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{21}}{168} & 0 & 0 & 0 & -\frac{\sqrt{15}}{24} \\ 0 & 0 & 0 & -\frac{\sqrt{7}}{42} & 0 & 0 & \frac{\sqrt{15}}{24} & 0 & 0 & 0 & -\frac{5\sqrt{21}}{168} & 0 & 0 & 0 \\ -\frac{\sqrt{35}}{84} & 0 & 0 & 0 & \frac{\sqrt{7}}{28} & 0 & 0 & \frac{\sqrt{210}}{84} & 0 & 0 & 0 & -\frac{\sqrt{70}}{42} & 0 & 0 \\ 0 & -\frac{\sqrt{35}}{84} & 0 & 0 & 0 & -\frac{\sqrt{7}}{84} & 0 & 0 & \frac{5\sqrt{14}}{168} & 0 & 0 & 0 & \frac{5\sqrt{42}}{168} & 0 \end{bmatrix}$$

$$\boxed{\text{x257}} \quad \mathbb{M}_4^{(1,-1;a)}(A_{1u}, 2) = \begin{bmatrix} 0 & \frac{\sqrt{5}}{168} & 0 & 0 & 0 & -\frac{1}{24} & 0 & 0 & \frac{5\sqrt{2}}{56} & 0 & 0 & 0 & -\frac{\sqrt{6}}{24} & 0 \\ 0 & 0 & -\frac{\sqrt{30}}{168} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{10}}{168} & 0 & 0 & 0 & -\frac{\sqrt{14}}{24} \\ 0 & 0 & 0 & \frac{\sqrt{30}}{168} & 0 & 0 & -\frac{\sqrt{14}}{24} & 0 & 0 & 0 & -\frac{5\sqrt{10}}{168} & 0 & 0 & 0 \\ \frac{1}{24} & 0 & 0 & 0 & -\frac{\sqrt{5}}{168} & 0 & 0 & -\frac{\sqrt{6}}{24} & 0 & 0 & 0 & \frac{5\sqrt{2}}{56} & 0 & 0 \\ -\frac{\sqrt{5}}{84} & 0 & 0 & 0 & \frac{1}{12} & 0 & 0 & -\frac{5\sqrt{30}}{168} & 0 & 0 & 0 & \frac{\sqrt{10}}{24} & 0 & 0 \\ 0 & \frac{\sqrt{5}}{28} & 0 & 0 & 0 & \frac{1}{12} & 0 & 0 & \frac{5\sqrt{2}}{42} & 0 & 0 & 0 & \frac{\sqrt{6}}{12} & 0 \\ 0 & 0 & -\frac{\sqrt{5}}{42} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{15}}{168} & 0 & 0 & 0 & \frac{\sqrt{21}}{24} \\ 0 & 0 & 0 & -\frac{\sqrt{5}}{42} & 0 & 0 & -\frac{\sqrt{21}}{24} & 0 & 0 & 0 & -\frac{5\sqrt{15}}{168} & 0 & 0 & 0 \\ \frac{1}{12} & 0 & 0 & 0 & \frac{\sqrt{5}}{28} & 0 & 0 & -\frac{\sqrt{6}}{12} & 0 & 0 & 0 & -\frac{5\sqrt{2}}{42} & 0 & 0 \\ 0 & \frac{1}{12} & 0 & 0 & 0 & -\frac{\sqrt{5}}{84} & 0 & 0 & -\frac{\sqrt{10}}{24} & 0 & 0 & 0 & \frac{5\sqrt{30}}{168} & 0 \end{bmatrix}$$

$$\boxed{\text{x258}} \quad \mathbb{M}_6^{(1,-1;a)}(A_{1u}, 1) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{33}}{264} & 0 & 0 & 0 & -\frac{7\sqrt{11}}{88} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{55}}{88} & 0 & 0 & 0 & \frac{7\sqrt{165}}{264} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{66}}{264} & 0 & 0 & 0 & -\frac{\sqrt{2310}}{264} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2310}}{264} & 0 & 0 & -\frac{5\sqrt{66}}{264} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{7\sqrt{165}}{264} & 0 & 0 & \frac{\sqrt{55}}{88} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{7\sqrt{11}}{88} & 0 & 0 & -\frac{\sqrt{33}}{264} & 0 & 0 \end{bmatrix}$$

x259

x260

x261

$$\boxed{\text{x262}} \quad \mathbb{M}_2^{(1,-1;a)}(B_{1u}) = \begin{bmatrix} 0 & 0 & 0 & -\frac{3}{70} & 0 & 0 & -\frac{\sqrt{105}}{35} & 0 & 0 & 0 & -\frac{\sqrt{3}}{35} & 0 & 0 & 0 \\ \frac{\sqrt{30}}{70} & 0 & 0 & 0 & -\frac{\sqrt{6}}{35} & 0 & 0 & -\frac{3\sqrt{5}}{35} & 0 & 0 & 0 & -\frac{\sqrt{15}}{35} & 0 & 0 \\ 0 & \frac{\sqrt{6}}{35} & 0 & 0 & 0 & -\frac{\sqrt{30}}{70} & 0 & 0 & -\frac{\sqrt{15}}{35} & 0 & 0 & 0 & -\frac{3\sqrt{5}}{35} & 0 \\ 0 & 0 & \frac{3}{70} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{35} & 0 & 0 & 0 & -\frac{\sqrt{105}}{35} \\ 0 & 0 & \frac{\sqrt{5}}{35} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{70} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{3}{35} & 0 & 0 & -\frac{\sqrt{105}}{70} & 0 & 0 & 0 & \frac{2\sqrt{3}}{35} & 0 & 0 & 0 \\ \frac{\sqrt{5}}{35} & 0 & 0 & 0 & \frac{3}{35} & 0 & 0 & -\frac{\sqrt{30}}{35} & 0 & 0 & 0 & \frac{3\sqrt{10}}{70} & 0 & 0 \\ 0 & \frac{3}{35} & 0 & 0 & 0 & \frac{\sqrt{5}}{35} & 0 & 0 & -\frac{3\sqrt{10}}{70} & 0 & 0 & 0 & \frac{\sqrt{30}}{35} & 0 \\ 0 & 0 & \frac{3}{35} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{2\sqrt{3}}{35} & 0 & 0 & 0 & \frac{\sqrt{105}}{70} \\ 0 & 0 & 0 & \frac{\sqrt{5}}{35} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{70} & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x263}} \quad \mathbb{M}_4^{(1,-1;a)}(B_{1u}) = \begin{bmatrix} 0 & 0 & 0 & -\frac{\sqrt{30}}{168} & 0 & 0 & -\frac{\sqrt{14}}{56} & 0 & 0 & 0 & -\frac{3\sqrt{10}}{56} & 0 & 0 & 0 \\ \frac{1}{56} & 0 & 0 & 0 & \frac{\sqrt{5}}{56} & 0 & 0 & \frac{11\sqrt{6}}{168} & 0 & 0 & 0 & -\frac{\sqrt{2}}{56} & 0 & 0 \\ 0 & -\frac{\sqrt{5}}{56} & 0 & 0 & 0 & -\frac{1}{56} & 0 & 0 & -\frac{\sqrt{2}}{56} & 0 & 0 & 0 & \frac{11\sqrt{6}}{168} & 0 \\ 0 & 0 & \frac{\sqrt{30}}{168} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{10}}{56} & 0 & 0 & 0 & -\frac{\sqrt{14}}{56} \\ 0 & 0 & \frac{\sqrt{6}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{2}}{28} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{30}}{84} & 0 & 0 & -\frac{3\sqrt{14}}{56} & 0 & 0 & 0 & \frac{\sqrt{10}}{56} & 0 & 0 & 0 \\ \frac{\sqrt{6}}{28} & 0 & 0 & 0 & -\frac{\sqrt{30}}{84} & 0 & 0 & \frac{9}{56} & 0 & 0 & 0 & -\frac{17\sqrt{3}}{168} & 0 & 0 \\ 0 & -\frac{\sqrt{30}}{84} & 0 & 0 & 0 & \frac{\sqrt{6}}{28} & 0 & 0 & \frac{17\sqrt{3}}{168} & 0 & 0 & 0 & -\frac{9}{56} & 0 \\ 0 & 0 & -\frac{\sqrt{30}}{84} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}}{56} & 0 & 0 & 0 & \frac{3\sqrt{14}}{56} \\ 0 & 0 & 0 & \frac{\sqrt{6}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{2}}{28} & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x264}} \quad \mathbb{M}_6^{(1,-1;a)}(B_{1u}, 1) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}}{24} & 0 & 0 & 0 & \frac{\sqrt{5}}{8} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{1}{24} & 0 & 0 & \frac{\sqrt{35}}{24} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}}{24} & 0 & 0 & -\frac{\sqrt{42}}{24} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{42}}{24} & 0 & 0 & \frac{\sqrt{14}}{24} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}}{24} & 0 & 0 & -\frac{1}{24} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{8} & 0 & 0 & 0 & \frac{\sqrt{7}}{24} & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x265}} \quad \mathbb{M}_6^{(1,-1;a)}(B_{1u}, 2) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{385}}{264} & 0 & 0 & 0 & \frac{\sqrt{11}}{8} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{55}}{264} & 0 & 0 & -\frac{5\sqrt{77}}{264} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{770}}{264} & 0 & 0 & 0 & \frac{\sqrt{2310}}{264} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2310}}{264} & 0 & 0 & 0 & -\frac{\sqrt{770}}{264} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{77}}{264} & 0 & 0 & 0 & \frac{\sqrt{55}}{264} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{11}}{8} & 0 & 0 & 0 & -\frac{\sqrt{385}}{264} & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x266}} \quad \mathbb{M}_2^{(1,-1;a)}(B_{2u}) = \begin{bmatrix} 0 & 0 & 0 & \frac{3i}{70} & 0 & 0 & -\frac{\sqrt{105}i}{35} & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{35} & 0 & 0 & 0 \\ \frac{\sqrt{30}i}{70} & 0 & 0 & 0 & \frac{\sqrt{6}i}{35} & 0 & 0 & -\frac{3\sqrt{5}i}{35} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{35} & 0 & 0 \\ 0 & \frac{\sqrt{6}i}{35} & 0 & 0 & 0 & \frac{\sqrt{30}i}{70} & 0 & 0 & -\frac{\sqrt{15}i}{35} & 0 & 0 & 0 & 0 & \frac{3\sqrt{5}i}{35} & 0 \\ 0 & 0 & \frac{3i}{70} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{35} & 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{35} \\ 0 & 0 & -\frac{\sqrt{5}i}{35} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{70} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{3i}{35} & 0 & 0 & -\frac{\sqrt{105}i}{70} & 0 & 0 & 0 & -\frac{2\sqrt{3}i}{35} & 0 & 0 & 0 & 0 \\ \frac{\sqrt{5}i}{35} & 0 & 0 & 0 & -\frac{3i}{35} & 0 & 0 & -\frac{\sqrt{30}i}{35} & 0 & 0 & 0 & -\frac{3\sqrt{10}i}{70} & 0 & 0 & 0 \\ 0 & \frac{3i}{35} & 0 & 0 & 0 & -\frac{\sqrt{5}i}{35} & 0 & 0 & -\frac{3\sqrt{10}i}{70} & 0 & 0 & 0 & -\frac{\sqrt{30}i}{35} & 0 & 0 \\ 0 & 0 & \frac{3i}{35} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{2\sqrt{3}i}{35} & 0 & 0 & 0 & -\frac{\sqrt{105}i}{70} & 0 \\ 0 & 0 & 0 & \frac{\sqrt{5}i}{35} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{70} & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x267}} \quad \mathbb{M}_4^{(1,-1;a)}(B_{2u}) = \begin{bmatrix} 0 & 0 & 0 & -\frac{\sqrt{30}i}{168} & 0 & 0 & \frac{\sqrt{14}i}{56} & 0 & 0 & 0 & -\frac{3\sqrt{10}i}{56} & 0 & 0 & 0 & 0 \\ -\frac{i}{56} & 0 & 0 & 0 & \frac{\sqrt{5}i}{56} & 0 & 0 & -\frac{11\sqrt{6}i}{168} & 0 & 0 & 0 & -\frac{\sqrt{2}i}{56} & 0 & 0 & 0 \\ 0 & \frac{\sqrt{5}i}{56} & 0 & 0 & 0 & -\frac{i}{56} & 0 & 0 & \frac{\sqrt{2}i}{56} & 0 & 0 & 0 & \frac{11\sqrt{6}i}{168} & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{30}i}{168} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{10}i}{56} & 0 & 0 & 0 & -\frac{\sqrt{14}i}{56} & 0 \\ 0 & 0 & \frac{\sqrt{6}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{2}i}{28} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{30}i}{84} & 0 & 0 & \frac{3\sqrt{14}i}{56} & 0 & 0 & 0 & \frac{\sqrt{10}i}{56} & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{6}i}{28} & 0 & 0 & 0 & -\frac{\sqrt{30}i}{84} & 0 & 0 & -\frac{9i}{56} & 0 & 0 & 0 & -\frac{17\sqrt{3}i}{168} & 0 & 0 & 0 \\ 0 & \frac{\sqrt{30}i}{84} & 0 & 0 & 0 & \frac{\sqrt{6}i}{28} & 0 & 0 & -\frac{17\sqrt{3}i}{168} & 0 & 0 & 0 & -\frac{9i}{56} & 0 & 0 \\ 0 & 0 & \frac{\sqrt{30}i}{84} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{10}i}{56} & 0 & 0 & 0 & \frac{3\sqrt{14}i}{56} & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{6}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{2}i}{28} & 0 & 0 & 0 & 0 \end{bmatrix}$$

x268

x269

x270

$$\boxed{\text{x271}} \quad \mathbb{M}_{2,2}^{(1,-1;a)}(E_u) = \begin{bmatrix} -\frac{3\sqrt{10}}{140} & 0 & \frac{9}{140} & 0 & 0 & 0 & 0 & -\frac{2\sqrt{15}}{35} & 0 & \frac{2\sqrt{3}}{35} & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{6}}{140} & 0 & \frac{\sqrt{3}}{28} & 0 & 0 & 0 & 0 & -\frac{2\sqrt{15}}{35} & 0 & \frac{6}{35} & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{3}}{28} & 0 & \frac{\sqrt{6}}{140} & 0 & 0 & 0 & 0 & -\frac{6}{35} & 0 & \frac{2\sqrt{15}}{35} & 0 & 0 \\ 0 & 0 & 0 & \frac{9}{140} & 0 & -\frac{3\sqrt{10}}{140} & 0 & 0 & 0 & 0 & -\frac{2\sqrt{3}}{35} & 0 & \frac{2\sqrt{15}}{35} & 0 \\ 0 & -\frac{\sqrt{10}}{35} & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{28} & 0 & -\frac{3}{28} & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{10}}{35} & 0 & -\frac{2}{35} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{140} & 0 & -\frac{11\sqrt{3}}{140} & 0 & 0 & 0 & 0 \\ 0 & -\frac{2}{35} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{10}}{140} & 0 & -\frac{\sqrt{6}}{20} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{2}{35} & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{20} & 0 & -\frac{3\sqrt{10}}{140} & 0 & 0 \\ 0 & 0 & 0 & \frac{2}{35} & 0 & \frac{\sqrt{10}}{35} & 0 & 0 & 0 & 0 & -\frac{11\sqrt{3}}{140} & 0 & \frac{\sqrt{15}}{140} & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{10}}{35} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3}{28} & 0 & \frac{\sqrt{21}}{28} \end{bmatrix}$$

$$\boxed{\text{x272}} \quad \mathbb{M}_{4,1}^{(1,-1;a)}(E_u, 1) = \begin{bmatrix} \frac{\sqrt{21}i}{672} & 0 & \frac{\sqrt{210}i}{672} & 0 & \frac{\sqrt{105}i}{672} & 0 & 0 & \frac{3\sqrt{14}i}{112} & 0 & \frac{\sqrt{70}i}{56} & 0 & \frac{\sqrt{42}i}{112} & 0 & 0 \\ 0 & -\frac{\sqrt{35}i}{224} & 0 & -\frac{\sqrt{70}i}{224} & 0 & -\frac{\sqrt{7}i}{224} & -\frac{\sqrt{6}i}{48} & 0 & -\frac{\sqrt{14}i}{28} & 0 & -\frac{\sqrt{210}i}{336} & 0 & \frac{\sqrt{42}i}{168} & 0 \\ \frac{\sqrt{7}i}{224} & 0 & \frac{\sqrt{70}i}{224} & 0 & \frac{\sqrt{35}i}{224} & 0 & 0 & \frac{\sqrt{42}i}{168} & 0 & -\frac{\sqrt{210}i}{336} & 0 & -\frac{\sqrt{14}i}{28} & 0 & -\frac{\sqrt{6}i}{48} \\ 0 & -\frac{\sqrt{105}i}{672} & 0 & -\frac{\sqrt{210}i}{672} & 0 & -\frac{\sqrt{21}i}{672} & 0 & 0 & \frac{\sqrt{42}i}{112} & 0 & \frac{\sqrt{70}i}{56} & 0 & \frac{3\sqrt{14}i}{112} & 0 \\ 0 & -\frac{\sqrt{21}i}{84} & 0 & -\frac{\sqrt{42}i}{168} & 0 & 0 & -\frac{\sqrt{10}i}{32} & 0 & -\frac{5\sqrt{210}i}{336} & 0 & -\frac{5\sqrt{14}i}{224} & 0 & 0 & 0 \\ \frac{\sqrt{21}i}{84} & 0 & \frac{\sqrt{210}i}{168} & 0 & 0 & 0 & 0 & \frac{13\sqrt{14}i}{224} & 0 & \frac{\sqrt{70}i}{112} & 0 & -\frac{\sqrt{42}i}{96} & 0 & 0 \\ 0 & -\frac{\sqrt{210}i}{168} & 0 & 0 & 0 & \frac{\sqrt{42}i}{168} & -\frac{3i}{32} & 0 & -\frac{\sqrt{21}i}{672} & 0 & \frac{\sqrt{35}i}{32} & 0 & \frac{\sqrt{7}i}{224} & 0 \\ \frac{\sqrt{42}i}{168} & 0 & 0 & 0 & -\frac{\sqrt{210}i}{168} & 0 & 0 & -\frac{\sqrt{7}i}{224} & 0 & -\frac{\sqrt{35}i}{32} & 0 & \frac{\sqrt{21}i}{672} & 0 & \frac{3i}{32} \\ 0 & 0 & 0 & \frac{\sqrt{210}i}{168} & 0 & \frac{\sqrt{21}i}{84} & 0 & 0 & \frac{\sqrt{42}i}{96} & 0 & -\frac{\sqrt{70}i}{112} & 0 & -\frac{13\sqrt{14}i}{224} & 0 \\ 0 & 0 & -\frac{\sqrt{42}i}{168} & 0 & -\frac{\sqrt{21}i}{84} & 0 & 0 & 0 & 0 & \frac{5\sqrt{14}i}{224} & 0 & \frac{5\sqrt{210}i}{336} & 0 & \frac{\sqrt{10}i}{32} \end{bmatrix}$$

$$\boxed{\text{x273}} \quad \mathbb{M}_{4,2}^{(1,-1;a)}(E_u, 1) = \begin{bmatrix} -\frac{\sqrt{21}}{672} & 0 & \frac{\sqrt{210}}{672} & 0 & -\frac{\sqrt{105}}{672} & 0 & 0 & -\frac{3\sqrt{14}}{112} & 0 & \frac{\sqrt{70}}{56} & 0 & -\frac{\sqrt{42}}{112} & 0 & 0 \\ 0 & \frac{\sqrt{35}}{224} & 0 & -\frac{\sqrt{70}}{224} & 0 & \frac{\sqrt{7}}{224} & -\frac{\sqrt{6}}{48} & 0 & \frac{\sqrt{14}}{28} & 0 & -\frac{\sqrt{210}}{336} & 0 & -\frac{\sqrt{42}}{168} & 0 \\ \frac{\sqrt{7}}{224} & 0 & -\frac{\sqrt{70}}{224} & 0 & \frac{\sqrt{35}}{224} & 0 & 0 & \frac{\sqrt{42}}{168} & 0 & \frac{\sqrt{210}}{336} & 0 & -\frac{\sqrt{14}}{28} & 0 & \frac{\sqrt{6}}{48} \\ 0 & -\frac{\sqrt{105}}{672} & 0 & \frac{\sqrt{210}}{672} & 0 & -\frac{\sqrt{21}}{672} & 0 & 0 & \frac{\sqrt{42}}{112} & 0 & -\frac{\sqrt{70}}{56} & 0 & \frac{3\sqrt{14}}{112} & 0 \\ 0 & -\frac{\sqrt{21}}{84} & 0 & \frac{\sqrt{42}}{168} & 0 & 0 & \frac{\sqrt{10}}{32} & 0 & -\frac{5\sqrt{210}}{336} & 0 & \frac{5\sqrt{14}}{224} & 0 & 0 & 0 \\ -\frac{\sqrt{21}}{84} & 0 & \frac{\sqrt{210}}{168} & 0 & 0 & 0 & 0 & -\frac{13\sqrt{14}}{224} & 0 & \frac{\sqrt{70}}{112} & 0 & \frac{\sqrt{42}}{96} & 0 & 0 \\ 0 & \frac{\sqrt{210}}{168} & 0 & 0 & 0 & -\frac{\sqrt{42}}{168} & -\frac{3}{32} & 0 & \frac{\sqrt{21}}{672} & 0 & \frac{\sqrt{35}}{32} & 0 & -\frac{\sqrt{7}}{224} & 0 \\ \frac{\sqrt{42}}{168} & 0 & 0 & 0 & -\frac{\sqrt{210}}{168} & 0 & 0 & -\frac{\sqrt{7}}{224} & 0 & \frac{\sqrt{35}}{32} & 0 & \frac{\sqrt{21}}{672} & 0 & -\frac{3}{32} \\ 0 & 0 & 0 & -\frac{\sqrt{210}}{168} & 0 & \frac{\sqrt{21}}{84} & 0 & 0 & \frac{\sqrt{42}}{96} & 0 & \frac{\sqrt{70}}{112} & 0 & -\frac{13\sqrt{14}}{224} & 0 \\ 0 & 0 & -\frac{\sqrt{42}}{168} & 0 & \frac{\sqrt{21}}{84} & 0 & 0 & 0 & 0 & \frac{5\sqrt{14}}{224} & 0 & -\frac{5\sqrt{210}}{336} & 0 & \frac{\sqrt{10}}{32} \end{bmatrix}$$



$$\boxed{\text{x274}} \quad \mathbb{M}_{4,1}^{(1,-1;a)}(E_u, 2) = \begin{bmatrix} \frac{\sqrt{3}i}{672} & 0 & \frac{\sqrt{30}i}{672} & 0 & -\frac{\sqrt{15}i}{96} & 0 & 0 & \frac{3\sqrt{2}i}{112} & 0 & \frac{\sqrt{10}i}{56} & 0 & -\frac{\sqrt{6}i}{16} & 0 & 0 \\ 0 & -\frac{\sqrt{5}i}{224} & 0 & -\frac{\sqrt{10}i}{224} & 0 & \frac{i}{32} & \frac{\sqrt{42}i}{48} & 0 & -\frac{\sqrt{2}i}{28} & 0 & -\frac{\sqrt{30}i}{336} & 0 & -\frac{\sqrt{6}i}{24} & 0 \\ -\frac{i}{32} & 0 & \frac{\sqrt{10}i}{224} & 0 & \frac{\sqrt{5}i}{224} & 0 & 0 & -\frac{\sqrt{6}i}{24} & 0 & -\frac{\sqrt{30}i}{336} & 0 & -\frac{\sqrt{2}i}{28} & 0 & \frac{\sqrt{42}i}{48} \\ 0 & \frac{\sqrt{15}i}{96} & 0 & -\frac{\sqrt{30}i}{672} & 0 & -\frac{\sqrt{3}i}{672} & 0 & 0 & -\frac{\sqrt{6}i}{16} & 0 & \frac{\sqrt{10}i}{56} & 0 & \frac{3\sqrt{2}i}{112} & 0 \\ 0 & -\frac{\sqrt{3}i}{84} & 0 & \frac{\sqrt{6}i}{24} & 0 & 0 & -\frac{\sqrt{70}i}{224} & 0 & -\frac{5\sqrt{30}i}{336} & 0 & \frac{5\sqrt{2}i}{32} & 0 & 0 & 0 \\ \frac{\sqrt{3}i}{84} & 0 & \frac{\sqrt{30}i}{168} & 0 & 0 & 0 & 0 & \frac{13\sqrt{2}i}{224} & 0 & \frac{\sqrt{10}i}{112} & 0 & \frac{7\sqrt{6}i}{96} & 0 & 0 \\ 0 & -\frac{\sqrt{30}i}{168} & 0 & 0 & 0 & -\frac{\sqrt{6}i}{24} & \frac{3\sqrt{7}i}{32} & 0 & -\frac{\sqrt{3}i}{672} & 0 & \frac{\sqrt{5}i}{32} & 0 & -\frac{i}{32} & 0 \\ -\frac{\sqrt{6}i}{24} & 0 & 0 & 0 & -\frac{\sqrt{30}i}{168} & 0 & 0 & \frac{i}{32} & 0 & -\frac{\sqrt{5}i}{32} & 0 & \frac{\sqrt{3}i}{672} & 0 & -\frac{3\sqrt{7}i}{32} \\ 0 & 0 & 0 & \frac{\sqrt{30}i}{168} & 0 & \frac{\sqrt{3}i}{84} & 0 & 0 & -\frac{7\sqrt{6}i}{96} & 0 & -\frac{\sqrt{10}i}{112} & 0 & -\frac{13\sqrt{2}i}{224} & 0 \\ 0 & 0 & \frac{\sqrt{6}i}{24} & 0 & -\frac{\sqrt{3}i}{84} & 0 & 0 & 0 & 0 & -\frac{5\sqrt{2}i}{32} & 0 & \frac{5\sqrt{30}i}{336} & 0 & \frac{\sqrt{70}i}{224} \end{bmatrix}$$

$$\boxed{\text{x275}} \quad \mathbb{M}_{4,2}^{(1,-1;a)}(E_u, 2) = \begin{bmatrix} -\frac{\sqrt{3}}{672} & 0 & \frac{\sqrt{30}}{672} & 0 & \frac{\sqrt{15}}{96} & 0 & 0 & -\frac{3\sqrt{2}}{112} & 0 & \frac{\sqrt{10}}{56} & 0 & \frac{\sqrt{6}}{16} & 0 & 0 \\ 0 & \frac{\sqrt{5}}{224} & 0 & -\frac{\sqrt{10}}{224} & 0 & -\frac{1}{32} & \frac{\sqrt{42}}{48} & 0 & \frac{\sqrt{2}}{28} & 0 & -\frac{\sqrt{30}}{336} & 0 & \frac{\sqrt{6}}{24} & 0 \\ -\frac{1}{32} & 0 & -\frac{\sqrt{10}}{224} & 0 & \frac{\sqrt{5}}{224} & 0 & 0 & -\frac{\sqrt{6}}{24} & 0 & \frac{\sqrt{30}}{336} & 0 & -\frac{\sqrt{2}}{28} & 0 & -\frac{\sqrt{42}}{48} \\ 0 & \frac{\sqrt{15}}{96} & 0 & \frac{\sqrt{30}}{672} & 0 & -\frac{\sqrt{3}}{672} & 0 & 0 & -\frac{\sqrt{6}}{16} & 0 & -\frac{\sqrt{10}}{56} & 0 & \frac{3\sqrt{2}}{112} & 0 \\ 0 & -\frac{\sqrt{3}}{84} & 0 & -\frac{\sqrt{6}}{24} & 0 & 0 & \frac{\sqrt{70}}{224} & 0 & -\frac{5\sqrt{30}}{336} & 0 & -\frac{5\sqrt{2}}{32} & 0 & 0 & 0 \\ -\frac{\sqrt{3}}{84} & 0 & \frac{\sqrt{30}}{168} & 0 & 0 & 0 & 0 & -\frac{13\sqrt{2}}{224} & 0 & \frac{\sqrt{10}}{112} & 0 & -\frac{7\sqrt{6}}{96} & 0 & 0 \\ 0 & \frac{\sqrt{30}}{168} & 0 & 0 & 0 & \frac{\sqrt{6}}{24} & \frac{3\sqrt{7}}{32} & 0 & \frac{\sqrt{3}}{672} & 0 & \frac{\sqrt{5}}{32} & 0 & \frac{1}{32} & 0 \\ -\frac{\sqrt{6}}{24} & 0 & 0 & 0 & -\frac{\sqrt{30}}{168} & 0 & 0 & \frac{1}{32} & 0 & \frac{\sqrt{5}}{32} & 0 & \frac{\sqrt{3}}{672} & 0 & \frac{3\sqrt{7}}{32} \\ 0 & 0 & 0 & -\frac{\sqrt{30}}{168} & 0 & \frac{\sqrt{3}}{84} & 0 & 0 & -\frac{7\sqrt{6}}{96} & 0 & \frac{\sqrt{10}}{112} & 0 & -\frac{13\sqrt{2}}{224} & 0 \\ 0 & 0 & \frac{\sqrt{6}}{24} & 0 & \frac{\sqrt{3}}{84} & 0 & 0 & 0 & 0 & -\frac{5\sqrt{2}}{32} & 0 & -\frac{5\sqrt{30}}{336} & 0 & \frac{\sqrt{70}}{224} \end{bmatrix}$$

$$\boxed{\text{x276}} \quad \mathbb{M}_{6,1}^{(1,-1;a)}(E_u, 1) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{66}i}{1056} & 0 & -\frac{\sqrt{154}i}{352} & 0 & \frac{\sqrt{2310}i}{352} & 0 & \frac{\sqrt{462}i}{96} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2310}i}{1056} & 0 & \frac{5\sqrt{462}i}{1056} & 0 & -\frac{3\sqrt{770}i}{352} & 0 & -\frac{\sqrt{330}i}{96} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{165}i}{176} & 0 & -\frac{\sqrt{385}i}{176} & 0 & -\frac{5\sqrt{231}i}{528} & 0 & \frac{\sqrt{1155}i}{176} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{1155}i}{176} & 0 & \frac{5\sqrt{231}i}{528} & 0 & \frac{\sqrt{385}i}{176} & 0 & -\frac{\sqrt{165}i}{176} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{330}i}{96} & 0 & \frac{3\sqrt{770}i}{352} & 0 & -\frac{5\sqrt{462}i}{1056} & 0 & -\frac{\sqrt{2310}i}{1056} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{462}i}{96} & 0 & -\frac{\sqrt{2310}i}{352} & 0 & \frac{\sqrt{154}i}{352} & 0 & \frac{\sqrt{66}i}{1056} \end{bmatrix}$$

$$\boxed{\text{x277}} \quad \mathbb{M}_{6,2}^{(1,-1;a)}(E_u, 1) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{66}}{1056} & 0 & -\frac{\sqrt{154}}{352} & 0 & -\frac{\sqrt{2310}}{352} & 0 & \frac{\sqrt{462}}{96} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2310}}{1056} & 0 & \frac{5\sqrt{462}}{1056} & 0 & \frac{3\sqrt{770}}{352} & 0 & -\frac{\sqrt{330}}{96} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{165}}{176} & 0 & \frac{\sqrt{385}}{176} & 0 & -\frac{5\sqrt{231}}{528} & 0 & -\frac{\sqrt{1155}}{176} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{1155}}{176} & 0 & -\frac{5\sqrt{231}}{528} & 0 & \frac{\sqrt{385}}{176} & 0 & \frac{\sqrt{165}}{176} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{330}}{96} & 0 & \frac{3\sqrt{770}}{352} & 0 & \frac{5\sqrt{462}}{1056} & 0 & -\frac{\sqrt{2310}}{1056} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{462}}{96} & 0 & -\frac{\sqrt{2310}}{352} & 0 & -\frac{\sqrt{154}}{352} & 0 & \frac{\sqrt{66}}{1056} \end{bmatrix}$$

$$\boxed{\text{x278}} \quad \mathbb{M}_{6,1}^{(1,-1;a)}(E_u, 2) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{i}{64} & 0 & -\frac{\sqrt{21}i}{64} & 0 & -\frac{\sqrt{35}i}{64} & 0 & -\frac{\sqrt{7}i}{64} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{35}i}{64} & 0 & \frac{5\sqrt{7}i}{64} & 0 & \frac{\sqrt{105}i}{64} & 0 & \frac{\sqrt{5}i}{64} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}i}{64} & 0 & -\frac{\sqrt{210}i}{64} & 0 & -\frac{5\sqrt{14}i}{64} & 0 & -\frac{\sqrt{70}i}{64} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{70}i}{64} & 0 & \frac{5\sqrt{14}i}{64} & 0 & \frac{\sqrt{210}i}{64} & 0 & \frac{\sqrt{10}i}{64} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{64} & 0 & -\frac{\sqrt{105}i}{64} & 0 & -\frac{5\sqrt{7}i}{64} & 0 & -\frac{\sqrt{35}i}{64} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}i}{64} & 0 & \frac{\sqrt{35}i}{64} & 0 & \frac{\sqrt{21}i}{64} & 0 & \frac{i}{64} \end{bmatrix}$$

$$\boxed{\text{x279}} \quad \mathbb{M}_{6,2}^{(1,-1;a)}(E_u, 2) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{1}{64} & 0 & -\frac{\sqrt{21}}{64} & 0 & \frac{\sqrt{35}}{64} & 0 & -\frac{\sqrt{7}}{64} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}}{64} & 0 & \frac{5\sqrt{7}}{64} & 0 & -\frac{\sqrt{105}}{64} & 0 & \frac{\sqrt{5}}{64} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}}{64} & 0 & \frac{\sqrt{210}}{64} & 0 & -\frac{5\sqrt{14}}{64} & 0 & \frac{\sqrt{70}}{64} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{70}}{64} & 0 & -\frac{5\sqrt{14}}{64} & 0 & \frac{\sqrt{210}}{64} & 0 & -\frac{\sqrt{10}}{64} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}}{64} & 0 & -\frac{\sqrt{105}}{64} & 0 & \frac{5\sqrt{7}}{64} & 0 & -\frac{\sqrt{35}}{64} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}}{64} & 0 & \frac{\sqrt{35}}{64} & 0 & -\frac{\sqrt{21}}{64} & 0 & \frac{1}{64} \end{bmatrix}$$

$$\boxed{\text{x280}} \quad \mathbb{M}_{6,1}^{(1,-1;a)}(E_u, 3) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{55}i}{2112} & 0 & -\frac{\sqrt{1155}i}{2112} & 0 & \frac{9\sqrt{77}i}{704} & 0 & -\frac{\sqrt{385}i}{64} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{77}i}{2112} & 0 & \frac{5\sqrt{385}i}{2112} & 0 & -\frac{9\sqrt{231}i}{704} & 0 & \frac{5\sqrt{11}i}{64} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{9\sqrt{22}i}{704} & 0 & -\frac{5\sqrt{462}i}{2112} & 0 & -\frac{5\sqrt{770}i}{2112} & 0 & \frac{9\sqrt{154}i}{704} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{9\sqrt{154}i}{704} & 0 & \frac{5\sqrt{770}i}{2112} & 0 & \frac{5\sqrt{462}i}{2112} & 0 & -\frac{9\sqrt{22}i}{704} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{11}i}{64} & 0 & \frac{9\sqrt{231}i}{704} & 0 & -\frac{5\sqrt{385}i}{2112} & 0 & -\frac{5\sqrt{77}i}{2112} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{385}i}{64} & 0 & -\frac{9\sqrt{77}i}{704} & 0 & \frac{\sqrt{1155}i}{2112} & 0 & \frac{\sqrt{55}i}{2112} \end{bmatrix}$$

$$\boxed{\text{x281}} \quad \mathbb{M}_{6,2}^{(1,-1;a)}(E_u, 3) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{55}}{2112} & 0 & -\frac{\sqrt{1155}}{2112} & 0 & -\frac{9\sqrt{77}}{704} & 0 & -\frac{\sqrt{385}}{64} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{77}}{2112} & 0 & \frac{5\sqrt{385}}{2112} & 0 & \frac{9\sqrt{231}}{704} & 0 & \frac{5\sqrt{11}}{64} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{9\sqrt{22}}{704} & 0 & \frac{5\sqrt{462}}{2112} & 0 & -\frac{5\sqrt{770}}{2112} & 0 & -\frac{9\sqrt{154}}{704} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{9\sqrt{154}}{704} & 0 & -\frac{5\sqrt{770}}{2112} & 0 & \frac{5\sqrt{462}}{2112} & 0 & \frac{9\sqrt{22}}{704} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{11}}{64} & 0 & \frac{9\sqrt{231}}{704} & 0 & \frac{5\sqrt{385}}{2112} & 0 & -\frac{5\sqrt{77}}{2112} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{385}}{64} & 0 & -\frac{9\sqrt{77}}{704} & 0 & -\frac{\sqrt{1155}}{2112} & 0 & \frac{\sqrt{55}}{2112} \end{bmatrix}$$

$$\boxed{\text{x282}} \quad \mathbb{M}_2^{(1,0;a)}(A_{1u}) = \begin{bmatrix} 0 & -\frac{\sqrt{15}}{35} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{14} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{10}}{70} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{30}}{70} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{10}}{70} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{30}}{70} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{35} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{14} & 0 & 0 \\ \frac{\sqrt{15}}{14} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{10}}{28} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{15}}{70} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{28} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{2\sqrt{15}}{35} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}}{70} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{2\sqrt{15}}{35} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{70} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{70} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{28} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{14} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}}{28} & 0 \end{bmatrix}$$

$$\boxed{\text{x283}} \quad \mathbb{M}_4^{(1,0;a)}(A_{1u}, 1) = \begin{bmatrix} 0 & \frac{\sqrt{105}}{840} & 0 & 0 & 0 & \frac{\sqrt{21}}{168} & 0 & 0 & -\frac{9\sqrt{42}}{280} & 0 & 0 & 0 & -\frac{9\sqrt{14}}{280} & 0 \\ 0 & 0 & -\frac{\sqrt{70}}{280} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{210}}{280} & 0 & 0 & 0 & -\frac{3\sqrt{6}}{40} \\ 0 & 0 & 0 & \frac{\sqrt{70}}{280} & 0 & 0 & -\frac{3\sqrt{6}}{40} & 0 & 0 & 0 & \frac{3\sqrt{210}}{280} & 0 & 0 & 0 \\ -\frac{\sqrt{21}}{168} & 0 & 0 & 0 & -\frac{\sqrt{105}}{840} & 0 & 0 & -\frac{9\sqrt{14}}{280} & 0 & 0 & 0 & -\frac{9\sqrt{42}}{280} & 0 & 0 \\ -\frac{\sqrt{105}}{140} & 0 & 0 & 0 & -\frac{\sqrt{21}}{28} & 0 & 0 & -\frac{\sqrt{70}}{280} & 0 & 0 & 0 & -\frac{\sqrt{210}}{840} & 0 & 0 \\ 0 & \frac{3\sqrt{105}}{140} & 0 & 0 & 0 & -\frac{\sqrt{21}}{28} & 0 & 0 & \frac{\sqrt{42}}{210} & 0 & 0 & 0 & -\frac{\sqrt{14}}{140} & 0 \\ 0 & 0 & -\frac{\sqrt{105}}{70} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{35}}{280} & 0 & 0 & 0 & -\frac{1}{40} \\ 0 & 0 & 0 & -\frac{\sqrt{105}}{70} & 0 & 0 & \frac{1}{40} & 0 & 0 & 0 & -\frac{\sqrt{35}}{280} & 0 & 0 & 0 \\ -\frac{\sqrt{21}}{28} & 0 & 0 & 0 & \frac{3\sqrt{105}}{140} & 0 & 0 & \frac{\sqrt{14}}{140} & 0 & 0 & 0 & -\frac{\sqrt{42}}{210} & 0 & 0 \\ 0 & -\frac{\sqrt{21}}{28} & 0 & 0 & 0 & -\frac{\sqrt{105}}{140} & 0 & 0 & \frac{\sqrt{210}}{840} & 0 & 0 & 0 & \frac{\sqrt{70}}{280} & 0 \end{bmatrix}$$

$$\boxed{\text{x284}} \quad \mathbb{M}_4^{(1,0;a)}(A_{1u}, 2) = \begin{bmatrix} 0 & \frac{\sqrt{3}}{168} & 0 & 0 & 0 & -\frac{\sqrt{15}}{120} & 0 & 0 & -\frac{9\sqrt{30}}{280} & 0 & 0 & 0 & \frac{9\sqrt{10}}{200} & 0 \\ 0 & 0 & -\frac{\sqrt{2}}{56} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{6}}{56} & 0 & 0 & 0 & \frac{3\sqrt{210}}{200} \\ 0 & 0 & 0 & \frac{\sqrt{2}}{56} & 0 & 0 & \frac{3\sqrt{210}}{200} & 0 & 0 & 0 & \frac{3\sqrt{6}}{56} & 0 & 0 & 0 \\ \frac{\sqrt{15}}{120} & 0 & 0 & 0 & -\frac{\sqrt{3}}{168} & 0 & 0 & \frac{9\sqrt{10}}{200} & 0 & 0 & 0 & -\frac{9\sqrt{30}}{280} & 0 & 0 \\ -\frac{\sqrt{3}}{28} & 0 & 0 & 0 & \frac{\sqrt{15}}{20} & 0 & 0 & -\frac{\sqrt{2}}{56} & 0 & 0 & 0 & \frac{\sqrt{6}}{120} & 0 & 0 \\ 0 & \frac{3\sqrt{3}}{28} & 0 & 0 & 0 & \frac{\sqrt{15}}{20} & 0 & 0 & \frac{\sqrt{30}}{210} & 0 & 0 & 0 & \frac{\sqrt{10}}{100} & 0 \\ 0 & 0 & -\frac{\sqrt{3}}{14} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{1}{56} & 0 & 0 & 0 & \frac{\sqrt{35}}{200} \\ 0 & 0 & 0 & -\frac{\sqrt{3}}{14} & 0 & 0 & -\frac{\sqrt{35}}{200} & 0 & 0 & 0 & -\frac{1}{56} & 0 & 0 & 0 \\ \frac{\sqrt{15}}{20} & 0 & 0 & 0 & \frac{3\sqrt{3}}{28} & 0 & 0 & -\frac{\sqrt{10}}{100} & 0 & 0 & 0 & -\frac{\sqrt{30}}{210} & 0 & 0 \\ 0 & \frac{\sqrt{15}}{20} & 0 & 0 & 0 & -\frac{\sqrt{3}}{28} & 0 & 0 & -\frac{\sqrt{6}}{120} & 0 & 0 & 0 & \frac{\sqrt{2}}{56} & 0 \end{bmatrix}$$

$$\boxed{\text{x285}} \quad \mathbb{M}_4^{(1,0;a)}(A_{2u}) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}i}{140} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{9\sqrt{210}i}{700} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{9\sqrt{10}i}{100} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{9\sqrt{10}i}{100} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{35}i}{140} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{9\sqrt{210}i}{700} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{3\sqrt{35}i}{70} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}i}{140} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{35}i}{70} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{210}i}{350} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{100} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{100} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{3\sqrt{35}i}{70} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{210}i}{350} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{3\sqrt{35}i}{70} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}i}{140} & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x286}} \quad \mathbb{M}_2^{(1,0;a)}(B_{1u}) = \begin{bmatrix} 0 & 0 & 0 & -\frac{\sqrt{10}}{70} & 0 & 0 & \frac{\sqrt{42}}{28} & 0 & 0 & 0 & \frac{\sqrt{30}}{140} & 0 & 0 & 0 \\ \frac{\sqrt{3}}{21} & 0 & 0 & 0 & -\frac{2\sqrt{15}}{105} & 0 & 0 & \frac{3\sqrt{2}}{28} & 0 & 0 & 0 & \frac{\sqrt{6}}{28} & 0 & 0 \\ 0 & \frac{2\sqrt{15}}{105} & 0 & 0 & 0 & -\frac{\sqrt{3}}{21} & 0 & 0 & \frac{\sqrt{6}}{28} & 0 & 0 & 0 & \frac{3\sqrt{2}}{28} & 0 \\ 0 & 0 & \frac{\sqrt{10}}{70} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{140} & 0 & 0 & 0 & \frac{\sqrt{42}}{28} \\ 0 & 0 & \frac{3\sqrt{2}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{84} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{9\sqrt{10}}{140} & 0 & 0 & -\frac{\sqrt{42}}{84} & 0 & 0 & 0 & \frac{\sqrt{30}}{105} & 0 & 0 & 0 \\ \frac{3\sqrt{2}}{28} & 0 & 0 & 0 & \frac{9\sqrt{10}}{140} & 0 & 0 & -\frac{\sqrt{3}}{21} & 0 & 0 & 0 & \frac{1}{14} & 0 & 0 \\ 0 & \frac{9\sqrt{10}}{140} & 0 & 0 & 0 & \frac{3\sqrt{2}}{28} & 0 & 0 & -\frac{1}{14} & 0 & 0 & 0 & \frac{\sqrt{3}}{21} & 0 \\ 0 & 0 & \frac{9\sqrt{10}}{140} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}}{105} & 0 & 0 & 0 & \frac{\sqrt{42}}{84} \\ 0 & 0 & 0 & \frac{3\sqrt{2}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{84} & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x287}} \quad \mathbb{M}_4^{(1,0;a)}(B_{1u}) = \begin{bmatrix} 0 & 0 & 0 & -\frac{\sqrt{2}}{56} & 0 & 0 & \frac{9\sqrt{210}}{1400} & 0 & 0 & 0 & \frac{27\sqrt{6}}{280} & 0 & 0 & 0 \\ \frac{\sqrt{15}}{280} & 0 & 0 & 0 & \frac{\sqrt{3}}{56} & 0 & 0 & -\frac{99\sqrt{10}}{1400} & 0 & 0 & 0 & \frac{9\sqrt{30}}{1400} & 0 & 0 \\ 0 & -\frac{\sqrt{3}}{56} & 0 & 0 & 0 & -\frac{\sqrt{15}}{280} & 0 & 0 & \frac{9\sqrt{30}}{1400} & 0 & 0 & 0 & -\frac{99\sqrt{10}}{1400} & 0 \\ 0 & 0 & \frac{\sqrt{2}}{56} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{27\sqrt{6}}{280} & 0 & 0 & 0 & \frac{9\sqrt{210}}{1400} \\ 0 & 0 & \frac{9\sqrt{10}}{140} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{140} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{3\sqrt{2}}{28} & 0 & 0 & -\frac{3\sqrt{210}}{1400} & 0 & 0 & 0 & \frac{\sqrt{6}}{280} & 0 & 0 & 0 \\ \frac{9\sqrt{10}}{140} & 0 & 0 & 0 & -\frac{3\sqrt{2}}{28} & 0 & 0 & \frac{9\sqrt{15}}{1400} & 0 & 0 & 0 & -\frac{17\sqrt{5}}{1400} & 0 & 0 \\ 0 & -\frac{3\sqrt{2}}{28} & 0 & 0 & 0 & \frac{9\sqrt{10}}{140} & 0 & 0 & \frac{17\sqrt{5}}{1400} & 0 & 0 & 0 & -\frac{9\sqrt{15}}{1400} & 0 \\ 0 & 0 & -\frac{3\sqrt{2}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{280} & 0 & 0 & 0 & \frac{3\sqrt{210}}{1400} \\ 0 & 0 & 0 & \frac{9\sqrt{10}}{140} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}}{140} & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x288}} \quad \mathbb{M}_2^{(1,0;a)}(B_{2u}) = \begin{bmatrix} 0 & 0 & 0 & \frac{\sqrt{10}i}{70} & 0 & 0 & \frac{\sqrt{42}i}{28} & 0 & 0 & 0 & -\frac{\sqrt{30}i}{140} & 0 & 0 & 0 \\ \frac{\sqrt{3}i}{21} & 0 & 0 & 0 & \frac{2\sqrt{15}i}{105} & 0 & 0 & \frac{3\sqrt{2}i}{28} & 0 & 0 & 0 & -\frac{\sqrt{6}i}{28} & 0 & 0 \\ 0 & \frac{2\sqrt{15}i}{105} & 0 & 0 & 0 & \frac{\sqrt{3}i}{21} & 0 & 0 & \frac{\sqrt{6}i}{28} & 0 & 0 & 0 & -\frac{3\sqrt{2}i}{28} & 0 \\ 0 & 0 & \frac{\sqrt{10}i}{70} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{140} & 0 & 0 & 0 & -\frac{\sqrt{42}i}{28} \\ 0 & 0 & -\frac{3\sqrt{2}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}i}{84} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{9\sqrt{10}i}{140} & 0 & 0 & -\frac{\sqrt{42}i}{84} & 0 & 0 & 0 & -\frac{\sqrt{30}i}{105} & 0 & 0 & 0 \\ \frac{3\sqrt{2}i}{28} & 0 & 0 & 0 & -\frac{9\sqrt{10}i}{140} & 0 & 0 & -\frac{\sqrt{3}i}{21} & 0 & 0 & 0 & -\frac{i}{14} & 0 & 0 \\ 0 & \frac{9\sqrt{10}i}{140} & 0 & 0 & 0 & -\frac{3\sqrt{2}i}{28} & 0 & 0 & -\frac{i}{14} & 0 & 0 & 0 & -\frac{\sqrt{3}i}{21} & 0 \\ 0 & 0 & \frac{9\sqrt{10}i}{140} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}i}{105} & 0 & 0 & 0 & -\frac{\sqrt{42}i}{84} \\ 0 & 0 & 0 & \frac{3\sqrt{2}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}i}{84} & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x289}} \quad \mathbb{M}_4^{(1,0;a)}(B_{2u}) = \begin{bmatrix} 0 & 0 & 0 & -\frac{\sqrt{2}i}{56} & 0 & 0 & -\frac{9\sqrt{210}i}{1400} & 0 & 0 & 0 & \frac{27\sqrt{6}i}{280} & 0 & 0 & 0 \\ -\frac{\sqrt{15}i}{280} & 0 & 0 & 0 & \frac{\sqrt{3}i}{56} & 0 & 0 & \frac{99\sqrt{10}i}{1400} & 0 & 0 & 0 & \frac{9\sqrt{30}i}{1400} & 0 & 0 \\ 0 & \frac{\sqrt{3}i}{56} & 0 & 0 & 0 & -\frac{\sqrt{15}i}{280} & 0 & 0 & -\frac{9\sqrt{30}i}{1400} & 0 & 0 & 0 & -\frac{99\sqrt{10}i}{1400} & 0 \\ 0 & 0 & -\frac{\sqrt{2}i}{56} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{27\sqrt{6}i}{280} & 0 & 0 & 0 & \frac{9\sqrt{210}i}{1400} \\ 0 & 0 & \frac{9\sqrt{10}i}{140} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{140} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{3\sqrt{2}i}{28} & 0 & 0 & \frac{3\sqrt{210}i}{1400} & 0 & 0 & 0 & \frac{\sqrt{6}i}{280} & 0 & 0 & 0 \\ -\frac{9\sqrt{10}i}{140} & 0 & 0 & 0 & -\frac{3\sqrt{2}i}{28} & 0 & 0 & -\frac{9\sqrt{15}i}{1400} & 0 & 0 & 0 & -\frac{17\sqrt{5}i}{1400} & 0 & 0 \\ 0 & \frac{3\sqrt{2}i}{28} & 0 & 0 & 0 & \frac{9\sqrt{10}i}{140} & 0 & 0 & -\frac{17\sqrt{5}i}{1400} & 0 & 0 & 0 & -\frac{9\sqrt{15}i}{1400} & 0 \\ 0 & 0 & \frac{3\sqrt{2}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}i}{280} & 0 & 0 & 0 & \frac{3\sqrt{210}i}{1400} \\ 0 & 0 & 0 & -\frac{9\sqrt{10}i}{140} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{140} & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x290}} \quad \mathbb{M}_{2,1}^{(1,0;a)}(E_u) = \begin{bmatrix} \frac{i}{14} & 0 & \frac{3\sqrt{10}i}{140} & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}i}{14} & 0 & -\frac{\sqrt{30}i}{70} & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{15}i}{210} & 0 & \frac{\sqrt{30}i}{84} & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}i}{14} & 0 & -\frac{3\sqrt{10}i}{70} & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{30}i}{84} & 0 & \frac{\sqrt{15}i}{210} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{10}i}{70} & 0 & -\frac{\sqrt{6}i}{14} & 0 & 0 \\ 0 & 0 & 0 & -\frac{3\sqrt{10}i}{140} & 0 & -\frac{i}{14} & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}i}{70} & 0 & -\frac{\sqrt{6}i}{14} & 0 \\ 0 & -\frac{3i}{14} & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}i}{168} & 0 & -\frac{\sqrt{10}i}{56} & 0 & 0 & 0 & 0 & 0 \\ \frac{3i}{14} & 0 & -\frac{3\sqrt{10}i}{70} & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}i}{168} & 0 & -\frac{11\sqrt{30}i}{840} & 0 & 0 & 0 & 0 \\ 0 & \frac{3\sqrt{10}i}{70} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{i}{28} & 0 & -\frac{\sqrt{15}i}{60} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{3\sqrt{10}i}{70} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{60} & 0 & -\frac{i}{28} & 0 & 0 \\ 0 & 0 & 0 & -\frac{3\sqrt{10}i}{70} & 0 & \frac{3i}{14} & 0 & 0 & 0 & 0 & \frac{11\sqrt{30}i}{840} & 0 & \frac{\sqrt{6}i}{168} & 0 \\ 0 & 0 & 0 & 0 & -\frac{3i}{14} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{10}i}{56} & 0 & \frac{\sqrt{210}i}{168} \end{bmatrix}$$

$$\boxed{\text{x291}} \quad \mathbb{M}_{2,2}^{(1,0;a)}(E_u) = \begin{bmatrix} -\frac{1}{14} & 0 & \frac{3\sqrt{10}}{140} & 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{14} & 0 & -\frac{\sqrt{30}}{70} & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{15}}{210} & 0 & \frac{\sqrt{30}}{84} & 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{14} & 0 & -\frac{3\sqrt{10}}{70} & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{30}}{84} & 0 & \frac{\sqrt{15}}{210} & 0 & 0 & 0 & 0 & \frac{3\sqrt{10}}{70} & 0 & -\frac{\sqrt{6}}{14} & 0 & 0 \\ 0 & 0 & 0 & \frac{3\sqrt{10}}{140} & 0 & -\frac{1}{14} & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{70} & 0 & -\frac{\sqrt{6}}{14} & 0 \\ 0 & -\frac{3}{14} & 0 & 0 & 0 & 0 & \frac{\sqrt{210}}{168} & 0 & -\frac{\sqrt{10}}{56} & 0 & 0 & 0 & 0 & 0 \\ -\frac{3}{14} & 0 & -\frac{3\sqrt{10}}{70} & 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{168} & 0 & -\frac{11\sqrt{30}}{840} & 0 & 0 & 0 & 0 \\ 0 & -\frac{3\sqrt{10}}{70} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{1}{28} & 0 & -\frac{\sqrt{15}}{60} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{3\sqrt{10}}{70} & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{60} & 0 & -\frac{1}{28} & 0 & 0 \\ 0 & 0 & 0 & \frac{3\sqrt{10}}{70} & 0 & \frac{3}{14} & 0 & 0 & 0 & 0 & -\frac{11\sqrt{30}}{840} & 0 & \frac{\sqrt{6}}{168} & 0 \\ 0 & 0 & 0 & 0 & \frac{3}{14} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}}{56} & 0 & \frac{\sqrt{210}}{168} \end{bmatrix}$$

$$\boxed{\text{x292}} \quad \mathbb{M}_{4,1}^{(1,0;a)}(E_u, 1) = \begin{bmatrix} \frac{\sqrt{35}i}{1120} & 0 & \frac{\sqrt{14}i}{224} & 0 & \frac{\sqrt{7}i}{224} & 0 & 0 & -\frac{27\sqrt{210}i}{2800} & 0 & -\frac{9\sqrt{42}i}{280} & 0 & -\frac{27\sqrt{70}i}{2800} & 0 & 0 \\ 0 & -\frac{\sqrt{21}i}{224} & 0 & -\frac{\sqrt{42}i}{224} & 0 & -\frac{\sqrt{105}i}{1120} & \frac{9\sqrt{10}i}{400} & 0 & \frac{9\sqrt{210}i}{700} & 0 & \frac{9\sqrt{14}i}{560} & 0 & -\frac{9\sqrt{70}i}{1400} & 0 \\ \frac{\sqrt{105}i}{1120} & 0 & \frac{\sqrt{42}i}{224} & 0 & \frac{\sqrt{21}i}{224} & 0 & 0 & -\frac{9\sqrt{70}i}{1400} & 0 & \frac{9\sqrt{14}i}{560} & 0 & \frac{9\sqrt{210}i}{700} & 0 & \frac{9\sqrt{10}i}{400} \\ 0 & -\frac{\sqrt{7}i}{224} & 0 & -\frac{\sqrt{14}i}{224} & 0 & -\frac{\sqrt{35}i}{1120} & 0 & 0 & -\frac{27\sqrt{70}i}{2800} & 0 & -\frac{9\sqrt{42}i}{280} & 0 & -\frac{27\sqrt{210}i}{2800} & 0 \\ 0 & -\frac{3\sqrt{35}i}{140} & 0 & -\frac{3\sqrt{70}i}{280} & 0 & 0 & -\frac{\sqrt{6}i}{160} & 0 & -\frac{\sqrt{14}i}{112} & 0 & -\frac{\sqrt{210}i}{1120} & 0 & 0 & 0 \\ \frac{3\sqrt{35}i}{140} & 0 & \frac{3\sqrt{14}i}{56} & 0 & 0 & 0 & 0 & \frac{13\sqrt{210}i}{5600} & 0 & \frac{\sqrt{42}i}{560} & 0 & -\frac{\sqrt{70}i}{800} & 0 & 0 \\ 0 & -\frac{3\sqrt{14}i}{56} & 0 & 0 & 0 & \frac{3\sqrt{70}i}{280} & -\frac{3\sqrt{15}i}{800} & 0 & -\frac{\sqrt{35}i}{5600} & 0 & \frac{\sqrt{21}i}{160} & 0 & \frac{\sqrt{105}i}{5600} & 0 \\ \frac{3\sqrt{70}i}{280} & 0 & 0 & 0 & -\frac{3\sqrt{14}i}{56} & 0 & 0 & -\frac{\sqrt{105}i}{5600} & 0 & -\frac{\sqrt{21}i}{160} & 0 & \frac{\sqrt{35}i}{5600} & 0 & \frac{3\sqrt{15}i}{800} \\ 0 & 0 & 0 & \frac{3\sqrt{14}i}{56} & 0 & \frac{3\sqrt{35}i}{140} & 0 & 0 & \frac{\sqrt{70}i}{800} & 0 & -\frac{\sqrt{42}i}{560} & 0 & -\frac{13\sqrt{210}i}{5600} & 0 \\ 0 & 0 & -\frac{3\sqrt{70}i}{280} & 0 & -\frac{3\sqrt{35}i}{140} & 0 & 0 & 0 & 0 & \frac{\sqrt{210}i}{1120} & 0 & \frac{\sqrt{14}i}{112} & 0 & \frac{\sqrt{6}i}{160} \end{bmatrix}$$

$$\boxed{\text{x293}} \quad \mathbb{M}_{4,2}^{(1,0;a)}(E_u, 1) = \begin{bmatrix} -\frac{\sqrt{35}}{1120} & 0 & \frac{\sqrt{14}}{224} & 0 & -\frac{\sqrt{7}}{224} & 0 & 0 & \frac{27\sqrt{210}}{2800} & 0 & -\frac{9\sqrt{42}}{280} & 0 & \frac{27\sqrt{70}}{2800} & 0 & 0 \\ 0 & \frac{\sqrt{21}}{224} & 0 & -\frac{\sqrt{42}}{224} & 0 & \frac{\sqrt{105}}{1120} & \frac{9\sqrt{10}}{400} & 0 & -\frac{9\sqrt{210}}{700} & 0 & \frac{9\sqrt{14}}{560} & 0 & \frac{9\sqrt{70}}{1400} & 0 \\ \frac{\sqrt{105}}{1120} & 0 & -\frac{\sqrt{42}}{224} & 0 & \frac{\sqrt{21}}{224} & 0 & 0 & -\frac{9\sqrt{70}}{1400} & 0 & -\frac{9\sqrt{14}}{560} & 0 & \frac{9\sqrt{210}}{700} & 0 & -\frac{9\sqrt{10}}{400} \\ 0 & -\frac{\sqrt{7}}{224} & 0 & \frac{\sqrt{14}}{224} & 0 & -\frac{\sqrt{35}}{1120} & 0 & 0 & -\frac{27\sqrt{70}}{2800} & 0 & \frac{9\sqrt{42}}{280} & 0 & -\frac{27\sqrt{210}}{2800} & 0 \\ 0 & -\frac{3\sqrt{35}}{140} & 0 & \frac{3\sqrt{70}}{280} & 0 & 0 & \frac{\sqrt{6}}{160} & 0 & -\frac{\sqrt{14}}{112} & 0 & \frac{\sqrt{210}}{1120} & 0 & 0 & 0 \\ -\frac{3\sqrt{35}}{140} & 0 & \frac{3\sqrt{14}}{56} & 0 & 0 & 0 & 0 & -\frac{13\sqrt{210}}{5600} & 0 & \frac{\sqrt{42}}{560} & 0 & \frac{\sqrt{70}}{800} & 0 & 0 \\ 0 & \frac{3\sqrt{14}}{56} & 0 & 0 & 0 & -\frac{3\sqrt{70}}{280} & -\frac{3\sqrt{15}}{800} & 0 & \frac{\sqrt{35}}{5600} & 0 & \frac{\sqrt{21}}{160} & 0 & -\frac{\sqrt{105}}{5600} & 0 \\ \frac{3\sqrt{70}}{280} & 0 & 0 & 0 & -\frac{3\sqrt{14}}{56} & 0 & 0 & -\frac{\sqrt{105}}{5600} & 0 & \frac{\sqrt{21}}{160} & 0 & \frac{\sqrt{35}}{5600} & 0 & -\frac{3\sqrt{15}}{800} \\ 0 & 0 & 0 & -\frac{3\sqrt{14}}{56} & 0 & \frac{3\sqrt{35}}{140} & 0 & 0 & \frac{\sqrt{70}}{800} & 0 & \frac{\sqrt{42}}{560} & 0 & -\frac{13\sqrt{210}}{5600} & 0 \\ 0 & 0 & -\frac{3\sqrt{70}}{280} & 0 & \frac{3\sqrt{35}}{140} & 0 & 0 & 0 & 0 & \frac{\sqrt{210}}{1120} & 0 & -\frac{\sqrt{14}}{112} & 0 & \frac{\sqrt{6}}{160} \end{bmatrix}$$

$$\boxed{\text{x294}} \quad \mathbb{M}_{4,1}^{(1,0;a)}(E_u, 2) = \begin{bmatrix} \frac{\sqrt{5}i}{1120} & 0 & \frac{\sqrt{2}i}{224} & 0 & -\frac{i}{32} & 0 & 0 & -\frac{27\sqrt{30}i}{2800} & 0 & -\frac{9\sqrt{6}i}{280} & 0 & \frac{27\sqrt{10}i}{400} & 0 & 0 \\ 0 & -\frac{\sqrt{3}i}{224} & 0 & -\frac{\sqrt{6}i}{224} & 0 & \frac{\sqrt{15}i}{160} & -\frac{9\sqrt{70}i}{400} & 0 & \frac{9\sqrt{30}i}{700} & 0 & \frac{9\sqrt{2}i}{560} & 0 & \frac{9\sqrt{10}i}{200} & 0 \\ -\frac{\sqrt{15}i}{160} & 0 & \frac{\sqrt{6}i}{224} & 0 & \frac{\sqrt{3}i}{224} & 0 & 0 & \frac{9\sqrt{10}i}{200} & 0 & \frac{9\sqrt{2}i}{560} & 0 & \frac{9\sqrt{30}i}{700} & 0 & -\frac{9\sqrt{70}i}{400} \\ 0 & \frac{i}{32} & 0 & -\frac{\sqrt{2}i}{224} & 0 & -\frac{\sqrt{5}i}{1120} & 0 & 0 & \frac{27\sqrt{10}i}{400} & 0 & -\frac{9\sqrt{6}i}{280} & 0 & -\frac{27\sqrt{30}i}{2800} & 0 \\ 0 & -\frac{3\sqrt{5}i}{140} & 0 & \frac{3\sqrt{10}i}{40} & 0 & 0 & -\frac{\sqrt{42}i}{1120} & 0 & -\frac{\sqrt{2}i}{112} & 0 & \frac{\sqrt{30}i}{160} & 0 & 0 & 0 \\ \frac{3\sqrt{5}i}{140} & 0 & \frac{3\sqrt{2}i}{56} & 0 & 0 & 0 & 0 & \frac{13\sqrt{30}i}{5600} & 0 & \frac{\sqrt{6}i}{560} & 0 & \frac{7\sqrt{10}i}{800} & 0 & 0 \\ 0 & -\frac{3\sqrt{2}i}{56} & 0 & 0 & 0 & -\frac{3\sqrt{10}i}{40} & \frac{3\sqrt{105}i}{800} & 0 & -\frac{\sqrt{5}i}{5600} & 0 & \frac{\sqrt{3}i}{160} & 0 & -\frac{\sqrt{15}i}{800} & 0 \\ -\frac{3\sqrt{10}i}{40} & 0 & 0 & 0 & -\frac{3\sqrt{2}i}{56} & 0 & 0 & \frac{\sqrt{15}i}{800} & 0 & -\frac{\sqrt{3}i}{160} & 0 & \frac{\sqrt{5}i}{5600} & 0 & -\frac{3\sqrt{105}i}{800} \\ 0 & 0 & 0 & \frac{3\sqrt{2}i}{56} & 0 & \frac{3\sqrt{5}i}{140} & 0 & 0 & -\frac{7\sqrt{10}i}{800} & 0 & -\frac{\sqrt{6}i}{560} & 0 & -\frac{13\sqrt{30}i}{5600} & 0 \\ 0 & 0 & \frac{3\sqrt{10}i}{40} & 0 & -\frac{3\sqrt{5}i}{140} & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}i}{160} & 0 & \frac{\sqrt{2}i}{112} & 0 & \frac{\sqrt{42}i}{1120} \end{bmatrix}$$

$$\boxed{\text{x295}} \quad \mathbb{M}_{4,2}^{(1,0;a)}(E_u, 2) = \begin{bmatrix} -\frac{\sqrt{5}}{1120} & 0 & \frac{\sqrt{2}}{224} & 0 & \frac{1}{32} & 0 & 0 & \frac{27\sqrt{30}}{2800} & 0 & -\frac{9\sqrt{6}}{280} & 0 & -\frac{27\sqrt{10}}{400} & 0 & 0 \\ 0 & \frac{\sqrt{3}}{224} & 0 & -\frac{\sqrt{6}}{224} & 0 & -\frac{\sqrt{15}}{160} & -\frac{9\sqrt{70}}{400} & 0 & -\frac{9\sqrt{30}}{700} & 0 & \frac{9\sqrt{2}}{560} & 0 & -\frac{9\sqrt{10}}{200} & 0 \\ -\frac{\sqrt{15}}{160} & 0 & -\frac{\sqrt{6}}{224} & 0 & \frac{\sqrt{3}}{224} & 0 & 0 & \frac{9\sqrt{10}}{200} & 0 & -\frac{9\sqrt{2}}{560} & 0 & \frac{9\sqrt{30}}{700} & 0 & \frac{9\sqrt{70}}{400} \\ 0 & \frac{1}{32} & 0 & \frac{\sqrt{2}}{224} & 0 & -\frac{\sqrt{5}}{1120} & 0 & 0 & \frac{27\sqrt{10}}{400} & 0 & \frac{9\sqrt{6}}{280} & 0 & -\frac{27\sqrt{30}}{2800} & 0 \\ 0 & -\frac{3\sqrt{5}}{140} & 0 & -\frac{3\sqrt{10}}{40} & 0 & 0 & \frac{\sqrt{42}}{1120} & 0 & -\frac{\sqrt{2}}{112} & 0 & -\frac{\sqrt{30}}{160} & 0 & 0 & 0 \\ -\frac{3\sqrt{5}}{140} & 0 & \frac{3\sqrt{2}}{56} & 0 & 0 & 0 & 0 & -\frac{13\sqrt{30}}{5600} & 0 & \frac{\sqrt{6}}{560} & 0 & -\frac{7\sqrt{10}}{800} & 0 & 0 \\ 0 & \frac{3\sqrt{2}}{56} & 0 & 0 & 0 & \frac{3\sqrt{10}}{40} & \frac{3\sqrt{105}}{800} & 0 & \frac{\sqrt{5}}{5600} & 0 & \frac{\sqrt{3}}{160} & 0 & \frac{\sqrt{15}}{800} & 0 \\ -\frac{3\sqrt{10}}{40} & 0 & 0 & 0 & -\frac{3\sqrt{2}}{56} & 0 & 0 & \frac{\sqrt{15}}{800} & 0 & \frac{\sqrt{3}}{160} & 0 & \frac{\sqrt{5}}{5600} & 0 & \frac{3\sqrt{105}}{800} \\ 0 & 0 & 0 & -\frac{3\sqrt{2}}{56} & 0 & \frac{3\sqrt{5}}{140} & 0 & 0 & -\frac{7\sqrt{10}}{800} & 0 & \frac{\sqrt{6}}{560} & 0 & -\frac{13\sqrt{30}}{5600} & 0 \\ 0 & 0 & \frac{3\sqrt{10}}{40} & 0 & \frac{3\sqrt{5}}{140} & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}}{160} & 0 & -\frac{\sqrt{2}}{112} & 0 & \frac{\sqrt{42}}{1120} \end{bmatrix}$$

$$\boxed{\text{x296}} \quad \mathbb{M}_0^{(1,1;a)}(A_{1u}) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x297}} \quad \mathbb{M}_2^{(1,1;a)}(A_{1u}) = \begin{bmatrix} 0 & \frac{12}{35} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{10}}{140} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{2\sqrt{6}}{35} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{9\sqrt{2}}{140} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{2\sqrt{6}}{35} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{9\sqrt{2}}{140} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{12}{35} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{10}}{140} & 0 & 0 \\ \frac{3}{14} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{21} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{3}{70} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}}{35} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{6}{35} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{2\sqrt{3}}{105} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{6}{35} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{2\sqrt{3}}{105} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{3}{70} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{10}}{35} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{3}{14} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{21} & 0 \end{bmatrix}$$



$$\boxed{\text{x298}} \quad \mathbb{M}_4^{(1,1;a)}(A_{1u}, 1) = \begin{bmatrix} 0 & -\frac{\sqrt{770}}{210} & 0 & 0 & 0 & -\frac{\sqrt{154}}{42} & 0 & 0 & \frac{\sqrt{77}}{140} & 0 & 0 & 0 & \frac{\sqrt{231}}{420} & 0 \\ 0 & 0 & \frac{\sqrt{1155}}{105} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{385}}{420} & 0 & 0 & 0 & \frac{\sqrt{11}}{60} \\ 0 & 0 & 0 & -\frac{\sqrt{1155}}{105} & 0 & 0 & \frac{\sqrt{11}}{60} & 0 & 0 & 0 & -\frac{\sqrt{385}}{420} & 0 & 0 & 0 \\ \frac{\sqrt{154}}{42} & 0 & 0 & 0 & \frac{\sqrt{770}}{210} & 0 & 0 & \frac{\sqrt{231}}{420} & 0 & 0 & 0 & \frac{\sqrt{77}}{140} & 0 & 0 \\ -\frac{\sqrt{770}}{840} & 0 & 0 & 0 & -\frac{\sqrt{154}}{168} & 0 & 0 & \frac{\sqrt{1155}}{1155} & 0 & 0 & 0 & \frac{\sqrt{385}}{1155} & 0 & 0 \\ 0 & \frac{\sqrt{770}}{280} & 0 & 0 & 0 & -\frac{\sqrt{154}}{168} & 0 & 0 & -\frac{4\sqrt{77}}{1155} & 0 & 0 & 0 & \frac{2\sqrt{231}}{1155} & 0 \\ 0 & 0 & -\frac{\sqrt{770}}{420} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2310}}{2310} & 0 & 0 & 0 & \frac{\sqrt{66}}{330} \\ 0 & 0 & 0 & -\frac{\sqrt{770}}{420} & 0 & 0 & -\frac{\sqrt{66}}{330} & 0 & 0 & 0 & \frac{\sqrt{2310}}{2310} & 0 & 0 & 0 \\ -\frac{\sqrt{154}}{168} & 0 & 0 & 0 & \frac{\sqrt{770}}{280} & 0 & 0 & -\frac{2\sqrt{231}}{1155} & 0 & 0 & 0 & \frac{4\sqrt{77}}{1155} & 0 & 0 \\ 0 & -\frac{\sqrt{154}}{168} & 0 & 0 & 0 & -\frac{\sqrt{770}}{840} & 0 & 0 & -\frac{\sqrt{385}}{1155} & 0 & 0 & 0 & -\frac{\sqrt{1155}}{1155} & 0 \end{bmatrix}$$

$$\boxed{\text{x299}} \quad \mathbb{M}_4^{(1,1;a)}(A_{1u}, 2) = \begin{bmatrix} 0 & -\frac{\sqrt{22}}{42} & 0 & 0 & 0 & \frac{\sqrt{110}}{30} & 0 & 0 & \frac{\sqrt{55}}{140} & 0 & 0 & 0 & -\frac{\sqrt{165}}{300} & 0 \\ 0 & 0 & \frac{\sqrt{33}}{21} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{11}}{84} & 0 & 0 & 0 & -\frac{\sqrt{385}}{300} \\ 0 & 0 & 0 & -\frac{\sqrt{33}}{21} & 0 & 0 & -\frac{\sqrt{385}}{300} & 0 & 0 & 0 & -\frac{\sqrt{11}}{84} & 0 & 0 & 0 \\ -\frac{\sqrt{110}}{30} & 0 & 0 & 0 & \frac{\sqrt{22}}{42} & 0 & 0 & -\frac{\sqrt{165}}{300} & 0 & 0 & 0 & \frac{\sqrt{55}}{140} & 0 & 0 \\ -\frac{\sqrt{22}}{168} & 0 & 0 & 0 & \frac{\sqrt{110}}{120} & 0 & 0 & \frac{\sqrt{33}}{231} & 0 & 0 & 0 & -\frac{\sqrt{11}}{165} & 0 & 0 \\ 0 & \frac{\sqrt{22}}{56} & 0 & 0 & 0 & \frac{\sqrt{110}}{120} & 0 & 0 & -\frac{4\sqrt{55}}{1155} & 0 & 0 & 0 & -\frac{2\sqrt{165}}{825} & 0 \\ 0 & 0 & -\frac{\sqrt{22}}{84} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{66}}{462} & 0 & 0 & 0 & -\frac{\sqrt{2310}}{1650} \\ 0 & 0 & 0 & -\frac{\sqrt{22}}{84} & 0 & 0 & \frac{\sqrt{2310}}{1650} & 0 & 0 & 0 & \frac{\sqrt{66}}{462} & 0 & 0 & 0 \\ \frac{\sqrt{110}}{120} & 0 & 0 & 0 & \frac{\sqrt{22}}{56} & 0 & 0 & \frac{2\sqrt{165}}{825} & 0 & 0 & 0 & \frac{4\sqrt{55}}{1155} & 0 & 0 \\ 0 & \frac{\sqrt{110}}{120} & 0 & 0 & 0 & -\frac{\sqrt{22}}{168} & 0 & 0 & \frac{\sqrt{11}}{165} & 0 & 0 & 0 & -\frac{\sqrt{33}}{231} & 0 \end{bmatrix}$$

$$\boxed{\text{x300}} \quad \mathbb{M}_4^{(1,1;a)}(A_{2u}) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2310}i}{105} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{385}i}{350} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{165}i}{150} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{165}i}{150} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{2310}i}{105} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{385}i}{350} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{2310}i}{420} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{2\sqrt{231}i}{1155} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2310}i}{420} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{4\sqrt{385}i}{1925} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{110}i}{275} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{110}i}{275} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{2310}i}{420} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{4\sqrt{385}i}{1925} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{2310}i}{420} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{2\sqrt{231}i}{1155} & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x301}} \quad \mathbb{M}_2^{(1,1;a)}(B_{1u}) = \begin{bmatrix} 0 & 0 & 0 & \frac{2\sqrt{6}}{35} & 0 & 0 & -\frac{3\sqrt{70}}{280} & 0 & 0 & 0 & -\frac{3\sqrt{2}}{280} & 0 & 0 & 0 \\ -\frac{4\sqrt{5}}{35} & 0 & 0 & 0 & \frac{8}{35} & 0 & 0 & -\frac{3\sqrt{30}}{280} & 0 & 0 & 0 & -\frac{3\sqrt{10}}{280} & 0 & 0 \\ 0 & -\frac{8}{35} & 0 & 0 & 0 & \frac{4\sqrt{5}}{35} & 0 & 0 & -\frac{3\sqrt{10}}{280} & 0 & 0 & 0 & -\frac{3\sqrt{30}}{280} & 0 \\ 0 & 0 & -\frac{2\sqrt{6}}{35} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{2}}{280} & 0 & 0 & 0 & -\frac{3\sqrt{70}}{280} \\ 0 & 0 & \frac{3\sqrt{30}}{140} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}}{105} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{9\sqrt{6}}{140} & 0 & 0 & \frac{\sqrt{70}}{105} & 0 & 0 & 0 & -\frac{4\sqrt{2}}{105} & 0 & 0 & 0 \\ \frac{3\sqrt{30}}{140} & 0 & 0 & 0 & \frac{9\sqrt{6}}{140} & 0 & 0 & \frac{4\sqrt{5}}{105} & 0 & 0 & 0 & -\frac{2\sqrt{15}}{105} & 0 & 0 \\ 0 & \frac{9\sqrt{6}}{140} & 0 & 0 & 0 & \frac{3\sqrt{30}}{140} & 0 & 0 & \frac{2\sqrt{15}}{105} & 0 & 0 & 0 & -\frac{4\sqrt{5}}{105} & 0 \\ 0 & 0 & \frac{9\sqrt{6}}{140} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{4\sqrt{2}}{105} & 0 & 0 & 0 & -\frac{\sqrt{70}}{105} \\ 0 & 0 & 0 & \frac{3\sqrt{30}}{140} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{10}}{105} & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x302}} \quad \mathbb{M}_4^{(1,1;a)}(B_{1u}) = \begin{bmatrix} 0 & 0 & 0 & \frac{\sqrt{33}}{21} & 0 & 0 & -\frac{\sqrt{385}}{700} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{11}}{140} & 0 & 0 & 0 \\ -\frac{\sqrt{110}}{70} & 0 & 0 & 0 & -\frac{\sqrt{22}}{14} & 0 & 0 & \frac{11\sqrt{165}}{2100} & 0 & 0 & 0 & 0 & -\frac{\sqrt{55}}{700} & 0 & 0 \\ 0 & \frac{\sqrt{22}}{14} & 0 & 0 & 0 & \frac{\sqrt{110}}{70} & 0 & 0 & -\frac{\sqrt{55}}{700} & 0 & 0 & 0 & 0 & \frac{11\sqrt{165}}{2100} & 0 \\ 0 & 0 & -\frac{\sqrt{33}}{21} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{11}}{140} & 0 & 0 & 0 & 0 & -\frac{\sqrt{385}}{700} \\ 0 & 0 & \frac{\sqrt{165}}{140} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{2\sqrt{55}}{385} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{33}}{84} & 0 & 0 & \frac{3\sqrt{385}}{1925} & 0 & 0 & 0 & -\frac{\sqrt{11}}{385} & 0 & 0 & 0 & 0 \\ \frac{\sqrt{165}}{140} & 0 & 0 & 0 & -\frac{\sqrt{33}}{84} & 0 & 0 & -\frac{9\sqrt{110}}{3850} & 0 & 0 & 0 & 0 & \frac{17\sqrt{330}}{11550} & 0 & 0 \\ 0 & -\frac{\sqrt{33}}{84} & 0 & 0 & 0 & \frac{\sqrt{165}}{140} & 0 & 0 & -\frac{17\sqrt{330}}{11550} & 0 & 0 & 0 & 0 & \frac{9\sqrt{110}}{3850} & 0 \\ 0 & 0 & -\frac{\sqrt{33}}{84} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{11}}{385} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{385}}{1925} \\ 0 & 0 & 0 & \frac{\sqrt{165}}{140} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{2\sqrt{55}}{385} & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x303}} \quad \mathbb{M}_2^{(1,1;a)}(B_{2u}) = \begin{bmatrix} 0 & 0 & 0 & -\frac{2\sqrt{6}i}{35} & 0 & 0 & -\frac{3\sqrt{70}i}{280} & 0 & 0 & 0 & \frac{3\sqrt{2}i}{280} & 0 & 0 & 0 & 0 \\ -\frac{4\sqrt{5}i}{35} & 0 & 0 & 0 & -\frac{8i}{35} & 0 & 0 & -\frac{3\sqrt{30}i}{280} & 0 & 0 & 0 & \frac{3\sqrt{10}i}{280} & 0 & 0 & 0 \\ 0 & -\frac{8i}{35} & 0 & 0 & 0 & -\frac{4\sqrt{5}i}{35} & 0 & 0 & -\frac{3\sqrt{10}i}{280} & 0 & 0 & 0 & \frac{3\sqrt{30}i}{280} & 0 & 0 \\ 0 & 0 & -\frac{2\sqrt{6}i}{35} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{2}i}{280} & 0 & 0 & 0 & \frac{3\sqrt{70}i}{280} & 0 \\ 0 & 0 & -\frac{3\sqrt{30}i}{140} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{10}i}{105} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{9\sqrt{6}i}{140} & 0 & 0 & \frac{\sqrt{70}i}{105} & 0 & 0 & 0 & \frac{4\sqrt{2}i}{105} & 0 & 0 & 0 & 0 \\ \frac{3\sqrt{30}i}{140} & 0 & 0 & 0 & -\frac{9\sqrt{6}i}{140} & 0 & 0 & \frac{4\sqrt{5}i}{105} & 0 & 0 & 0 & \frac{2\sqrt{15}i}{105} & 0 & 0 & 0 \\ 0 & \frac{9\sqrt{6}i}{140} & 0 & 0 & 0 & -\frac{3\sqrt{30}i}{140} & 0 & 0 & \frac{2\sqrt{15}i}{105} & 0 & 0 & 0 & \frac{4\sqrt{5}i}{105} & 0 & 0 \\ 0 & 0 & \frac{9\sqrt{6}i}{140} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{4\sqrt{2}i}{105} & 0 & 0 & 0 & \frac{\sqrt{70}i}{105} & 0 \\ 0 & 0 & 0 & \frac{3\sqrt{30}i}{140} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{10}i}{105} & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x304}} \quad \mathbb{M}_4^{(1,1;a)}(B_{2u}) = \begin{bmatrix} 0 & 0 & 0 & \frac{\sqrt{33}i}{21} & 0 & 0 & \frac{\sqrt{385}i}{700} & 0 & 0 & 0 & -\frac{3\sqrt{11}i}{140} & 0 & 0 & 0 \\ \frac{\sqrt{110}i}{70} & 0 & 0 & 0 & -\frac{\sqrt{22}i}{14} & 0 & 0 & -\frac{11\sqrt{165}i}{2100} & 0 & 0 & 0 & -\frac{\sqrt{55}i}{700} & 0 & 0 \\ 0 & -\frac{\sqrt{22}i}{14} & 0 & 0 & 0 & \frac{\sqrt{110}i}{70} & 0 & 0 & \frac{\sqrt{55}i}{700} & 0 & 0 & 0 & \frac{11\sqrt{165}i}{2100} & 0 \\ 0 & 0 & \frac{\sqrt{33}i}{21} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{11}i}{140} & 0 & 0 & 0 & -\frac{\sqrt{385}i}{700} \\ 0 & 0 & \frac{\sqrt{165}i}{140} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{2\sqrt{55}i}{385} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{33}i}{84} & 0 & 0 & -\frac{3\sqrt{385}i}{1925} & 0 & 0 & 0 & -\frac{\sqrt{11}i}{385} & 0 & 0 & 0 \\ -\frac{\sqrt{165}i}{140} & 0 & 0 & 0 & -\frac{\sqrt{33}i}{84} & 0 & 0 & \frac{9\sqrt{110}i}{3850} & 0 & 0 & 0 & \frac{17\sqrt{330}i}{11550} & 0 & 0 \\ 0 & \frac{\sqrt{33}i}{84} & 0 & 0 & 0 & \frac{\sqrt{165}i}{140} & 0 & 0 & \frac{17\sqrt{330}i}{11550} & 0 & 0 & 0 & \frac{9\sqrt{110}i}{3850} & 0 \\ 0 & 0 & \frac{\sqrt{33}i}{84} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{11}i}{385} & 0 & 0 & 0 & -\frac{3\sqrt{385}i}{1925} \\ 0 & 0 & 0 & -\frac{\sqrt{165}i}{140} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{2\sqrt{55}i}{385} & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x305}} \quad \mathbb{M}_{2,1}^{(1,1;a)}(E_u) = \begin{bmatrix} -\frac{2\sqrt{15}i}{35} & 0 & -\frac{3\sqrt{6}i}{35} & 0 & 0 & 0 & 0 & \frac{3\sqrt{10}i}{140} & 0 & \frac{3\sqrt{2}i}{140} & 0 & 0 & 0 & 0 \\ 0 & \frac{2i}{35} & 0 & -\frac{\sqrt{2}i}{7} & 0 & 0 & 0 & 0 & \frac{3\sqrt{10}i}{140} & 0 & \frac{3\sqrt{6}i}{140} & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{2}i}{7} & 0 & -\frac{2i}{35} & 0 & 0 & 0 & 0 & \frac{3\sqrt{6}i}{140} & 0 & \frac{3\sqrt{10}i}{140} & 0 & 0 \\ 0 & 0 & 0 & \frac{3\sqrt{6}i}{35} & 0 & \frac{2\sqrt{15}i}{35} & 0 & 0 & 0 & 0 & \frac{3\sqrt{2}i}{140} & 0 & \frac{3\sqrt{10}i}{140} & 0 \\ 0 & -\frac{3\sqrt{15}i}{70} & 0 & 0 & 0 & 0 & \frac{\sqrt{14}i}{42} & 0 & \frac{\sqrt{6}i}{42} & 0 & 0 & 0 & 0 & 0 \\ \frac{3\sqrt{15}i}{70} & 0 & -\frac{3\sqrt{6}i}{70} & 0 & 0 & 0 & 0 & \frac{\sqrt{10}i}{210} & 0 & \frac{11\sqrt{2}i}{210} & 0 & 0 & 0 & 0 \\ 0 & \frac{3\sqrt{6}i}{70} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{105} & 0 & \frac{i}{15} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{3\sqrt{6}i}{70} & 0 & 0 & 0 & 0 & -\frac{i}{15} & 0 & \frac{\sqrt{15}i}{105} & 0 & 0 \\ 0 & 0 & 0 & -\frac{3\sqrt{6}i}{70} & 0 & \frac{3\sqrt{15}i}{70} & 0 & 0 & 0 & 0 & -\frac{11\sqrt{2}i}{210} & 0 & -\frac{\sqrt{10}i}{210} & 0 \\ 0 & 0 & 0 & 0 & -\frac{3\sqrt{15}i}{70} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}i}{42} & 0 & -\frac{\sqrt{14}i}{42} \end{bmatrix}$$

$$\boxed{\text{x306}} \quad \mathbb{M}_{2,2}^{(1,1;a)}(E_u) = \begin{bmatrix} \frac{2\sqrt{15}}{35} & 0 & -\frac{3\sqrt{6}}{35} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{10}}{140} & 0 & \frac{3\sqrt{2}}{140} & 0 & 0 & 0 & 0 \\ 0 & -\frac{2}{35} & 0 & -\frac{\sqrt{2}}{7} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{10}}{140} & 0 & \frac{3\sqrt{6}}{140} & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{2}}{7} & 0 & -\frac{2}{35} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{6}}{140} & 0 & \frac{3\sqrt{10}}{140} & 0 & 0 \\ 0 & 0 & 0 & -\frac{3\sqrt{6}}{35} & 0 & \frac{2\sqrt{15}}{35} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{2}}{140} & 0 & \frac{3\sqrt{10}}{140} & 0 \\ 0 & -\frac{3\sqrt{15}}{70} & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}}{42} & 0 & \frac{\sqrt{6}}{42} & 0 & 0 & 0 & 0 & 0 \\ -\frac{3\sqrt{15}}{70} & 0 & -\frac{3\sqrt{6}}{70} & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}}{210} & 0 & \frac{11\sqrt{2}}{210} & 0 & 0 & 0 & 0 \\ 0 & -\frac{3\sqrt{6}}{70} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{105} & 0 & \frac{1}{15} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{3\sqrt{6}}{70} & 0 & 0 & 0 & 0 & \frac{1}{15} & 0 & \frac{\sqrt{15}}{105} & 0 & 0 \\ 0 & 0 & 0 & \frac{3\sqrt{6}}{70} & 0 & \frac{3\sqrt{15}}{70} & 0 & 0 & 0 & 0 & \frac{11\sqrt{2}}{210} & 0 & -\frac{\sqrt{10}}{210} & 0 \\ 0 & 0 & 0 & 0 & \frac{3\sqrt{15}}{70} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{42} & 0 & -\frac{\sqrt{14}}{42} \end{bmatrix}$$

$$\begin{aligned}
\boxed{\text{x307}} \quad \mathbb{M}_{4,1}^{(1,1;a)}(E_u, 1) &= \begin{bmatrix} -\frac{\sqrt{2310}i}{840} & 0 & -\frac{\sqrt{231}i}{84} & 0 & -\frac{\sqrt{462}i}{168} & 0 & 0 & \frac{3\sqrt{385}i}{1400} & 0 & \frac{\sqrt{77}i}{140} & 0 & \frac{\sqrt{1155}i}{1400} & 0 & 0 \\ 0 & \frac{\sqrt{154}i}{56} & 0 & \frac{\sqrt{77}i}{28} & 0 & \frac{\sqrt{770}i}{280} & -\frac{\sqrt{165}i}{600} & 0 & -\frac{\sqrt{385}i}{350} & 0 & -\frac{\sqrt{231}i}{840} & 0 & \frac{\sqrt{1155}i}{2100} & 0 \\ -\frac{\sqrt{770}i}{280} & 0 & -\frac{\sqrt{77}i}{28} & 0 & -\frac{\sqrt{154}i}{56} & 0 & 0 & \frac{\sqrt{1155}i}{2100} & 0 & -\frac{\sqrt{231}i}{840} & 0 & -\frac{\sqrt{385}i}{350} & 0 & -\frac{\sqrt{165}i}{600} \\ 0 & \frac{\sqrt{462}i}{168} & 0 & \frac{\sqrt{231}i}{84} & 0 & \frac{\sqrt{2310}i}{840} & 0 & 0 & \frac{\sqrt{1155}i}{1400} & 0 & \frac{\sqrt{77}i}{140} & 0 & \frac{3\sqrt{385}i}{1400} & 0 \\ 0 & -\frac{\sqrt{2310}i}{840} & 0 & -\frac{\sqrt{1155}i}{840} & 0 & 0 & \frac{\sqrt{11}i}{220} & 0 & \frac{\sqrt{231}i}{462} & 0 & \frac{\sqrt{385}i}{1540} & 0 & 0 & 0 \\ \frac{\sqrt{2310}i}{840} & 0 & \frac{\sqrt{231}i}{168} & 0 & 0 & 0 & 0 & -\frac{13\sqrt{385}i}{7700} & 0 & -\frac{\sqrt{77}i}{770} & 0 & \frac{\sqrt{1155}i}{3300} & 0 & 0 \\ 0 & -\frac{\sqrt{231}i}{168} & 0 & 0 & 0 & \frac{\sqrt{1155}i}{840} & \frac{3\sqrt{110}i}{2200} & 0 & \frac{\sqrt{2310}i}{46200} & 0 & -\frac{\sqrt{154}i}{440} & 0 & -\frac{\sqrt{770}i}{15400} & 0 \\ \frac{\sqrt{1155}i}{840} & 0 & 0 & 0 & -\frac{\sqrt{231}i}{168} & 0 & 0 & \frac{\sqrt{770}i}{15400} & 0 & \frac{\sqrt{154}i}{440} & 0 & -\frac{\sqrt{2310}i}{46200} & 0 & -\frac{3\sqrt{110}i}{2200} \\ 0 & 0 & 0 & \frac{\sqrt{231}i}{168} & 0 & \frac{\sqrt{2310}i}{840} & 0 & 0 & -\frac{\sqrt{1155}i}{3300} & 0 & \frac{\sqrt{77}i}{770} & 0 & \frac{13\sqrt{385}i}{7700} & 0 \\ 0 & 0 & -\frac{\sqrt{1155}i}{840} & 0 & -\frac{\sqrt{2310}i}{840} & 0 & 0 & 0 & 0 & -\frac{\sqrt{385}i}{1540} & 0 & -\frac{\sqrt{231}i}{462} & 0 & -\frac{\sqrt{11}i}{220} \end{bmatrix} \\
\boxed{\text{x308}} \quad \mathbb{M}_{4,2}^{(1,1;a)}(E_u, 1) &= \begin{bmatrix} \frac{\sqrt{2310}}{840} & 0 & -\frac{\sqrt{231}}{84} & 0 & \frac{\sqrt{462}}{168} & 0 & 0 & -\frac{3\sqrt{385}}{1400} & 0 & \frac{\sqrt{77}}{140} & 0 & -\frac{\sqrt{1155}}{1400} & 0 & 0 \\ 0 & -\frac{\sqrt{154}}{56} & 0 & \frac{\sqrt{77}}{28} & 0 & -\frac{\sqrt{770}}{280} & -\frac{\sqrt{165}}{600} & 0 & \frac{\sqrt{385}}{350} & 0 & -\frac{\sqrt{231}}{840} & 0 & -\frac{\sqrt{1155}}{2100} & 0 \\ -\frac{\sqrt{770}}{280} & 0 & \frac{\sqrt{77}}{28} & 0 & -\frac{\sqrt{154}}{56} & 0 & 0 & \frac{\sqrt{1155}}{2100} & 0 & \frac{\sqrt{231}}{840} & 0 & -\frac{\sqrt{385}}{350} & 0 & \frac{\sqrt{165}}{600} \\ 0 & \frac{\sqrt{462}}{168} & 0 & -\frac{\sqrt{231}}{84} & 0 & \frac{\sqrt{2310}}{840} & 0 & 0 & \frac{\sqrt{1155}}{1400} & 0 & -\frac{\sqrt{77}}{140} & 0 & \frac{3\sqrt{385}}{1400} & 0 \\ 0 & -\frac{\sqrt{2310}}{840} & 0 & \frac{\sqrt{1155}}{840} & 0 & 0 & -\frac{\sqrt{11}}{220} & 0 & \frac{\sqrt{231}}{462} & 0 & -\frac{\sqrt{385}}{1540} & 0 & 0 & 0 \\ -\frac{\sqrt{2310}}{840} & 0 & \frac{\sqrt{231}}{168} & 0 & 0 & 0 & 0 & \frac{13\sqrt{385}}{7700} & 0 & -\frac{\sqrt{77}}{770} & 0 & -\frac{\sqrt{1155}}{3300} & 0 & 0 \\ 0 & \frac{\sqrt{231}}{168} & 0 & 0 & 0 & -\frac{\sqrt{1155}}{840} & \frac{3\sqrt{110}}{2200} & 0 & -\frac{\sqrt{2310}}{46200} & 0 & -\frac{\sqrt{154}}{440} & 0 & \frac{\sqrt{770}}{15400} & 0 \\ \frac{\sqrt{1155}}{840} & 0 & 0 & 0 & -\frac{\sqrt{231}}{168} & 0 & 0 & \frac{\sqrt{770}}{15400} & 0 & -\frac{\sqrt{154}}{440} & 0 & -\frac{\sqrt{2310}}{46200} & 0 & \frac{3\sqrt{110}}{2200} \\ 0 & 0 & 0 & -\frac{\sqrt{231}}{168} & 0 & \frac{\sqrt{2310}}{840} & 0 & 0 & -\frac{\sqrt{1155}}{3300} & 0 & -\frac{\sqrt{77}}{770} & 0 & \frac{13\sqrt{385}}{7700} & 0 \\ 0 & 0 & -\frac{\sqrt{1155}}{840} & 0 & \frac{\sqrt{2310}}{840} & 0 & 0 & 0 & 0 & -\frac{\sqrt{385}}{1540} & 0 & \frac{\sqrt{231}}{462} & 0 & -\frac{\sqrt{11}}{220} \end{bmatrix} \\
\boxed{\text{x309}} \quad \mathbb{M}_{4,1}^{(1,1;a)}(E_u, 2) &= \begin{bmatrix} -\frac{\sqrt{330}i}{840} & 0 & -\frac{\sqrt{33}i}{84} & 0 & \frac{\sqrt{66}i}{24} & 0 & 0 & \frac{3\sqrt{55}i}{1400} & 0 & \frac{\sqrt{11}i}{140} & 0 & -\frac{\sqrt{165}i}{200} & 0 & 0 \\ 0 & \frac{\sqrt{22}i}{56} & 0 & \frac{\sqrt{11}i}{28} & 0 & -\frac{\sqrt{110}i}{40} & \frac{\sqrt{1155}i}{600} & 0 & -\frac{\sqrt{55}i}{350} & 0 & -\frac{\sqrt{33}i}{840} & 0 & -\frac{\sqrt{165}i}{300} & 0 \\ \frac{\sqrt{110}i}{40} & 0 & -\frac{\sqrt{11}i}{28} & 0 & -\frac{\sqrt{22}i}{56} & 0 & 0 & -\frac{\sqrt{165}i}{300} & 0 & -\frac{\sqrt{33}i}{840} & 0 & -\frac{\sqrt{55}i}{350} & 0 & \frac{\sqrt{1155}i}{600} \\ 0 & -\frac{\sqrt{66}i}{24} & 0 & \frac{\sqrt{33}i}{84} & 0 & \frac{\sqrt{330}i}{840} & 0 & 0 & -\frac{\sqrt{165}i}{200} & 0 & \frac{\sqrt{11}i}{140} & 0 & \frac{3\sqrt{55}i}{1400} & 0 \\ 0 & -\frac{\sqrt{330}i}{840} & 0 & \frac{\sqrt{165}i}{120} & 0 & 0 & \frac{\sqrt{77}i}{1540} & 0 & \frac{\sqrt{33}i}{462} & 0 & -\frac{\sqrt{55}i}{220} & 0 & 0 & 0 \\ \frac{\sqrt{330}i}{840} & 0 & \frac{\sqrt{33}i}{168} & 0 & 0 & 0 & 0 & -\frac{13\sqrt{55}i}{7700} & 0 & -\frac{\sqrt{11}i}{770} & 0 & -\frac{7\sqrt{165}i}{3300} & 0 & 0 \\ 0 & -\frac{\sqrt{33}i}{168} & 0 & 0 & 0 & -\frac{\sqrt{165}i}{120} & -\frac{3\sqrt{770}i}{2200} & 0 & \frac{\sqrt{330}i}{46200} & 0 & -\frac{\sqrt{22}i}{440} & 0 & \frac{\sqrt{110}i}{2200} & 0 \\ -\frac{\sqrt{165}i}{120} & 0 & 0 & 0 & -\frac{\sqrt{33}i}{168} & 0 & 0 & -\frac{\sqrt{110}i}{2200} & 0 & \frac{\sqrt{22}i}{440} & 0 & -\frac{\sqrt{330}i}{46200} & 0 & \frac{3\sqrt{770}i}{2200} \\ 0 & 0 & 0 & \frac{\sqrt{33}i}{168} & 0 & \frac{\sqrt{330}i}{840} & 0 & 0 & \frac{7\sqrt{165}i}{3300} & 0 & \frac{\sqrt{11}i}{770} & 0 & \frac{13\sqrt{55}i}{7700} & 0 \\ 0 & 0 & \frac{\sqrt{165}i}{120} & 0 & -\frac{\sqrt{330}i}{840} & 0 & 0 & 0 & 0 & \frac{\sqrt{55}i}{220} & 0 & -\frac{\sqrt{33}i}{462} & 0 & -\frac{\sqrt{77}i}{1540} \end{bmatrix}
\end{aligned}$$

$$\boxed{\text{x310}} \quad \mathbb{M}_{4,2}^{(1,1;a)}(E_u, 2) = \begin{bmatrix} \frac{\sqrt{330}}{840} & 0 & -\frac{\sqrt{33}}{84} & 0 & -\frac{\sqrt{66}}{24} & 0 & 0 & -\frac{3\sqrt{55}}{1400} & 0 & \frac{\sqrt{11}}{140} & 0 & \frac{\sqrt{165}}{200} & 0 & 0 \\ 0 & -\frac{\sqrt{22}}{56} & 0 & \frac{\sqrt{11}}{28} & 0 & \frac{\sqrt{110}}{40} & \frac{\sqrt{1155}}{600} & 0 & \frac{\sqrt{55}}{350} & 0 & -\frac{\sqrt{33}}{840} & 0 & \frac{\sqrt{165}}{300} & 0 \\ \frac{\sqrt{110}}{40} & 0 & \frac{\sqrt{11}}{28} & 0 & -\frac{\sqrt{22}}{56} & 0 & 0 & -\frac{\sqrt{165}}{300} & 0 & \frac{\sqrt{33}}{840} & 0 & -\frac{\sqrt{55}}{350} & 0 & -\frac{\sqrt{1155}}{600} \\ 0 & -\frac{\sqrt{66}}{24} & 0 & -\frac{\sqrt{33}}{84} & 0 & \frac{\sqrt{330}}{840} & 0 & 0 & -\frac{\sqrt{165}}{200} & 0 & -\frac{\sqrt{11}}{140} & 0 & \frac{3\sqrt{55}}{1400} & 0 \\ 0 & -\frac{\sqrt{330}}{840} & 0 & -\frac{\sqrt{165}}{120} & 0 & 0 & -\frac{\sqrt{77}}{1540} & 0 & \frac{\sqrt{33}}{462} & 0 & \frac{\sqrt{55}}{220} & 0 & 0 & 0 \\ -\frac{\sqrt{330}}{840} & 0 & \frac{\sqrt{33}}{168} & 0 & 0 & 0 & 0 & \frac{13\sqrt{55}}{7700} & 0 & -\frac{\sqrt{11}}{770} & 0 & \frac{7\sqrt{165}}{3300} & 0 & 0 \\ 0 & \frac{\sqrt{33}}{168} & 0 & 0 & 0 & \frac{\sqrt{165}}{120} & -\frac{3\sqrt{770}}{2200} & 0 & -\frac{\sqrt{330}}{46200} & 0 & -\frac{\sqrt{22}}{440} & 0 & -\frac{\sqrt{110}}{2200} & 0 \\ -\frac{\sqrt{165}}{120} & 0 & 0 & 0 & -\frac{\sqrt{33}}{168} & 0 & 0 & -\frac{\sqrt{110}}{2200} & 0 & -\frac{\sqrt{22}}{440} & 0 & -\frac{\sqrt{330}}{46200} & 0 & -\frac{3\sqrt{770}}{2200} \\ 0 & 0 & 0 & -\frac{\sqrt{33}}{168} & 0 & \frac{\sqrt{330}}{840} & 0 & 0 & \frac{7\sqrt{165}}{3300} & 0 & -\frac{\sqrt{11}}{770} & 0 & \frac{13\sqrt{55}}{7700} & 0 \\ 0 & 0 & \frac{\sqrt{165}}{120} & 0 & \frac{\sqrt{330}}{840} & 0 & 0 & 0 & 0 & \frac{\sqrt{55}}{220} & 0 & \frac{\sqrt{33}}{462} & 0 & -\frac{\sqrt{77}}{1540} \end{bmatrix}$$

$$\boxed{\text{x311}} \quad \mathbb{T}_5^{(a)}(A_{1u}) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{10} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{10} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{10} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{42}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}}{70} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{42}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{70} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}}{10} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{42}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}}{70} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{42}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{70} & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x312}} \quad \mathbb{T}_1^{(a)}(A_{2u}) = \begin{bmatrix} 0 & \frac{i}{5} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{6}i}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{6}i}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{i}{5} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{i}{14} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}i}{14} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{3i}{70} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{10}i}{14} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{i}{70} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{7} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{i}{70} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{7} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{3i}{70} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{10}i}{14} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{i}{14} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}i}{14} & 0 \end{bmatrix}$$

$$\boxed{\text{x313}} \quad \mathbb{T}_3^{(a)}(A_{2u}) = \begin{bmatrix} 0 & -\frac{3\sqrt{21}i}{70} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}i}{84} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{3\sqrt{14}i}{70} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}i}{84} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{3\sqrt{14}i}{70} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{42}i}{84} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{3\sqrt{21}i}{70} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{210}i}{84} & 0 & 0 \\ \frac{\sqrt{21}i}{42} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}i}{14} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{21}i}{30} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{2\sqrt{21}i}{105} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}i}{14} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{2\sqrt{21}i}{105} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}i}{14} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{21}i}{30} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}i}{42} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}i}{14} & 0 \end{bmatrix}$$

$$\boxed{\text{x314}} \quad \mathbb{T}_5^{(a)}(A_{2u}, 1) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{30} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{6} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{6} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{30} & 0 & 0 \\ -\frac{\sqrt{6}i}{84} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{i}{14} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{5\sqrt{6}i}{84} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{15}i}{70} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{5\sqrt{6}i}{42} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{14} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{5\sqrt{6}i}{42} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{14} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{5\sqrt{6}i}{84} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{15}i}{70} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}i}{84} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{i}{14} & 0 \end{bmatrix}$$

$$\boxed{\text{x315}} \quad \mathbb{T}_5^{(a)}(A_{2u}, 2) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}i}{10} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{10} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}i}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{42}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{70} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{42}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}i}{70} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{10} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{42}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}i}{70} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{42}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{70} & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x316}} \quad \mathbb{T}_3^{(a)}(B_{1u}) = \begin{bmatrix} 0 & 0 & 0 & -\frac{3\sqrt{70}}{140} & 0 & 0 & \frac{\sqrt{6}}{24} & 0 & 0 & 0 & -\frac{\sqrt{210}}{168} & 0 & 0 & 0 \\ -\frac{\sqrt{21}}{28} & 0 & 0 & 0 & -\frac{\sqrt{105}}{140} & 0 & 0 & -\frac{\sqrt{14}}{56} & 0 & 0 & 0 & -\frac{\sqrt{42}}{56} & 0 & 0 \\ 0 & \frac{\sqrt{105}}{140} & 0 & 0 & 0 & \frac{\sqrt{21}}{28} & 0 & 0 & -\frac{\sqrt{42}}{56} & 0 & 0 & 0 & -\frac{\sqrt{14}}{56} & 0 \\ 0 & 0 & \frac{3\sqrt{70}}{140} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}}{168} & 0 & 0 & 0 & \frac{\sqrt{6}}{24} \\ 0 & 0 & \frac{\sqrt{14}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}}{42} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{70}}{140} & 0 & 0 & -\frac{\sqrt{6}}{12} & 0 & 0 & 0 & -\frac{\sqrt{210}}{84} & 0 & 0 & 0 \\ -\frac{\sqrt{14}}{28} & 0 & 0 & 0 & -\frac{\sqrt{70}}{140} & 0 & 0 & -\frac{\sqrt{21}}{84} & 0 & 0 & 0 & -\frac{\sqrt{7}}{28} & 0 & 0 \\ 0 & -\frac{\sqrt{70}}{140} & 0 & 0 & 0 & -\frac{\sqrt{14}}{28} & 0 & 0 & \frac{\sqrt{7}}{28} & 0 & 0 & 0 & \frac{\sqrt{21}}{84} & 0 \\ 0 & 0 & \frac{\sqrt{70}}{140} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{210}}{84} & 0 & 0 & 0 & \frac{\sqrt{6}}{12} \\ 0 & 0 & 0 & \frac{\sqrt{14}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{42}}{42} & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x317}} \quad \mathbb{T}_5^{(a)}(B_{1u}) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{60} & 0 & 0 & 0 & -\frac{\sqrt{105}}{60} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}}{20} & 0 & 0 & 0 & \frac{\sqrt{21}}{20} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{20} & 0 & 0 & 0 & -\frac{\sqrt{7}}{20} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{60} & 0 & 0 & 0 & \frac{\sqrt{3}}{60} \\ 0 & 0 & \frac{\sqrt{7}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}}{42} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{35}}{28} & 0 & 0 & -\frac{\sqrt{3}}{30} & 0 & 0 & 0 & \frac{\sqrt{105}}{105} & 0 & 0 & 0 \\ -\frac{\sqrt{7}}{28} & 0 & 0 & 0 & \frac{\sqrt{35}}{28} & 0 & 0 & \frac{2\sqrt{42}}{105} & 0 & 0 & 0 & \frac{\sqrt{14}}{70} & 0 & 0 \\ 0 & \frac{\sqrt{35}}{28} & 0 & 0 & 0 & -\frac{\sqrt{7}}{28} & 0 & 0 & -\frac{\sqrt{14}}{70} & 0 & 0 & 0 & -\frac{2\sqrt{42}}{105} & 0 \\ 0 & 0 & -\frac{\sqrt{35}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{105} & 0 & 0 & 0 & \frac{\sqrt{3}}{30} \\ 0 & 0 & 0 & \frac{\sqrt{7}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{42} & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x318}} \quad \mathbb{T}_3^{(a)}(B_{2u}) = \begin{bmatrix} 0 & 0 & 0 & -\frac{3\sqrt{70}i}{140} & 0 & 0 & -\frac{\sqrt{6}i}{24} & 0 & 0 & 0 & -\frac{\sqrt{210}i}{168} & 0 & 0 & 0 \\ \frac{\sqrt{21}i}{28} & 0 & 0 & 0 & -\frac{\sqrt{105}i}{140} & 0 & 0 & \frac{\sqrt{14}i}{56} & 0 & 0 & 0 & -\frac{\sqrt{42}i}{56} & 0 & 0 \\ 0 & -\frac{\sqrt{105}i}{140} & 0 & 0 & 0 & \frac{\sqrt{21}i}{28} & 0 & 0 & \frac{\sqrt{42}i}{56} & 0 & 0 & 0 & -\frac{\sqrt{14}i}{56} & 0 \\ 0 & 0 & -\frac{3\sqrt{70}i}{140} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{210}i}{168} & 0 & 0 & 0 & \frac{\sqrt{6}i}{24} \\ 0 & 0 & \frac{\sqrt{14}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}i}{42} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{70}i}{140} & 0 & 0 & \frac{\sqrt{6}i}{12} & 0 & 0 & 0 & -\frac{\sqrt{210}i}{84} & 0 & 0 & 0 \\ \frac{\sqrt{14}i}{28} & 0 & 0 & 0 & -\frac{\sqrt{70}i}{140} & 0 & 0 & \frac{\sqrt{21}i}{84} & 0 & 0 & 0 & -\frac{\sqrt{7}i}{28} & 0 & 0 \\ 0 & \frac{\sqrt{70}i}{140} & 0 & 0 & 0 & -\frac{\sqrt{14}i}{28} & 0 & 0 & -\frac{\sqrt{7}i}{28} & 0 & 0 & 0 & \frac{\sqrt{21}i}{84} & 0 \\ 0 & 0 & -\frac{\sqrt{70}i}{140} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}i}{84} & 0 & 0 & 0 & \frac{\sqrt{6}i}{12} \\ 0 & 0 & 0 & -\frac{\sqrt{14}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}i}{42} & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x319}} \quad \mathbb{T}_5^{(a)}(B_{2u}) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{60} & 0 & 0 & 0 & \frac{\sqrt{105}i}{60} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}i}{20} & 0 & 0 & 0 & -\frac{\sqrt{21}i}{20} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}i}{20} & 0 & 0 & 0 & \frac{\sqrt{7}i}{20} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}i}{60} & 0 & 0 & 0 & -\frac{\sqrt{3}i}{60} \\ 0 & 0 & -\frac{\sqrt{7}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}i}{42} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{35}i}{28} & 0 & 0 & -\frac{\sqrt{3}i}{30} & 0 & 0 & 0 & -\frac{\sqrt{105}i}{105} & 0 & 0 & 0 \\ -\frac{\sqrt{7}i}{28} & 0 & 0 & 0 & -\frac{\sqrt{35}i}{28} & 0 & 0 & \frac{2\sqrt{42}i}{105} & 0 & 0 & 0 & -\frac{\sqrt{14}i}{70} & 0 & 0 \\ 0 & \frac{\sqrt{35}i}{28} & 0 & 0 & 0 & \frac{\sqrt{7}i}{28} & 0 & 0 & -\frac{\sqrt{14}i}{70} & 0 & 0 & 0 & \frac{2\sqrt{42}i}{105} & 0 \\ 0 & 0 & -\frac{\sqrt{35}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}i}{105} & 0 & 0 & 0 & -\frac{\sqrt{3}i}{30} \\ 0 & 0 & 0 & \frac{\sqrt{7}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}i}{42} & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x320}} \quad \mathbb{T}_{1,1}^{(a)}(E_u) = \begin{bmatrix} -\frac{\sqrt{5}i}{10} & 0 & \frac{\sqrt{2}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{3}i}{10} & 0 & \frac{\sqrt{6}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{6}i}{20} & 0 & \frac{\sqrt{3}i}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{2}i}{20} & 0 & \frac{\sqrt{5}i}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{5}i}{70} & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}i}{28} & 0 & \frac{\sqrt{2}i}{28} & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{5}i}{70} & 0 & -\frac{\sqrt{2}i}{35} & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}i}{28} & 0 & \frac{\sqrt{6}i}{28} & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{2}i}{35} & 0 & -\frac{3i}{70} & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{14} & 0 & \frac{\sqrt{3}i}{14} & 0 & 0 & 0 \\ 0 & 0 & -\frac{3i}{70} & 0 & -\frac{\sqrt{2}i}{35} & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{14} & 0 & \frac{\sqrt{5}i}{14} & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{2}i}{35} & 0 & -\frac{\sqrt{5}i}{70} & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}i}{28} & 0 & \frac{\sqrt{30}i}{28} & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{70} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{28} & 0 & \frac{\sqrt{42}i}{28} \end{bmatrix}$$

$$\boxed{\text{x321}} \quad \mathbb{T}_{1,2}^{(a)}(E_u) = \begin{bmatrix} \frac{\sqrt{5}}{10} & 0 & \frac{\sqrt{2}}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{3}}{10} & 0 & \frac{\sqrt{6}}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{6}}{20} & 0 & \frac{\sqrt{3}}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{2}}{20} & 0 & \frac{\sqrt{5}}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{5}}{70} & 0 & 0 & 0 & 0 & \frac{\sqrt{42}}{28} & 0 & \frac{\sqrt{2}}{28} & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{5}}{70} & 0 & -\frac{\sqrt{2}}{35} & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{28} & 0 & \frac{\sqrt{6}}{28} & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{2}}{35} & 0 & -\frac{3}{70} & 0 & 0 & 0 & 0 & \frac{\sqrt{5}}{14} & 0 & \frac{\sqrt{3}}{14} & 0 & 0 & 0 \\ 0 & 0 & \frac{3}{70} & 0 & -\frac{\sqrt{2}}{35} & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{14} & 0 & \frac{\sqrt{5}}{14} & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{2}}{35} & 0 & -\frac{\sqrt{5}}{70} & 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{28} & 0 & \frac{\sqrt{30}}{28} & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{5}}{70} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{28} & 0 & \frac{\sqrt{42}}{28} & 0 \end{bmatrix}$$



$$\boxed{\text{x322}} \quad \mathbb{T}_{3,1}^{(a)}(E_u, 1) = \begin{bmatrix} -\frac{3\sqrt{105}i}{560} & 0 & \frac{9\sqrt{42}i}{560} & 0 & -\frac{3\sqrt{21}i}{112} & 0 & 0 & -\frac{\sqrt{70}i}{112} & 0 & \frac{\sqrt{14}i}{56} & 0 & -\frac{\sqrt{210}i}{336} & 0 & 0 \\ 0 & \frac{3\sqrt{7}i}{80} & 0 & -\frac{3\sqrt{14}i}{560} & 0 & -\frac{3\sqrt{35}i}{112} & -\frac{\sqrt{30}i}{48} & 0 & 0 & 0 & \frac{\sqrt{42}i}{112} & 0 & -\frac{\sqrt{210}i}{168} & 0 \\ \frac{3\sqrt{35}i}{112} & 0 & \frac{3\sqrt{14}i}{560} & 0 & -\frac{3\sqrt{7}i}{80} & 0 & 0 & -\frac{\sqrt{210}i}{168} & 0 & \frac{\sqrt{42}i}{112} & 0 & 0 & 0 & -\frac{\sqrt{30}i}{48} \\ 0 & \frac{3\sqrt{21}i}{112} & 0 & -\frac{9\sqrt{42}i}{560} & 0 & \frac{3\sqrt{105}i}{560} & 0 & 0 & -\frac{\sqrt{210}i}{336} & 0 & \frac{\sqrt{14}i}{56} & 0 & -\frac{\sqrt{70}i}{112} & 0 \\ 0 & -\frac{\sqrt{105}i}{140} & 0 & \frac{\sqrt{210}i}{168} & 0 & 0 & -\frac{\sqrt{2}i}{16} & 0 & \frac{\sqrt{42}i}{56} & 0 & -\frac{\sqrt{70}i}{112} & 0 & 0 & 0 \\ -\frac{\sqrt{105}i}{140} & 0 & \frac{\sqrt{42}i}{280} & 0 & \frac{\sqrt{21}i}{42} & 0 & 0 & \frac{\sqrt{70}i}{112} & 0 & \frac{\sqrt{14}i}{56} & 0 & -\frac{\sqrt{210}i}{112} & 0 & 0 \\ 0 & \frac{\sqrt{42}i}{280} & 0 & \frac{\sqrt{21}i}{70} & 0 & \frac{\sqrt{210}i}{168} & \frac{\sqrt{5}i}{16} & 0 & \frac{\sqrt{105}i}{112} & 0 & -\frac{\sqrt{7}i}{112} & 0 & -\frac{3\sqrt{35}i}{112} & 0 \\ \frac{\sqrt{210}i}{168} & 0 & \frac{\sqrt{21}i}{70} & 0 & \frac{\sqrt{42}i}{280} & 0 & 0 & \frac{3\sqrt{35}i}{112} & 0 & \frac{\sqrt{7}i}{112} & 0 & -\frac{\sqrt{105}i}{112} & 0 & -\frac{\sqrt{5}i}{16} \\ 0 & \frac{\sqrt{21}i}{42} & 0 & \frac{\sqrt{42}i}{280} & 0 & -\frac{\sqrt{105}i}{140} & 0 & 0 & \frac{\sqrt{210}i}{112} & 0 & -\frac{\sqrt{14}i}{56} & 0 & -\frac{\sqrt{70}i}{112} & 0 \\ 0 & 0 & \frac{\sqrt{210}i}{168} & 0 & -\frac{\sqrt{105}i}{140} & 0 & 0 & 0 & 0 & \frac{\sqrt{70}i}{112} & 0 & -\frac{\sqrt{42}i}{56} & 0 & \frac{\sqrt{2}i}{16} \end{bmatrix}$$

$$\boxed{\text{x323}} \quad \mathbb{T}_{3,2}^{(a)}(E_u, 1) = \begin{bmatrix} \frac{3\sqrt{105}}{560} & 0 & \frac{9\sqrt{42}}{560} & 0 & \frac{3\sqrt{21}}{112} & 0 & 0 & \frac{\sqrt{70}}{112} & 0 & \frac{\sqrt{14}}{56} & 0 & \frac{\sqrt{210}}{336} & 0 & 0 \\ 0 & -\frac{3\sqrt{7}}{80} & 0 & -\frac{3\sqrt{14}}{560} & 0 & \frac{3\sqrt{35}}{112} & -\frac{\sqrt{30}}{48} & 0 & 0 & 0 & \frac{\sqrt{42}}{112} & 0 & \frac{\sqrt{210}}{168} & 0 \\ \frac{3\sqrt{35}}{112} & 0 & -\frac{3\sqrt{14}}{560} & 0 & -\frac{3\sqrt{7}}{80} & 0 & 0 & -\frac{\sqrt{210}}{168} & 0 & -\frac{\sqrt{42}}{112} & 0 & 0 & 0 & \frac{\sqrt{30}}{48} \\ 0 & \frac{3\sqrt{21}}{112} & 0 & \frac{9\sqrt{42}}{560} & 0 & \frac{3\sqrt{105}}{560} & 0 & 0 & -\frac{\sqrt{210}}{336} & 0 & -\frac{\sqrt{14}}{56} & 0 & -\frac{\sqrt{70}}{112} & 0 \\ 0 & -\frac{\sqrt{105}}{140} & 0 & -\frac{\sqrt{210}}{168} & 0 & 0 & \frac{\sqrt{2}}{16} & 0 & \frac{\sqrt{42}}{56} & 0 & \frac{\sqrt{70}}{112} & 0 & 0 & 0 \\ \frac{\sqrt{105}}{140} & 0 & \frac{\sqrt{42}}{280} & 0 & -\frac{\sqrt{21}}{42} & 0 & 0 & -\frac{\sqrt{70}}{112} & 0 & \frac{\sqrt{14}}{56} & 0 & \frac{\sqrt{210}}{112} & 0 & 0 \\ 0 & -\frac{\sqrt{42}}{280} & 0 & \frac{\sqrt{21}}{70} & 0 & -\frac{\sqrt{210}}{168} & \frac{\sqrt{5}}{16} & 0 & -\frac{\sqrt{105}}{112} & 0 & -\frac{\sqrt{7}}{112} & 0 & \frac{3\sqrt{35}}{112} & 0 \\ \frac{\sqrt{210}}{168} & 0 & -\frac{\sqrt{21}}{70} & 0 & \frac{\sqrt{42}}{280} & 0 & 0 & \frac{3\sqrt{35}}{112} & 0 & -\frac{\sqrt{7}}{112} & 0 & -\frac{\sqrt{105}}{112} & 0 & \frac{\sqrt{5}}{16} \\ 0 & \frac{\sqrt{21}}{42} & 0 & -\frac{\sqrt{42}}{280} & 0 & -\frac{\sqrt{105}}{140} & 0 & 0 & \frac{\sqrt{210}}{112} & 0 & \frac{\sqrt{14}}{56} & 0 & -\frac{\sqrt{70}}{112} & 0 \\ 0 & 0 & \frac{\sqrt{210}}{168} & 0 & \frac{\sqrt{105}}{140} & 0 & 0 & 0 & 0 & \frac{\sqrt{70}}{112} & 0 & \frac{\sqrt{42}}{56} & 0 & \frac{\sqrt{2}}{16} \end{bmatrix}$$

$$\boxed{\text{x324}} \quad \mathbb{T}_{3,1}^{(a)}(E_u, 2) = \begin{bmatrix} -\frac{3\sqrt{7}i}{112} & 0 & \frac{9\sqrt{70}i}{560} & 0 & \frac{9\sqrt{35}i}{560} & 0 & 0 & -\frac{5\sqrt{42}i}{336} & 0 & \frac{\sqrt{210}i}{168} & 0 & \frac{\sqrt{14}i}{112} & 0 & 0 \\ 0 & \frac{\sqrt{105}i}{80} & 0 & -\frac{\sqrt{210}i}{560} & \frac{3\sqrt{21}i}{112} & \frac{\sqrt{2}i}{16} & 0 & 0 & 0 & 0 & \frac{\sqrt{70}i}{112} & 0 & \frac{\sqrt{14}i}{56} & 0 \\ -\frac{3\sqrt{21}i}{112} & 0 & \frac{\sqrt{210}i}{560} & 0 & -\frac{\sqrt{105}i}{80} & 0 & 0 & \frac{\sqrt{14}i}{56} & 0 & \frac{\sqrt{70}i}{112} & 0 & 0 & 0 & \frac{\sqrt{2}i}{16} \\ 0 & -\frac{9\sqrt{35}i}{560} & 0 & -\frac{9\sqrt{70}i}{560} & 0 & \frac{3\sqrt{7}i}{112} & 0 & 0 & \frac{\sqrt{14}i}{112} & 0 & \frac{\sqrt{210}i}{168} & 0 & -\frac{5\sqrt{42}i}{336} & 0 \\ 0 & -\frac{\sqrt{7}i}{28} & 0 & -\frac{\sqrt{14}i}{56} & 0 & 0 & -\frac{\sqrt{30}i}{48} & 0 & \frac{\sqrt{70}i}{56} & 0 & \frac{\sqrt{42}i}{112} & 0 & 0 & 0 \\ -\frac{\sqrt{7}i}{28} & 0 & \frac{\sqrt{70}i}{280} & 0 & -\frac{\sqrt{35}i}{70} & 0 & 0 & \frac{5\sqrt{42}i}{336} & 0 & \frac{\sqrt{210}i}{168} & 0 & \frac{3\sqrt{14}i}{112} & 0 & 0 \\ 0 & \frac{\sqrt{70}i}{280} & 0 & \frac{\sqrt{35}i}{70} & 0 & -\frac{\sqrt{14}i}{56} & -\frac{\sqrt{3}i}{16} & 0 & \frac{5\sqrt{7}i}{112} & 0 & -\frac{\sqrt{105}i}{336} & 0 & \frac{3\sqrt{21}i}{112} & 0 \\ -\frac{\sqrt{14}i}{56} & 0 & \frac{\sqrt{35}i}{70} & 0 & \frac{\sqrt{70}i}{280} & 0 & 0 & -\frac{3\sqrt{21}i}{112} & 0 & \frac{\sqrt{105}i}{336} & 0 & -\frac{5\sqrt{7}i}{112} & 0 & \frac{\sqrt{3}i}{16} \\ 0 & -\frac{\sqrt{35}i}{70} & 0 & \frac{\sqrt{70}i}{280} & 0 & -\frac{\sqrt{7}i}{28} & 0 & 0 & -\frac{3\sqrt{14}i}{112} & 0 & -\frac{\sqrt{210}i}{168} & 0 & -\frac{5\sqrt{42}i}{336} & 0 \\ 0 & 0 & -\frac{\sqrt{14}i}{56} & 0 & -\frac{\sqrt{7}i}{28} & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}i}{112} & 0 & -\frac{\sqrt{70}i}{56} & 0 & \frac{\sqrt{30}i}{48} \end{bmatrix}$$

$$\begin{aligned}
\boxed{\text{x325}} \quad \mathbb{T}_{3,2}^{(a)}(Eu, 2) &= \begin{bmatrix} \frac{3\sqrt{7}}{112} & 0 & \frac{9\sqrt{70}}{560} & 0 & -\frac{9\sqrt{35}}{560} & 0 & 0 & \frac{5\sqrt{42}}{336} & 0 & \frac{\sqrt{210}}{168} & 0 & -\frac{\sqrt{14}}{112} & 0 & 0 \\ 0 & -\frac{\sqrt{105}}{80} & 0 & -\frac{\sqrt{210}}{560} & 0 & -\frac{3\sqrt{21}}{112} & \frac{\sqrt{2}}{16} & 0 & 0 & 0 & \frac{\sqrt{70}}{112} & 0 & -\frac{\sqrt{14}}{56} & 0 \\ -\frac{3\sqrt{21}}{112} & 0 & -\frac{\sqrt{210}}{560} & 0 & -\frac{\sqrt{105}}{80} & 0 & 0 & \frac{\sqrt{14}}{56} & 0 & -\frac{\sqrt{70}}{112} & 0 & 0 & 0 & -\frac{\sqrt{2}}{16} \\ 0 & -\frac{9\sqrt{35}}{560} & 0 & \frac{9\sqrt{70}}{560} & 0 & \frac{3\sqrt{7}}{112} & 0 & 0 & \frac{\sqrt{14}}{112} & 0 & -\frac{\sqrt{210}}{168} & 0 & -\frac{5\sqrt{42}}{336} & 0 \\ 0 & -\frac{\sqrt{7}}{28} & 0 & \frac{\sqrt{14}}{56} & 0 & 0 & \frac{\sqrt{30}}{48} & 0 & \frac{\sqrt{70}}{56} & 0 & -\frac{\sqrt{42}}{112} & 0 & 0 & 0 \\ \frac{\sqrt{7}}{28} & 0 & \frac{\sqrt{70}}{280} & 0 & \frac{\sqrt{35}}{70} & 0 & 0 & -\frac{5\sqrt{42}}{336} & 0 & \frac{\sqrt{210}}{168} & 0 & -\frac{3\sqrt{14}}{112} & 0 & 0 \\ 0 & -\frac{\sqrt{70}}{280} & 0 & \frac{\sqrt{35}}{70} & 0 & \frac{\sqrt{14}}{56} & -\frac{\sqrt{3}}{16} & 0 & -\frac{5\sqrt{7}}{112} & 0 & -\frac{\sqrt{105}}{336} & 0 & -\frac{3\sqrt{21}}{112} & 0 \\ -\frac{\sqrt{14}}{56} & 0 & -\frac{\sqrt{35}}{70} & 0 & \frac{\sqrt{70}}{280} & 0 & 0 & -\frac{3\sqrt{21}}{112} & 0 & -\frac{\sqrt{105}}{336} & 0 & -\frac{5\sqrt{7}}{112} & 0 & -\frac{\sqrt{3}}{16} \\ 0 & -\frac{\sqrt{35}}{70} & 0 & -\frac{\sqrt{70}}{280} & 0 & -\frac{\sqrt{7}}{28} & 0 & 0 & -\frac{3\sqrt{14}}{112} & 0 & \frac{\sqrt{210}}{168} & 0 & -\frac{5\sqrt{42}}{336} & 0 \\ 0 & 0 & -\frac{\sqrt{14}}{56} & 0 & \frac{\sqrt{7}}{28} & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}}{112} & 0 & \frac{\sqrt{70}}{56} & 0 & \frac{\sqrt{30}}{48} \end{bmatrix} \\
\boxed{\text{x326}} \quad \mathbb{T}_{5,1}^{(a)}(Eu, 1) &= \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{80} & 0 & \frac{i}{16} & 0 & -\frac{7\sqrt{15}i}{240} & 0 & \frac{3\sqrt{35}i}{80} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}i}{240} & 0 & \frac{3\sqrt{5}i}{80} & 0 & -\frac{\sqrt{3}i}{16} & 0 & \frac{7\sqrt{15}i}{240} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{7\sqrt{15}i}{240} & 0 & -\frac{\sqrt{3}i}{16} & 0 & \frac{3\sqrt{5}i}{80} & 0 & -\frac{\sqrt{105}i}{240} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{35}i}{80} & 0 & -\frac{7\sqrt{15}i}{240} & 0 & \frac{i}{16} & 0 & -\frac{\sqrt{5}i}{80} & 0 \\ 0 & -\frac{\sqrt{30}i}{224} & 0 & \frac{\sqrt{15}i}{48} & 0 & -\frac{3\sqrt{6}i}{32} & -\frac{\sqrt{7}i}{224} & 0 & \frac{5\sqrt{3}i}{224} & 0 & -\frac{\sqrt{5}i}{32} & 0 & \frac{3i}{32} & 0 \\ -\frac{\sqrt{30}i}{224} & 0 & \frac{5\sqrt{3}i}{112} & 0 & -\frac{5\sqrt{6}i}{96} & 0 & 0 & \frac{23\sqrt{5}i}{1120} & 0 & -\frac{13i}{224} & 0 & \frac{\sqrt{15}i}{160} & 0 & \frac{3\sqrt{35}i}{160} \\ 0 & \frac{5\sqrt{3}i}{112} & 0 & -\frac{5\sqrt{6}i}{112} & 0 & \frac{\sqrt{15}i}{48} & \frac{\sqrt{70}i}{160} & 0 & -\frac{11\sqrt{30}i}{1120} & 0 & \frac{\sqrt{2}i}{224} & 0 & \frac{3\sqrt{10}i}{160} & 0 \\ \frac{\sqrt{15}i}{48} & 0 & -\frac{5\sqrt{6}i}{112} & 0 & \frac{5\sqrt{3}i}{112} & 0 & 0 & -\frac{3\sqrt{10}i}{160} & 0 & -\frac{\sqrt{2}i}{224} & 0 & \frac{11\sqrt{30}i}{1120} & 0 & -\frac{\sqrt{70}i}{160} \\ 0 & -\frac{5\sqrt{6}i}{96} & 0 & \frac{5\sqrt{3}i}{112} & 0 & -\frac{\sqrt{30}i}{224} & -\frac{3\sqrt{35}i}{160} & 0 & -\frac{\sqrt{15}i}{160} & 0 & \frac{13i}{224} & 0 & -\frac{23\sqrt{5}i}{1120} & 0 \\ -\frac{3\sqrt{6}i}{32} & 0 & \frac{\sqrt{15}i}{48} & 0 & -\frac{\sqrt{30}i}{224} & 0 & 0 & -\frac{3i}{32} & 0 & \frac{\sqrt{5}i}{32} & 0 & -\frac{5\sqrt{3}i}{224} & 0 & \frac{\sqrt{7}i}{224} \end{bmatrix} \\
\boxed{\text{x327}} \quad \mathbb{T}_{5,2}^{(a)}(Eu, 1) &= \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}}{80} & 0 & \frac{1}{16} & 0 & \frac{7\sqrt{15}}{240} & 0 & \frac{3\sqrt{35}}{80} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{240} & 0 & -\frac{3\sqrt{5}}{80} & 0 & -\frac{\sqrt{3}}{16} & 0 & -\frac{7\sqrt{15}}{240} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{7\sqrt{15}}{240} & 0 & \frac{\sqrt{3}}{16} & 0 & \frac{3\sqrt{5}}{80} & 0 & \frac{\sqrt{105}}{240} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{35}}{80} & 0 & -\frac{7\sqrt{15}}{240} & 0 & -\frac{1}{16} & 0 & -\frac{\sqrt{5}}{80} & 0 \\ 0 & -\frac{\sqrt{30}}{224} & 0 & -\frac{\sqrt{15}}{48} & 0 & -\frac{3\sqrt{6}}{32} & \frac{\sqrt{7}}{224} & 0 & \frac{5\sqrt{3}}{224} & 0 & \frac{\sqrt{5}}{32} & 0 & \frac{3}{32} & 0 \\ \frac{\sqrt{30}}{224} & 0 & \frac{5\sqrt{3}}{112} & 0 & \frac{5\sqrt{6}}{96} & 0 & 0 & -\frac{23\sqrt{5}}{1120} & 0 & -\frac{13}{224} & 0 & -\frac{\sqrt{15}}{160} & 0 & \frac{3\sqrt{35}}{160} \\ 0 & -\frac{5\sqrt{3}}{112} & 0 & -\frac{5\sqrt{6}}{112} & 0 & -\frac{\sqrt{15}}{48} & \frac{\sqrt{70}}{160} & 0 & \frac{11\sqrt{30}}{1120} & 0 & \frac{\sqrt{2}}{224} & 0 & -\frac{3\sqrt{10}}{160} & 0 \\ \frac{\sqrt{15}}{48} & 0 & \frac{5\sqrt{6}}{112} & 0 & \frac{5\sqrt{3}}{112} & 0 & 0 & -\frac{3\sqrt{10}}{160} & 0 & \frac{\sqrt{2}}{224} & 0 & \frac{11\sqrt{30}}{1120} & 0 & \frac{\sqrt{70}}{160} \\ 0 & -\frac{5\sqrt{6}}{96} & 0 & -\frac{5\sqrt{3}}{112} & 0 & -\frac{\sqrt{30}}{224} & \frac{3\sqrt{35}}{160} & 0 & -\frac{\sqrt{15}}{160} & 0 & -\frac{13}{224} & 0 & -\frac{23\sqrt{5}}{1120} & 0 \\ \frac{3\sqrt{6}}{32} & 0 & \frac{\sqrt{15}}{48} & 0 & \frac{\sqrt{30}}{224} & 0 & 0 & \frac{3}{32} & 0 & \frac{\sqrt{5}}{32} & 0 & \frac{5\sqrt{3}}{224} & 0 & \frac{\sqrt{7}}{224} \end{bmatrix}
\end{aligned}$$

$$\boxed{\text{x328}} \quad \mathbb{T}_{5,1}^{(a)}(E_u, 2) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}i}{80} & 0 & \frac{\sqrt{35}i}{80} & 0 & \frac{3\sqrt{21}i}{80} & 0 & \frac{i}{16} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{3}i}{80} & 0 & \frac{3\sqrt{7}i}{80} & 0 & -\frac{\sqrt{105}i}{80} & 0 & -\frac{3\sqrt{21}i}{80} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{21}i}{80} & 0 & -\frac{\sqrt{105}i}{80} & 0 & \frac{3\sqrt{7}i}{80} & 0 & \frac{3\sqrt{3}i}{80} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{i}{16} & 0 & \frac{3\sqrt{21}i}{80} & 0 & \frac{\sqrt{35}i}{80} & 0 & -\frac{\sqrt{7}i}{80} & 0 \\ 0 & -\frac{\sqrt{42}i}{224} & 0 & -\frac{3\sqrt{21}i}{112} & 0 & -\frac{\sqrt{210}i}{224} & -\frac{\sqrt{5}i}{160} & 0 & \frac{\sqrt{105}i}{224} & 0 & \frac{9\sqrt{7}i}{224} & 0 & \frac{\sqrt{35}i}{224} & 0 \\ -\frac{\sqrt{42}i}{224} & 0 & \frac{\sqrt{105}i}{112} & 0 & \frac{3\sqrt{210}i}{224} & 0 & 0 & \frac{23\sqrt{7}i}{1120} & 0 & -\frac{13\sqrt{35}i}{1120} & 0 & -\frac{9\sqrt{21}i}{1120} & 0 & \frac{i}{32} \\ 0 & \frac{\sqrt{105}i}{112} & 0 & -\frac{\sqrt{210}i}{112} & 0 & -\frac{3\sqrt{21}i}{112} & -\frac{9\sqrt{2}i}{160} & 0 & -\frac{11\sqrt{42}i}{1120} & 0 & \frac{\sqrt{70}i}{1120} & 0 & -\frac{27\sqrt{14}i}{1120} & 0 \\ -\frac{3\sqrt{21}i}{112} & 0 & -\frac{\sqrt{210}i}{112} & 0 & \frac{\sqrt{105}i}{112} & 0 & 0 & \frac{27\sqrt{14}i}{1120} & 0 & -\frac{\sqrt{70}i}{1120} & 0 & \frac{11\sqrt{42}i}{1120} & 0 & \frac{9\sqrt{2}i}{160} \\ 0 & \frac{3\sqrt{210}i}{224} & 0 & \frac{\sqrt{105}i}{112} & 0 & -\frac{\sqrt{42}i}{224} & -\frac{i}{32} & 0 & \frac{9\sqrt{21}i}{1120} & 0 & \frac{13\sqrt{35}i}{1120} & 0 & -\frac{23\sqrt{7}i}{1120} & 0 \\ -\frac{\sqrt{210}i}{224} & 0 & -\frac{3\sqrt{21}i}{112} & 0 & -\frac{\sqrt{42}i}{224} & 0 & 0 & -\frac{\sqrt{35}i}{224} & 0 & -\frac{9\sqrt{7}i}{224} & 0 & -\frac{\sqrt{105}i}{224} & 0 & \frac{\sqrt{5}i}{160} \end{bmatrix}$$

$$\boxed{\text{x329}} \quad \mathbb{T}_{5,2}^{(a)}(E_u, 2) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{80} & 0 & \frac{\sqrt{35}}{80} & 0 & -\frac{3\sqrt{21}}{80} & 0 & \frac{1}{16} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{3}}{80} & 0 & -\frac{3\sqrt{7}}{80} & 0 & -\frac{\sqrt{105}}{80} & 0 & \frac{3\sqrt{21}}{80} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{21}}{80} & 0 & \frac{\sqrt{105}}{80} & 0 & \frac{3\sqrt{7}}{80} & 0 & -\frac{3\sqrt{3}}{80} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{1}{16} & 0 & \frac{3\sqrt{21}}{80} & 0 & -\frac{\sqrt{35}}{80} & 0 & -\frac{\sqrt{7}}{80} & 0 \\ 0 & -\frac{\sqrt{42}}{224} & 0 & \frac{3\sqrt{21}}{112} & 0 & -\frac{\sqrt{210}}{224} & \frac{\sqrt{5}}{160} & 0 & \frac{\sqrt{105}}{224} & 0 & -\frac{9\sqrt{7}}{224} & 0 & \frac{\sqrt{35}}{224} & 0 \\ \frac{\sqrt{42}}{224} & 0 & \frac{\sqrt{105}}{112} & 0 & -\frac{3\sqrt{210}}{224} & 0 & 0 & -\frac{23\sqrt{7}}{1120} & 0 & -\frac{13\sqrt{35}}{1120} & 0 & \frac{9\sqrt{21}}{1120} & 0 & \frac{1}{32} \\ 0 & -\frac{\sqrt{105}}{112} & 0 & -\frac{\sqrt{210}}{112} & 0 & \frac{3\sqrt{21}}{112} & -\frac{9\sqrt{2}}{160} & 0 & \frac{11\sqrt{42}}{1120} & 0 & \frac{\sqrt{70}}{1120} & 0 & \frac{27\sqrt{14}}{1120} & 0 \\ -\frac{3\sqrt{21}}{112} & 0 & \frac{\sqrt{210}}{112} & 0 & \frac{\sqrt{105}}{112} & 0 & 0 & \frac{27\sqrt{14}}{1120} & 0 & \frac{\sqrt{70}}{1120} & 0 & \frac{11\sqrt{42}}{1120} & 0 & -\frac{9\sqrt{2}}{160} \\ 0 & \frac{3\sqrt{210}}{224} & 0 & -\frac{\sqrt{105}}{112} & 0 & -\frac{\sqrt{42}}{224} & \frac{1}{32} & 0 & \frac{9\sqrt{21}}{1120} & 0 & -\frac{13\sqrt{35}}{1120} & 0 & -\frac{23\sqrt{7}}{1120} & 0 \\ \frac{\sqrt{210}}{224} & 0 & -\frac{3\sqrt{21}}{112} & 0 & \frac{\sqrt{42}}{224} & 0 & 0 & \frac{\sqrt{35}}{224} & 0 & -\frac{9\sqrt{7}}{224} & 0 & \frac{\sqrt{105}}{224} & 0 & \frac{\sqrt{5}}{160} \end{bmatrix}$$

$$\boxed{\text{x330}} \quad \mathbb{T}_{5,1}^{(a)}(E_u, 3) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}i}{120} & 0 & \frac{\sqrt{105}i}{120} & 0 & -\frac{\sqrt{7}i}{40} & 0 & -\frac{\sqrt{3}i}{8} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{i}{40} & 0 & \frac{\sqrt{21}i}{40} & 0 & -\frac{\sqrt{35}i}{40} & 0 & \frac{\sqrt{7}i}{40} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}i}{40} & 0 & -\frac{\sqrt{35}i}{40} & 0 & \frac{\sqrt{21}i}{40} & 0 & -\frac{i}{40} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{8} & 0 & -\frac{\sqrt{7}i}{40} & 0 & \frac{\sqrt{105}i}{120} & 0 & -\frac{\sqrt{21}i}{120} & 0 \\ 0 & -\frac{\sqrt{14}i}{112} & 0 & \frac{\sqrt{7}i}{56} & 0 & \frac{3\sqrt{70}i}{112} & -\frac{\sqrt{15}i}{240} & 0 & \frac{\sqrt{35}i}{112} & 0 & -\frac{\sqrt{21}i}{112} & 0 & -\frac{\sqrt{105}i}{112} & 0 \\ -\frac{\sqrt{14}i}{112} & 0 & \frac{\sqrt{35}i}{56} & 0 & -\frac{\sqrt{70}i}{112} & 0 & 0 & \frac{23\sqrt{21}i}{1680} & 0 & -\frac{13\sqrt{105}i}{1680} & 0 & \frac{3\sqrt{7}i}{560} & 0 & -\frac{\sqrt{3}i}{16} \\ 0 & \frac{\sqrt{35}i}{56} & 0 & -\frac{\sqrt{70}i}{56} & 0 & \frac{\sqrt{7}i}{56} & \frac{\sqrt{6}i}{80} & 0 & -\frac{11\sqrt{14}i}{560} & 0 & \frac{\sqrt{210}i}{1680} & 0 & \frac{3\sqrt{42}i}{560} & 0 \\ \frac{\sqrt{7}i}{56} & 0 & -\frac{\sqrt{70}i}{56} & 0 & \frac{\sqrt{35}i}{56} & 0 & 0 & -\frac{3\sqrt{42}i}{560} & 0 & -\frac{\sqrt{210}i}{1680} & 0 & \frac{11\sqrt{14}i}{560} & 0 & -\frac{\sqrt{6}i}{80} \\ 0 & -\frac{\sqrt{70}i}{112} & 0 & \frac{\sqrt{35}i}{56} & 0 & -\frac{\sqrt{14}i}{112} & \frac{\sqrt{3}i}{16} & 0 & -\frac{3\sqrt{7}i}{560} & 0 & \frac{13\sqrt{105}i}{1680} & 0 & -\frac{23\sqrt{21}i}{1680} & 0 \\ \frac{3\sqrt{70}i}{112} & 0 & \frac{\sqrt{7}i}{56} & 0 & -\frac{\sqrt{14}i}{112} & 0 & 0 & \frac{\sqrt{105}i}{112} & 0 & \frac{\sqrt{21}i}{112} & 0 & -\frac{\sqrt{35}i}{112} & 0 & \frac{\sqrt{15}i}{240} \end{bmatrix}$$

$$\boxed{\text{x331}} \quad \mathbb{T}_{5,2}^{(a)}(E_u, 3) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{120} & 0 & \frac{\sqrt{105}}{120} & 0 & \frac{\sqrt{7}}{40} & 0 & -\frac{\sqrt{3}}{8} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{1}{40} & 0 & -\frac{\sqrt{21}}{40} & 0 & -\frac{\sqrt{35}}{40} & 0 & -\frac{\sqrt{7}}{40} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{40} & 0 & \frac{\sqrt{35}}{40} & 0 & \frac{\sqrt{21}}{40} & 0 & \frac{1}{40} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{8} & 0 & -\frac{\sqrt{7}}{40} & 0 & -\frac{\sqrt{105}}{120} & 0 & -\frac{\sqrt{21}}{120} & 0 \\ 0 & -\frac{\sqrt{14}}{112} & 0 & -\frac{\sqrt{7}}{56} & 0 & \frac{3\sqrt{70}}{112} & \frac{\sqrt{15}}{240} & 0 & \frac{\sqrt{35}}{112} & 0 & \frac{\sqrt{21}}{112} & 0 & -\frac{\sqrt{105}}{112} & 0 \\ \frac{\sqrt{14}}{112} & 0 & \frac{\sqrt{35}}{56} & 0 & \frac{\sqrt{70}}{112} & 0 & 0 & -\frac{23\sqrt{21}}{1680} & 0 & -\frac{13\sqrt{105}}{1680} & 0 & -\frac{3\sqrt{7}}{560} & 0 & -\frac{\sqrt{3}}{16} \\ 0 & -\frac{\sqrt{35}}{56} & 0 & -\frac{\sqrt{70}}{56} & 0 & -\frac{\sqrt{7}}{56} & \frac{\sqrt{6}}{80} & 0 & \frac{11\sqrt{14}}{560} & 0 & \frac{\sqrt{210}}{1680} & 0 & -\frac{3\sqrt{42}}{560} & 0 \\ \frac{\sqrt{7}}{56} & 0 & \frac{\sqrt{70}}{56} & 0 & \frac{\sqrt{35}}{56} & 0 & 0 & -\frac{3\sqrt{42}}{560} & 0 & \frac{\sqrt{210}}{1680} & 0 & \frac{11\sqrt{14}}{560} & 0 & \frac{\sqrt{6}}{80} \\ 0 & -\frac{\sqrt{70}}{112} & 0 & -\frac{\sqrt{35}}{56} & 0 & -\frac{\sqrt{14}}{112} & -\frac{\sqrt{3}}{16} & 0 & -\frac{3\sqrt{7}}{560} & 0 & -\frac{13\sqrt{105}}{1680} & 0 & -\frac{23\sqrt{21}}{1680} & 0 \\ -\frac{3\sqrt{70}}{112} & 0 & \frac{\sqrt{7}}{56} & 0 & \frac{\sqrt{14}}{112} & 0 & 0 & -\frac{\sqrt{105}}{112} & 0 & \frac{\sqrt{21}}{112} & 0 & \frac{\sqrt{35}}{112} & 0 & \frac{\sqrt{15}}{240} \end{bmatrix}$$

$$\boxed{\text{x332}} \quad \mathbb{T}_5^{(1,-1;a)}(A_{1u}) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{210}}{100} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{10}}{100} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{10}}{100} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{210}}{100} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{35}}{70} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{14}}{35} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{35}}{70} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}}{175} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{2\sqrt{15}}{25} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{2\sqrt{15}}{25} & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{35}}{70} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{210}}{175} & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{35}}{70} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{14}}{35} & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x333}} \quad \mathbb{T}_3^{(1,-1;a)}(A_{2u}) = \begin{bmatrix} 0 & -\frac{\sqrt{6}i}{35} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{14} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{2i}{35} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{14} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{2i}{35} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{14} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{6}i}{35} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{14} & 0 & 0 \\ \frac{\sqrt{6}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{2i}{7} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{6}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{6}i}{35} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{7} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{6}i}{35} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{7} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{6}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{2i}{7} & 0 \end{bmatrix}$$

$$\boxed{\text{x334}} \quad \mathbb{T}_5^{(1,-1;a)}(A_{2u}, 1) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{20} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}i}{20} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{10}i}{20} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{20} & 0 & 0 \\ -\frac{\sqrt{5}i}{210} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}i}{35} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{5}i}{42} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{9\sqrt{2}i}{35} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{5}i}{21} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{2\sqrt{15}i}{35} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{5}i}{21} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{2\sqrt{15}i}{35} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{42} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{9\sqrt{2}i}{35} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}i}{210} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}i}{35} & 0 \end{bmatrix}$$

$$\boxed{\text{x335}} \quad \mathbb{T}_5^{(1,-1;a)}(A_{2u}, 2) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{210}i}{100} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{10}i}{100} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{10}i}{100} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}i}{100} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{35}i}{70} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{14}i}{35} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{35}i}{70} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}i}{175} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{2\sqrt{15}i}{25} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{2\sqrt{15}i}{25} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{35}i}{70} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}i}{175} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{35}i}{70} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{14}i}{35} & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x336}} \quad \mathbb{T}_3^{(1,-1;a)}(B_{1u}) = \begin{bmatrix} 0 & 0 & 0 & -\frac{\sqrt{5}}{35} & 0 & 0 & \frac{\sqrt{21}}{28} & 0 & 0 & 0 & -\frac{\sqrt{15}}{28} & 0 & 0 & 0 \\ -\frac{\sqrt{6}}{42} & 0 & 0 & 0 & -\frac{\sqrt{30}}{210} & 0 & 0 & -\frac{3}{28} & 0 & 0 & 0 & -\frac{3\sqrt{3}}{28} & 0 & 0 \\ 0 & \frac{\sqrt{30}}{210} & 0 & 0 & 0 & \frac{\sqrt{6}}{42} & 0 & 0 & -\frac{3\sqrt{3}}{28} & 0 & 0 & 0 & -\frac{3}{28} & 0 \\ 0 & 0 & \frac{\sqrt{5}}{35} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{28} & 0 & 0 & 0 & \frac{\sqrt{21}}{28} \\ 0 & 0 & \frac{3}{28} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{2\sqrt{3}}{21} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{3\sqrt{5}}{140} & 0 & 0 & \frac{\sqrt{21}}{21} & 0 & 0 & 0 & \frac{\sqrt{15}}{21} & 0 & 0 & 0 \\ -\frac{3}{28} & 0 & 0 & 0 & -\frac{3\sqrt{5}}{140} & 0 & 0 & \frac{\sqrt{6}}{42} & 0 & 0 & 0 & \frac{\sqrt{2}}{14} & 0 & 0 \\ 0 & -\frac{3\sqrt{5}}{140} & 0 & 0 & 0 & -\frac{3}{28} & 0 & 0 & -\frac{\sqrt{2}}{14} & 0 & 0 & 0 & -\frac{\sqrt{6}}{42} & 0 \\ 0 & 0 & \frac{3\sqrt{5}}{140} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{21} & 0 & 0 & 0 & -\frac{\sqrt{21}}{21} \\ 0 & 0 & 0 & \frac{3}{28} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{2\sqrt{3}}{21} & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x337}} \quad \mathbb{T}_5^{(1,-1;a)}(B_{1u}) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{10}}{200} & 0 & 0 & 0 & -\frac{\sqrt{14}}{40} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}}{200} & 0 & 0 & 0 & \frac{3\sqrt{70}}{200} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{70}}{200} & 0 & 0 & 0 & -\frac{\sqrt{210}}{200} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}}{40} & 0 & 0 & 0 & \frac{\sqrt{10}}{200} \\ 0 & 0 & \frac{\sqrt{210}}{420} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{70}}{35} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{42}}{84} & 0 & 0 & \frac{\sqrt{10}}{25} & 0 & 0 & 0 & -\frac{2\sqrt{14}}{35} & 0 & 0 & 0 \\ -\frac{\sqrt{210}}{420} & 0 & 0 & 0 & \frac{\sqrt{42}}{84} & 0 & 0 & -\frac{8\sqrt{35}}{175} & 0 & 0 & 0 & -\frac{2\sqrt{105}}{175} & 0 & 0 \\ 0 & \frac{\sqrt{42}}{84} & 0 & 0 & 0 & -\frac{\sqrt{210}}{420} & 0 & 0 & \frac{2\sqrt{105}}{175} & 0 & 0 & 0 & \frac{8\sqrt{35}}{175} & 0 \\ 0 & 0 & -\frac{\sqrt{42}}{84} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{2\sqrt{14}}{35} & 0 & 0 & 0 & -\frac{\sqrt{10}}{25} \\ 0 & 0 & 0 & \frac{\sqrt{210}}{420} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}}{35} & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x338}} \quad \mathbb{T}_3^{(1,-1;a)}(B_{2u}) = \begin{bmatrix} 0 & 0 & 0 & -\frac{\sqrt{5}i}{35} & 0 & 0 & -\frac{\sqrt{21}i}{28} & 0 & 0 & 0 & -\frac{\sqrt{15}i}{28} & 0 & 0 & 0 \\ \frac{\sqrt{6}i}{42} & 0 & 0 & 0 & -\frac{\sqrt{30}i}{210} & 0 & 0 & \frac{3i}{28} & 0 & 0 & 0 & -\frac{3\sqrt{3}i}{28} & 0 & 0 \\ 0 & -\frac{\sqrt{30}i}{210} & 0 & 0 & 0 & \frac{\sqrt{6}i}{42} & 0 & 0 & \frac{3\sqrt{3}i}{28} & 0 & 0 & 0 & -\frac{3i}{28} & 0 \\ 0 & 0 & -\frac{\sqrt{5}i}{35} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{28} & 0 & 0 & 0 & \frac{\sqrt{21}i}{28} \\ 0 & 0 & \frac{3i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{2\sqrt{3}i}{21} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{3\sqrt{5}i}{140} & 0 & 0 & -\frac{\sqrt{21}i}{21} & 0 & 0 & 0 & \frac{\sqrt{15}i}{21} & 0 & 0 & 0 \\ \frac{3i}{28} & 0 & 0 & 0 & -\frac{3\sqrt{5}i}{140} & 0 & 0 & -\frac{\sqrt{6}i}{42} & 0 & 0 & 0 & \frac{\sqrt{2}i}{14} & 0 & 0 \\ 0 & \frac{3\sqrt{5}i}{140} & 0 & 0 & 0 & -\frac{3i}{28} & 0 & 0 & \frac{\sqrt{2}i}{14} & 0 & 0 & 0 & -\frac{\sqrt{6}i}{42} & 0 \\ 0 & 0 & -\frac{3\sqrt{5}i}{140} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{21} & 0 & 0 & 0 & -\frac{\sqrt{21}i}{21} \\ 0 & 0 & 0 & -\frac{3i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{2\sqrt{3}i}{21} & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x339}} \quad \mathbb{T}_5^{(1,-1;a)}(B_{2u}) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{10}i}{200} & 0 & 0 & 0 & \frac{\sqrt{14}i}{40} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}i}{200} & 0 & 0 & 0 & -\frac{3\sqrt{70}i}{200} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{70}i}{200} & 0 & 0 & 0 & \frac{\sqrt{210}i}{200} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}i}{40} & 0 & 0 & 0 & -\frac{\sqrt{10}i}{200} \\ 0 & 0 & -\frac{\sqrt{210}i}{420} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}i}{35} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{42}i}{84} & 0 & 0 & \frac{\sqrt{10}i}{25} & 0 & 0 & 0 & \frac{2\sqrt{14}i}{35} & 0 & 0 & 0 \\ -\frac{\sqrt{210}i}{420} & 0 & 0 & 0 & -\frac{\sqrt{42}i}{84} & 0 & 0 & -\frac{8\sqrt{35}i}{175} & 0 & 0 & 0 & \frac{2\sqrt{105}i}{175} & 0 & 0 \\ 0 & \frac{\sqrt{42}i}{84} & 0 & 0 & 0 & \frac{\sqrt{210}i}{420} & 0 & 0 & \frac{2\sqrt{105}i}{175} & 0 & 0 & 0 & -\frac{8\sqrt{35}i}{175} & 0 \\ 0 & 0 & -\frac{\sqrt{42}i}{84} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{2\sqrt{14}i}{35} & 0 & 0 & 0 & \frac{\sqrt{10}i}{25} \\ 0 & 0 & 0 & \frac{\sqrt{210}i}{420} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}i}{35} & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x340}} \quad \mathbb{T}_{3,1}^{(1,-1;a)}(E_u, 1) = \begin{bmatrix} -\frac{\sqrt{30}i}{280} & 0 & \frac{3\sqrt{3}i}{140} & 0 & -\frac{\sqrt{6}i}{56} & 0 & 0 & -\frac{3\sqrt{5}i}{56} & 0 & \frac{3i}{28} & 0 & -\frac{\sqrt{15}i}{56} & 0 & 0 \\ 0 & \frac{\sqrt{2}i}{40} & 0 & -\frac{i}{140} & 0 & -\frac{\sqrt{10}i}{56} & -\frac{\sqrt{105}i}{56} & 0 & 0 & 0 & \frac{3\sqrt{3}i}{56} & 0 & -\frac{\sqrt{15}i}{28} & 0 \\ \frac{\sqrt{10}i}{56} & 0 & \frac{i}{140} & 0 & -\frac{\sqrt{2}i}{40} & 0 & 0 & -\frac{\sqrt{15}i}{28} & 0 & \frac{3\sqrt{3}i}{56} & 0 & 0 & 0 & -\frac{\sqrt{105}i}{56} \\ 0 & \frac{\sqrt{6}i}{56} & 0 & -\frac{3\sqrt{3}i}{140} & 0 & \frac{\sqrt{30}i}{280} & 0 & 0 & -\frac{\sqrt{15}i}{56} & 0 & \frac{3i}{28} & 0 & -\frac{3\sqrt{5}i}{56} & 0 \\ 0 & -\frac{3\sqrt{30}i}{280} & 0 & \frac{\sqrt{15}i}{56} & 0 & 0 & \frac{\sqrt{7}i}{28} & 0 & -\frac{\sqrt{3}i}{14} & 0 & \frac{\sqrt{5}i}{28} & 0 & 0 & 0 \\ -\frac{3\sqrt{30}i}{280} & 0 & \frac{3\sqrt{3}i}{280} & 0 & \frac{\sqrt{6}i}{28} & 0 & 0 & -\frac{\sqrt{5}i}{28} & 0 & -\frac{i}{14} & 0 & \frac{\sqrt{15}i}{28} & 0 & 0 \\ 0 & \frac{3\sqrt{3}i}{280} & 0 & \frac{3\sqrt{6}i}{140} & 0 & \frac{\sqrt{15}i}{56} & -\frac{\sqrt{70}i}{56} & 0 & -\frac{\sqrt{30}i}{56} & 0 & \frac{\sqrt{2}i}{56} & 0 & \frac{3\sqrt{10}i}{56} & 0 \\ \frac{\sqrt{15}i}{56} & 0 & \frac{3\sqrt{6}i}{140} & 0 & \frac{3\sqrt{3}i}{280} & 0 & 0 & -\frac{3\sqrt{10}i}{56} & 0 & -\frac{\sqrt{2}i}{56} & 0 & \frac{\sqrt{30}i}{56} & 0 & \frac{\sqrt{70}i}{56} \\ 0 & \frac{\sqrt{6}i}{28} & 0 & \frac{3\sqrt{3}i}{280} & 0 & -\frac{3\sqrt{30}i}{280} & 0 & 0 & -\frac{\sqrt{15}i}{28} & 0 & \frac{i}{14} & 0 & \frac{\sqrt{5}i}{28} & 0 \\ 0 & 0 & \frac{\sqrt{15}i}{56} & 0 & -\frac{3\sqrt{30}i}{280} & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{28} & 0 & \frac{\sqrt{3}i}{14} & 0 & -\frac{\sqrt{7}i}{28} \end{bmatrix}$$

$$\boxed{\text{x341}} \quad \mathbb{T}_{3,2}^{(1,-1;a)}(E_u, 1) = \begin{bmatrix} \frac{\sqrt{30}}{280} & 0 & \frac{3\sqrt{3}}{140} & 0 & \frac{\sqrt{6}}{56} & 0 & 0 & \frac{3\sqrt{5}}{56} & 0 & \frac{3}{28} & 0 & \frac{\sqrt{15}}{56} & 0 & 0 \\ 0 & -\frac{\sqrt{2}}{40} & 0 & -\frac{1}{140} & 0 & \frac{\sqrt{10}}{56} & -\frac{\sqrt{105}}{56} & 0 & 0 & 0 & \frac{3\sqrt{3}}{56} & 0 & \frac{\sqrt{15}}{28} & 0 \\ \frac{\sqrt{10}}{56} & 0 & -\frac{1}{140} & 0 & -\frac{\sqrt{2}}{40} & 0 & 0 & -\frac{\sqrt{15}}{28} & 0 & -\frac{3\sqrt{3}}{56} & 0 & 0 & 0 & \frac{\sqrt{105}}{56} \\ 0 & \frac{\sqrt{6}}{56} & 0 & \frac{3\sqrt{3}}{140} & 0 & \frac{\sqrt{30}}{280} & 0 & 0 & -\frac{\sqrt{15}}{56} & 0 & -\frac{3}{28} & 0 & -\frac{3\sqrt{5}}{56} & 0 \\ 0 & -\frac{3\sqrt{30}}{280} & 0 & -\frac{\sqrt{15}}{56} & 0 & 0 & -\frac{\sqrt{7}}{28} & 0 & -\frac{\sqrt{3}}{14} & 0 & -\frac{\sqrt{5}}{28} & 0 & 0 & 0 \\ \frac{3\sqrt{30}}{280} & 0 & \frac{3\sqrt{3}}{280} & 0 & -\frac{\sqrt{6}}{28} & 0 & 0 & \frac{\sqrt{5}}{28} & 0 & -\frac{1}{14} & 0 & -\frac{\sqrt{15}}{28} & 0 & 0 \\ 0 & -\frac{3\sqrt{3}}{280} & 0 & \frac{3\sqrt{6}}{140} & 0 & -\frac{\sqrt{15}}{56} & -\frac{\sqrt{70}}{56} & 0 & \frac{\sqrt{30}}{56} & 0 & \frac{\sqrt{2}}{56} & 0 & -\frac{3\sqrt{10}}{56} & 0 \\ \frac{\sqrt{15}}{56} & 0 & -\frac{3\sqrt{6}}{140} & 0 & \frac{3\sqrt{3}}{280} & 0 & 0 & -\frac{3\sqrt{10}}{56} & 0 & \frac{\sqrt{2}}{56} & 0 & \frac{\sqrt{30}}{56} & 0 & -\frac{\sqrt{70}}{56} \\ 0 & \frac{\sqrt{6}}{28} & 0 & -\frac{3\sqrt{3}}{280} & 0 & -\frac{3\sqrt{30}}{280} & 0 & 0 & -\frac{\sqrt{15}}{28} & 0 & -\frac{1}{14} & 0 & \frac{\sqrt{5}}{28} & 0 \\ 0 & 0 & \frac{\sqrt{15}}{56} & 0 & \frac{3\sqrt{30}}{280} & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{28} & 0 & -\frac{\sqrt{3}}{14} & 0 & -\frac{\sqrt{7}}{28} \end{bmatrix}$$

$$\boxed{\text{x342}} \quad \mathbb{T}_{3,1}^{(1,-1;a)}(E_u, 2) = \begin{bmatrix} -\frac{\sqrt{2}i}{56} & 0 & \frac{3\sqrt{5}i}{140} & 0 & \frac{3\sqrt{10}i}{280} & 0 & 0 & -\frac{5\sqrt{3}i}{56} & 0 & \frac{\sqrt{15}i}{28} & 0 & \frac{3i}{56} & 0 & 0 \\ 0 & \frac{\sqrt{30}i}{120} & 0 & -\frac{\sqrt{15}i}{420} & 0 & \frac{\sqrt{6}i}{56} & \frac{3\sqrt{7}i}{56} & 0 & 0 & 0 & \frac{3\sqrt{5}i}{56} & 0 & \frac{3i}{28} & 0 \\ -\frac{\sqrt{6}i}{56} & 0 & \frac{\sqrt{15}i}{420} & 0 & -\frac{\sqrt{30}i}{120} & 0 & 0 & \frac{3i}{28} & 0 & \frac{3\sqrt{5}i}{56} & 0 & 0 & 0 & \frac{3\sqrt{7}i}{56} \\ 0 & -\frac{3\sqrt{10}i}{280} & 0 & -\frac{3\sqrt{5}i}{140} & 0 & \frac{\sqrt{2}i}{56} & 0 & 0 & \frac{3i}{56} & 0 & \frac{\sqrt{15}i}{28} & 0 & -\frac{5\sqrt{3}i}{56} & 0 \\ 0 & -\frac{3\sqrt{2}i}{56} & 0 & -\frac{3i}{56} & 0 & 0 & \frac{\sqrt{105}i}{84} & 0 & -\frac{\sqrt{5}i}{14} & 0 & -\frac{\sqrt{3}i}{28} & 0 & 0 & 0 \\ -\frac{3\sqrt{2}i}{56} & 0 & \frac{3\sqrt{5}i}{280} & 0 & -\frac{3\sqrt{10}i}{140} & 0 & 0 & -\frac{5\sqrt{3}i}{84} & 0 & -\frac{\sqrt{15}i}{42} & 0 & -\frac{3i}{28} & 0 & 0 \\ 0 & \frac{3\sqrt{5}i}{280} & 0 & \frac{3\sqrt{10}i}{140} & 0 & -\frac{3i}{56} & \frac{\sqrt{42}i}{56} & 0 & -\frac{5\sqrt{2}i}{56} & 0 & \frac{\sqrt{30}i}{168} & 0 & -\frac{3\sqrt{6}i}{56} & 0 \\ -\frac{3i}{56} & 0 & \frac{3\sqrt{10}i}{140} & 0 & \frac{3\sqrt{5}i}{280} & 0 & 0 & \frac{3\sqrt{6}i}{56} & 0 & -\frac{\sqrt{30}i}{168} & 0 & \frac{5\sqrt{2}i}{56} & 0 & -\frac{\sqrt{42}i}{56} \\ 0 & -\frac{3\sqrt{10}i}{140} & 0 & \frac{3\sqrt{5}i}{280} & 0 & -\frac{3\sqrt{2}i}{56} & 0 & 0 & \frac{3i}{28} & 0 & \frac{\sqrt{15}i}{42} & 0 & \frac{5\sqrt{3}i}{84} & 0 \\ 0 & 0 & -\frac{3i}{56} & 0 & -\frac{3\sqrt{2}i}{56} & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{28} & 0 & \frac{\sqrt{5}i}{14} & 0 & -\frac{\sqrt{105}i}{84} \end{bmatrix}$$

$$\boxed{\text{x343}} \quad \mathbb{T}_{3,2}^{(1,-1;a)}(E_u, 2) = \begin{bmatrix} \frac{\sqrt{2}}{56} & 0 & \frac{3\sqrt{5}}{140} & 0 & -\frac{3\sqrt{10}}{280} & 0 & 0 & \frac{5\sqrt{3}}{56} & 0 & \frac{\sqrt{15}}{28} & 0 & -\frac{3}{56} & 0 & 0 \\ 0 & -\frac{\sqrt{30}}{120} & 0 & -\frac{\sqrt{15}}{420} & 0 & -\frac{\sqrt{6}}{56} & \frac{3\sqrt{7}}{56} & 0 & 0 & 0 & \frac{3\sqrt{5}}{56} & 0 & -\frac{3}{28} & 0 \\ -\frac{\sqrt{6}}{56} & 0 & -\frac{\sqrt{15}}{420} & 0 & -\frac{\sqrt{30}}{120} & 0 & 0 & \frac{3}{28} & 0 & -\frac{3\sqrt{5}}{56} & 0 & 0 & 0 & -\frac{3\sqrt{7}}{56} \\ 0 & -\frac{3\sqrt{10}}{280} & 0 & \frac{3\sqrt{5}}{140} & 0 & \frac{\sqrt{2}}{56} & 0 & 0 & \frac{3}{56} & 0 & -\frac{\sqrt{15}}{28} & 0 & -\frac{5\sqrt{3}}{56} & 0 \\ 0 & -\frac{3\sqrt{2}}{56} & 0 & \frac{3}{56} & 0 & 0 & -\frac{\sqrt{105}}{84} & 0 & -\frac{\sqrt{5}}{14} & 0 & \frac{\sqrt{3}}{28} & 0 & 0 & 0 \\ \frac{3\sqrt{2}}{56} & 0 & \frac{3\sqrt{5}}{280} & 0 & \frac{3\sqrt{10}}{140} & 0 & 0 & \frac{5\sqrt{3}}{84} & 0 & -\frac{\sqrt{15}}{42} & 0 & \frac{3}{28} & 0 & 0 \\ 0 & -\frac{3\sqrt{5}}{280} & 0 & \frac{3\sqrt{10}}{140} & 0 & \frac{3}{56} & \frac{\sqrt{42}}{56} & 0 & \frac{5\sqrt{2}}{56} & 0 & \frac{\sqrt{30}}{168} & 0 & \frac{3\sqrt{6}}{56} & 0 \\ -\frac{3}{56} & 0 & -\frac{3\sqrt{10}}{140} & 0 & \frac{3\sqrt{5}}{280} & 0 & 0 & \frac{3\sqrt{6}}{56} & 0 & \frac{\sqrt{30}}{168} & 0 & \frac{5\sqrt{2}}{56} & 0 & \frac{\sqrt{42}}{56} \\ 0 & -\frac{3\sqrt{10}}{140} & 0 & -\frac{3\sqrt{5}}{280} & 0 & -\frac{3\sqrt{2}}{56} & 0 & 0 & \frac{3}{28} & 0 & -\frac{\sqrt{15}}{42} & 0 & \frac{5\sqrt{3}}{84} & 0 \\ 0 & 0 & -\frac{3}{56} & 0 & \frac{3\sqrt{2}}{56} & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{28} & 0 & -\frac{\sqrt{5}}{14} & 0 & -\frac{\sqrt{105}}{84} \end{bmatrix}$$

$$\boxed{\text{x344}} \quad \mathbb{T}_{5,1}^{(1,-1;a)}(E_u, 1) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}i}{160} & 0 & \frac{\sqrt{30}i}{160} & 0 & -\frac{7\sqrt{2}i}{160} & 0 & \frac{3\sqrt{42}i}{160} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}i}{160} & 0 & \frac{3\sqrt{6}i}{160} & 0 & -\frac{3\sqrt{10}i}{160} & 0 & \frac{7\sqrt{2}i}{160} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{7\sqrt{2}i}{160} & 0 & -\frac{3\sqrt{10}i}{160} & 0 & \frac{3\sqrt{6}i}{160} & 0 & -\frac{\sqrt{14}i}{160} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{42}i}{160} & 0 & -\frac{7\sqrt{2}i}{160} & 0 & \frac{\sqrt{30}i}{160} & 0 & -\frac{\sqrt{6}i}{160} & 0 \\ 0 & -\frac{i}{112} & 0 & \frac{\sqrt{2}i}{48} & 0 & -\frac{3\sqrt{5}i}{80} & \frac{\sqrt{210}i}{560} & 0 & -\frac{3\sqrt{10}i}{112} & 0 & \frac{\sqrt{6}i}{16} & 0 & -\frac{3\sqrt{30}i}{80} & 0 \\ -\frac{i}{112} & 0 & \frac{\sqrt{10}i}{112} & 0 & -\frac{\sqrt{5}i}{48} & 0 & 0 & -\frac{23\sqrt{6}i}{560} & 0 & \frac{13\sqrt{30}i}{560} & 0 & -\frac{3\sqrt{2}i}{80} & 0 & -\frac{3\sqrt{42}i}{80} \\ 0 & \frac{\sqrt{10}i}{112} & 0 & -\frac{\sqrt{5}i}{56} & 0 & \frac{\sqrt{2}i}{48} & -\frac{\sqrt{21}i}{40} & 0 & \frac{33i}{280} & 0 & -\frac{\sqrt{15}i}{280} & 0 & -\frac{3\sqrt{3}i}{40} & 0 \\ \frac{\sqrt{2}i}{48} & 0 & -\frac{\sqrt{5}i}{56} & 0 & \frac{\sqrt{10}i}{112} & 0 & 0 & \frac{3\sqrt{3}i}{40} & 0 & \frac{\sqrt{15}i}{280} & 0 & -\frac{33i}{280} & 0 & \frac{\sqrt{21}i}{40} \\ 0 & -\frac{\sqrt{5}i}{48} & 0 & \frac{\sqrt{10}i}{112} & 0 & -\frac{i}{112} & \frac{3\sqrt{42}i}{80} & 0 & \frac{3\sqrt{2}i}{80} & 0 & -\frac{13\sqrt{30}i}{560} & 0 & \frac{23\sqrt{6}i}{560} & 0 \\ -\frac{3\sqrt{5}i}{80} & 0 & \frac{\sqrt{2}i}{48} & 0 & -\frac{i}{112} & 0 & 0 & \frac{3\sqrt{30}i}{80} & 0 & -\frac{\sqrt{6}i}{16} & 0 & \frac{3\sqrt{10}i}{112} & 0 & -\frac{\sqrt{210}i}{560} \end{bmatrix}$$

$$\boxed{\text{x345}} \quad \mathbb{T}_{5,2}^{(1,-1;a)}(E_u, 1) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{160} & 0 & \frac{\sqrt{30}}{160} & 0 & \frac{7\sqrt{2}}{160} & 0 & \frac{3\sqrt{42}}{160} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}}{160} & 0 & -\frac{3\sqrt{6}}{160} & 0 & -\frac{3\sqrt{10}}{160} & 0 & -\frac{7\sqrt{2}}{160} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{7\sqrt{2}}{160} & 0 & \frac{3\sqrt{10}}{160} & 0 & \frac{3\sqrt{6}}{160} & 0 & \frac{\sqrt{14}}{160} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{42}}{160} & 0 & -\frac{7\sqrt{2}}{160} & 0 & -\frac{\sqrt{30}}{160} & 0 & -\frac{\sqrt{6}}{160} & 0 \\ 0 & -\frac{1}{112} & 0 & -\frac{\sqrt{2}}{48} & 0 & -\frac{3\sqrt{5}}{80} & -\frac{\sqrt{210}}{560} & 0 & -\frac{3\sqrt{10}}{112} & 0 & -\frac{\sqrt{6}}{16} & 0 & -\frac{3\sqrt{30}}{80} & 0 \\ \frac{1}{112} & 0 & \frac{\sqrt{10}}{112} & 0 & \frac{\sqrt{5}}{48} & 0 & 0 & \frac{23\sqrt{6}}{560} & 0 & \frac{13\sqrt{30}}{560} & 0 & \frac{3\sqrt{2}}{80} & 0 & -\frac{3\sqrt{42}}{80} \\ 0 & -\frac{\sqrt{10}}{112} & 0 & -\frac{\sqrt{5}}{56} & 0 & -\frac{\sqrt{2}}{48} & -\frac{\sqrt{21}}{40} & 0 & -\frac{33}{280} & 0 & -\frac{\sqrt{15}}{280} & 0 & \frac{3\sqrt{3}}{40} & 0 \\ \frac{\sqrt{2}}{48} & 0 & \frac{\sqrt{5}}{56} & 0 & \frac{\sqrt{10}}{112} & 0 & 0 & \frac{3\sqrt{3}}{40} & 0 & -\frac{\sqrt{15}}{280} & 0 & -\frac{33}{280} & 0 & -\frac{\sqrt{21}}{40} \\ 0 & -\frac{\sqrt{5}}{48} & 0 & -\frac{\sqrt{10}}{112} & 0 & -\frac{1}{112} & -\frac{3\sqrt{42}}{80} & 0 & \frac{3\sqrt{2}}{80} & 0 & \frac{13\sqrt{30}}{560} & 0 & \frac{23\sqrt{6}}{560} & 0 \\ \frac{3\sqrt{5}}{80} & 0 & \frac{\sqrt{2}}{48} & 0 & \frac{1}{112} & 0 & 0 & -\frac{3\sqrt{30}}{80} & 0 & -\frac{\sqrt{6}}{16} & 0 & -\frac{3\sqrt{10}}{112} & 0 & -\frac{\sqrt{210}}{560} \end{bmatrix}$$



$$\boxed{\text{x346}} \quad \mathbb{T}_{5,1}^{(1,-1;a)}(E_u, 2) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}i}{800} & 0 & \frac{\sqrt{42}i}{160} & 0 & \frac{9\sqrt{70}i}{800} & 0 & \frac{\sqrt{30}i}{160} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{9\sqrt{10}i}{800} & 0 & \frac{3\sqrt{210}i}{800} & 0 & -\frac{3\sqrt{14}i}{160} & 0 & -\frac{9\sqrt{70}i}{800} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{9\sqrt{70}i}{800} & 0 & -\frac{3\sqrt{14}i}{160} & 0 & \frac{3\sqrt{210}i}{800} & 0 & \frac{9\sqrt{10}i}{800} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{160} & 0 & \frac{9\sqrt{70}i}{800} & 0 & \frac{\sqrt{42}i}{160} & 0 & -\frac{\sqrt{210}i}{800} & 0 \\ 0 & -\frac{\sqrt{35}i}{560} & 0 & -\frac{3\sqrt{70}i}{560} & 0 & -\frac{\sqrt{7}i}{112} & \frac{\sqrt{6}i}{80} & 0 & -\frac{3\sqrt{14}i}{112} & 0 & -\frac{9\sqrt{210}i}{560} & 0 & -\frac{\sqrt{42}i}{112} & 0 \\ -\frac{\sqrt{35}i}{560} & 0 & \frac{\sqrt{14}i}{112} & 0 & \frac{3\sqrt{7}i}{112} & 0 & 0 & -\frac{23\sqrt{210}i}{2800} & 0 & \frac{13\sqrt{42}i}{560} & 0 & \frac{27\sqrt{70}i}{2800} & 0 & -\frac{\sqrt{30}i}{80} \\ 0 & \frac{\sqrt{14}i}{112} & 0 & -\frac{\sqrt{7}i}{56} & 0 & -\frac{3\sqrt{70}i}{560} & \frac{9\sqrt{15}i}{200} & 0 & \frac{33\sqrt{35}i}{1400} & 0 & -\frac{\sqrt{21}i}{280} & 0 & \frac{27\sqrt{105}i}{1400} & 0 \\ -\frac{3\sqrt{70}i}{560} & 0 & -\frac{\sqrt{7}i}{56} & 0 & \frac{\sqrt{14}i}{112} & 0 & 0 & -\frac{27\sqrt{105}i}{1400} & 0 & \frac{\sqrt{21}i}{280} & 0 & -\frac{33\sqrt{35}i}{1400} & 0 & -\frac{9\sqrt{15}i}{200} \\ 0 & \frac{3\sqrt{7}i}{112} & 0 & \frac{\sqrt{14}i}{112} & 0 & -\frac{\sqrt{35}i}{560} & \frac{\sqrt{30}i}{80} & 0 & -\frac{27\sqrt{70}i}{2800} & 0 & -\frac{13\sqrt{42}i}{560} & 0 & \frac{23\sqrt{210}i}{2800} & 0 \\ -\frac{\sqrt{7}i}{112} & 0 & -\frac{3\sqrt{70}i}{560} & 0 & -\frac{\sqrt{35}i}{560} & 0 & 0 & \frac{\sqrt{42}i}{112} & 0 & \frac{9\sqrt{210}i}{560} & 0 & \frac{3\sqrt{14}i}{112} & 0 & -\frac{\sqrt{6}i}{80} \end{bmatrix}$$

$$\boxed{\text{x347}} \quad \mathbb{T}_{5,2}^{(1,-1;a)}(E_u, 2) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{210}}{800} & 0 & \frac{\sqrt{42}}{160} & 0 & -\frac{9\sqrt{70}}{800} & 0 & \frac{\sqrt{30}}{160} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{9\sqrt{10}}{800} & 0 & -\frac{3\sqrt{210}}{800} & 0 & -\frac{3\sqrt{14}}{160} & 0 & \frac{9\sqrt{70}}{800} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{9\sqrt{70}}{800} & 0 & \frac{3\sqrt{14}}{160} & 0 & \frac{3\sqrt{210}}{800} & 0 & -\frac{9\sqrt{10}}{800} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}}{160} & 0 & \frac{9\sqrt{70}}{800} & 0 & -\frac{\sqrt{42}}{160} & 0 & -\frac{\sqrt{210}}{800} & 0 \\ 0 & -\frac{\sqrt{35}}{560} & 0 & \frac{3\sqrt{70}}{560} & 0 & -\frac{\sqrt{7}}{112} & -\frac{\sqrt{6}}{80} & 0 & -\frac{3\sqrt{14}}{112} & 0 & \frac{9\sqrt{210}}{560} & 0 & -\frac{\sqrt{42}}{112} & 0 \\ \frac{\sqrt{35}}{560} & 0 & \frac{\sqrt{14}}{112} & 0 & -\frac{3\sqrt{7}}{112} & 0 & 0 & \frac{23\sqrt{210}}{2800} & 0 & \frac{13\sqrt{42}}{560} & 0 & -\frac{27\sqrt{70}}{2800} & 0 & -\frac{\sqrt{30}}{80} \\ 0 & -\frac{\sqrt{14}}{112} & 0 & -\frac{\sqrt{7}}{56} & 0 & \frac{3\sqrt{70}}{560} & \frac{9\sqrt{15}}{200} & 0 & -\frac{33\sqrt{35}}{1400} & 0 & -\frac{\sqrt{21}}{280} & 0 & -\frac{27\sqrt{105}}{1400} & 0 \\ -\frac{3\sqrt{70}}{560} & 0 & \frac{\sqrt{7}}{56} & 0 & \frac{\sqrt{14}}{112} & 0 & 0 & -\frac{27\sqrt{105}}{1400} & 0 & -\frac{\sqrt{21}}{280} & 0 & -\frac{33\sqrt{35}}{1400} & 0 & \frac{9\sqrt{15}}{200} \\ 0 & \frac{3\sqrt{7}}{112} & 0 & -\frac{\sqrt{14}}{112} & 0 & -\frac{\sqrt{35}}{560} & -\frac{\sqrt{30}}{80} & 0 & -\frac{27\sqrt{70}}{2800} & 0 & \frac{13\sqrt{42}}{560} & 0 & \frac{23\sqrt{210}}{2800} & 0 \\ \frac{\sqrt{7}}{112} & 0 & -\frac{3\sqrt{70}}{560} & 0 & \frac{\sqrt{35}}{560} & 0 & 0 & -\frac{\sqrt{42}}{112} & 0 & \frac{9\sqrt{210}}{560} & 0 & -\frac{3\sqrt{14}}{112} & 0 & -\frac{\sqrt{6}}{80} \end{bmatrix}$$

$$\boxed{\text{x348}} \quad \mathbb{T}_{5,1}^{(1,-1;a)}(E_u, 3) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}i}{400} & 0 & \frac{\sqrt{14}i}{80} & 0 & -\frac{\sqrt{210}i}{400} & 0 & -\frac{3\sqrt{10}i}{80} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}i}{400} & 0 & \frac{3\sqrt{70}i}{400} & 0 & -\frac{\sqrt{42}i}{80} & 0 & \frac{\sqrt{210}i}{400} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{210}i}{400} & 0 & -\frac{\sqrt{42}i}{80} & 0 & \frac{3\sqrt{70}i}{400} & 0 & -\frac{\sqrt{30}i}{400} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{10}i}{80} & 0 & -\frac{\sqrt{210}i}{400} & 0 & \frac{\sqrt{14}i}{80} & 0 & -\frac{\sqrt{70}i}{400} & 0 \\ 0 & -\frac{\sqrt{105}i}{840} & 0 & \frac{\sqrt{210}i}{840} & 0 & \frac{\sqrt{21}i}{56} & \frac{\sqrt{2}i}{40} & 0 & -\frac{\sqrt{42}i}{56} & 0 & \frac{3\sqrt{70}i}{280} & 0 & \frac{3\sqrt{14}i}{56} & 0 \\ -\frac{\sqrt{105}i}{840} & 0 & \frac{\sqrt{42}i}{168} & 0 & -\frac{\sqrt{21}i}{168} & 0 & 0 & -\frac{23\sqrt{70}i}{1400} & 0 & \frac{13\sqrt{14}i}{280} & 0 & -\frac{3\sqrt{210}i}{1400} & 0 & \frac{3\sqrt{10}i}{40} \\ 0 & \frac{\sqrt{42}i}{168} & 0 & -\frac{\sqrt{21}i}{84} & 0 & \frac{\sqrt{210}i}{840} & -\frac{3\sqrt{5}i}{100} & 0 & \frac{11\sqrt{105}i}{700} & 0 & -\frac{\sqrt{7}i}{140} & 0 & -\frac{9\sqrt{35}i}{700} & 0 \\ \frac{\sqrt{210}i}{840} & 0 & -\frac{\sqrt{21}i}{84} & 0 & \frac{\sqrt{42}i}{168} & 0 & 0 & \frac{9\sqrt{35}i}{700} & 0 & \frac{\sqrt{7}i}{140} & 0 & -\frac{11\sqrt{105}i}{700} & 0 & \frac{3\sqrt{5}i}{100} \\ 0 & -\frac{\sqrt{21}i}{168} & 0 & \frac{\sqrt{42}i}{168} & 0 & -\frac{\sqrt{105}i}{840} & -\frac{3\sqrt{10}i}{40} & 0 & \frac{3\sqrt{210}i}{1400} & 0 & -\frac{13\sqrt{14}i}{280} & 0 & \frac{23\sqrt{70}i}{1400} & 0 \\ \frac{\sqrt{21}i}{56} & 0 & \frac{\sqrt{210}i}{840} & 0 & -\frac{\sqrt{105}i}{840} & 0 & 0 & -\frac{3\sqrt{14}i}{56} & 0 & -\frac{3\sqrt{70}i}{280} & 0 & \frac{\sqrt{42}i}{56} & 0 & -\frac{\sqrt{2}i}{40} \end{bmatrix}$$

$$\boxed{\text{x349}} \quad \mathbb{T}_{5,2}^{(1,-1;a)}(E_u, 3) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{70}}{400} & 0 & \frac{\sqrt{14}}{80} & 0 & \frac{\sqrt{210}}{400} & 0 & -\frac{3\sqrt{10}}{80} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}}{400} & 0 & -\frac{3\sqrt{70}}{400} & 0 & -\frac{\sqrt{42}}{80} & 0 & -\frac{\sqrt{210}}{400} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{210}}{400} & 0 & \frac{\sqrt{42}}{80} & 0 & \frac{3\sqrt{70}}{400} & 0 & \frac{\sqrt{30}}{400} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{10}}{80} & 0 & -\frac{\sqrt{210}}{400} & 0 & -\frac{\sqrt{14}}{80} & 0 & -\frac{\sqrt{70}}{400} & 0 \\ 0 & -\frac{\sqrt{105}}{840} & 0 & -\frac{\sqrt{210}}{840} & 0 & \frac{\sqrt{21}}{56} & -\frac{\sqrt{2}}{40} & 0 & -\frac{\sqrt{42}}{56} & 0 & -\frac{3\sqrt{70}}{280} & 0 & \frac{3\sqrt{14}}{56} & 0 \\ \frac{\sqrt{105}}{840} & 0 & \frac{\sqrt{42}}{168} & 0 & \frac{\sqrt{21}}{168} & 0 & 0 & \frac{23\sqrt{70}}{1400} & 0 & \frac{13\sqrt{14}}{280} & 0 & \frac{3\sqrt{210}}{1400} & 0 & \frac{3\sqrt{10}}{40} \\ 0 & -\frac{\sqrt{42}}{168} & 0 & -\frac{\sqrt{21}}{84} & 0 & -\frac{\sqrt{210}}{840} & -\frac{3\sqrt{5}}{100} & 0 & -\frac{11\sqrt{105}}{700} & 0 & -\frac{\sqrt{7}}{140} & 0 & \frac{9\sqrt{35}}{700} & 0 \\ \frac{\sqrt{210}}{840} & 0 & \frac{\sqrt{21}}{84} & 0 & \frac{\sqrt{42}}{168} & 0 & 0 & \frac{9\sqrt{35}}{700} & 0 & -\frac{\sqrt{7}}{140} & 0 & -\frac{11\sqrt{105}}{700} & 0 & -\frac{3\sqrt{5}}{100} \\ 0 & -\frac{\sqrt{21}}{168} & 0 & -\frac{\sqrt{42}}{168} & 0 & -\frac{\sqrt{105}}{840} & \frac{3\sqrt{10}}{40} & 0 & \frac{3\sqrt{210}}{1400} & 0 & \frac{13\sqrt{14}}{280} & 0 & \frac{23\sqrt{70}}{1400} & 0 \\ -\frac{\sqrt{21}}{56} & 0 & \frac{\sqrt{210}}{840} & 0 & \frac{\sqrt{105}}{840} & 0 & 0 & \frac{3\sqrt{14}}{56} & 0 & -\frac{3\sqrt{70}}{280} & 0 & -\frac{\sqrt{42}}{56} & 0 & -\frac{\sqrt{2}}{40} \end{bmatrix}$$

$$\boxed{\text{x350}} \quad \mathbb{T}_5^{(1,0;a)}(A_{1u}) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}}{50} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{10}}{50} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{10}}{50} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}}{50} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{3\sqrt{35}}{70} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}}{140} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{35}}{70} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}}{2100} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{150} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{150} & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{3\sqrt{35}}{70} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{210}}{2100} & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{3\sqrt{35}}{70} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}}{140} & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x351}} \quad \mathbb{T}_1^{(1,0;a)}(A_{2u}) = \begin{bmatrix} 0 & \frac{\sqrt{2}i}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{3}i}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{3}i}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{3\sqrt{2}i}{14} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{14} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{9\sqrt{2}i}{70} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{14} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{3\sqrt{2}i}{70} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}i}{14} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{3\sqrt{2}i}{70} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}i}{14} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{9\sqrt{2}i}{70} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{14} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{2}i}{14} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{14} & 0 \end{bmatrix}$$

$$\boxed{\text{x352}} \quad \mathbb{T}_3^{(1,0;a)}(A_{2u}) = \begin{bmatrix} 0 & -\frac{3\sqrt{7}i}{140} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{70}i}{28} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{42}i}{140} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}i}{28} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{42}i}{140} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}i}{28} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{3\sqrt{7}i}{140} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}i}{28} & 0 & 0 \\ \frac{\sqrt{7}i}{14} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{42}i}{84} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{7}i}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{2\sqrt{7}i}{35} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}i}{84} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{2\sqrt{7}i}{35} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}i}{84} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{7}i}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}i}{14} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{42}i}{84} & 0 \end{bmatrix}$$

$$\boxed{\text{x353}} \quad \mathbb{T}_5^{(1,0;a)}(A_{2u}, 1) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{10} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{10}i}{10} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}i}{10} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{10} & 0 & 0 \\ -\frac{\sqrt{5}i}{70} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}i}{420} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{5}i}{14} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{2}i}{140} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{5}i}{7} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{210} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{5}i}{7} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{210} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{14} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{2}i}{140} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}i}{70} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}i}{420} & 0 \end{bmatrix}$$

$$\boxed{\text{x354}} \quad \mathbb{T}_5^{(1,0;a)}(A_{2u}, 2) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}i}{50} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{10}i}{50} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{10}i}{50} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{210}i}{50} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{3\sqrt{35}i}{70} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}i}{140} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{35}i}{70} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}i}{2100} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{150} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{150} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{3\sqrt{35}i}{70} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}i}{2100} & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{3\sqrt{35}i}{70} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}i}{140} & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x355}} \quad \mathbb{T}_3^{(1,0;a)}(B_{1u}) = \begin{bmatrix} 0 & 0 & 0 & -\frac{\sqrt{210}}{280} & 0 & 0 & -\frac{\sqrt{2}}{8} & 0 & 0 & 0 & \frac{\sqrt{70}}{56} & 0 & 0 & 0 \\ -\frac{\sqrt{7}}{56} & 0 & 0 & 0 & -\frac{\sqrt{35}}{280} & 0 & 0 & \frac{\sqrt{42}}{56} & 0 & 0 & 0 & \frac{3\sqrt{14}}{56} & 0 & 0 \\ 0 & \frac{\sqrt{35}}{280} & 0 & 0 & 0 & \frac{\sqrt{7}}{56} & 0 & 0 & \frac{3\sqrt{14}}{56} & 0 & 0 & 0 & \frac{\sqrt{42}}{56} & 0 \\ 0 & 0 & \frac{\sqrt{210}}{280} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{70}}{56} & 0 & 0 & 0 & -\frac{\sqrt{2}}{8} \\ 0 & 0 & \frac{\sqrt{42}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}}{84} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{210}}{140} & 0 & 0 & \frac{\sqrt{2}}{24} & 0 & 0 & 0 & \frac{\sqrt{70}}{168} & 0 & 0 & 0 \\ -\frac{\sqrt{42}}{28} & 0 & 0 & 0 & -\frac{\sqrt{210}}{140} & 0 & 0 & \frac{\sqrt{7}}{168} & 0 & 0 & 0 & \frac{\sqrt{21}}{168} & 0 & 0 \\ 0 & -\frac{\sqrt{210}}{140} & 0 & 0 & 0 & -\frac{\sqrt{42}}{28} & 0 & 0 & -\frac{\sqrt{21}}{168} & 0 & 0 & 0 & -\frac{\sqrt{7}}{168} & 0 \\ 0 & 0 & \frac{\sqrt{210}}{140} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}}{168} & 0 & 0 & 0 & -\frac{\sqrt{2}}{24} \\ 0 & 0 & 0 & \frac{\sqrt{42}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}}{84} & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x356}} \quad \mathbb{T}_5^{(1,0;a)}(B_{1u}) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}}{100} & 0 & 0 & 0 & \frac{\sqrt{14}}{20} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{210}}{100} & 0 & 0 & 0 & -\frac{3\sqrt{70}}{100} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{70}}{100} & 0 & 0 & 0 & \frac{\sqrt{210}}{100} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}}{20} & 0 & 0 & 0 & -\frac{\sqrt{10}}{100} \\ 0 & 0 & \frac{\sqrt{210}}{140} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{70}}{420} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{42}}{28} & 0 & 0 & \frac{\sqrt{10}}{300} & 0 & 0 & 0 & -\frac{\sqrt{14}}{210} & 0 & 0 & 0 \\ -\frac{\sqrt{210}}{140} & 0 & 0 & 0 & \frac{\sqrt{42}}{28} & 0 & 0 & -\frac{2\sqrt{35}}{525} & 0 & 0 & 0 & -\frac{\sqrt{105}}{1050} & 0 & 0 \\ 0 & \frac{\sqrt{42}}{28} & 0 & 0 & 0 & -\frac{\sqrt{210}}{140} & 0 & 0 & \frac{\sqrt{105}}{1050} & 0 & 0 & 0 & \frac{2\sqrt{35}}{525} & 0 \\ 0 & 0 & -\frac{\sqrt{42}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}}{210} & 0 & 0 & 0 & -\frac{\sqrt{10}}{300} \\ 0 & 0 & 0 & \frac{\sqrt{210}}{140} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}}{420} & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x357}} \quad \mathbb{T}_3^{(1,0;a)}(B_{2u}) = \begin{bmatrix} 0 & 0 & 0 & -\frac{\sqrt{210}i}{280} & 0 & 0 & \frac{\sqrt{2}i}{8} & 0 & 0 & 0 & \frac{\sqrt{70}i}{56} & 0 & 0 & 0 \\ \frac{\sqrt{7}i}{56} & 0 & 0 & 0 & -\frac{\sqrt{35}i}{280} & 0 & 0 & -\frac{\sqrt{42}i}{56} & 0 & 0 & 0 & \frac{3\sqrt{14}i}{56} & 0 & 0 \\ 0 & -\frac{\sqrt{35}i}{280} & 0 & 0 & 0 & \frac{\sqrt{7}i}{56} & 0 & 0 & -\frac{3\sqrt{14}i}{56} & 0 & 0 & 0 & \frac{\sqrt{42}i}{56} & 0 \\ 0 & 0 & -\frac{\sqrt{210}i}{280} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}i}{56} & 0 & 0 & 0 & -\frac{\sqrt{2}i}{8} \\ 0 & 0 & \frac{\sqrt{42}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}i}{84} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{210}i}{140} & 0 & 0 & -\frac{\sqrt{2}i}{24} & 0 & 0 & 0 & \frac{\sqrt{70}i}{168} & 0 & 0 & 0 \\ \frac{\sqrt{42}i}{28} & 0 & 0 & 0 & -\frac{\sqrt{210}i}{140} & 0 & 0 & -\frac{\sqrt{7}i}{168} & 0 & 0 & 0 & \frac{\sqrt{21}i}{168} & 0 & 0 \\ 0 & \frac{\sqrt{210}i}{140} & 0 & 0 & 0 & -\frac{\sqrt{42}i}{28} & 0 & 0 & \frac{\sqrt{21}i}{168} & 0 & 0 & 0 & -\frac{\sqrt{7}i}{168} & 0 \\ 0 & 0 & -\frac{\sqrt{210}i}{140} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{70}i}{168} & 0 & 0 & 0 & -\frac{\sqrt{2}i}{24} \\ 0 & 0 & 0 & -\frac{\sqrt{42}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}i}{84} & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x358}} \quad \mathbb{T}_5^{(1,0;a)}(B_{2u}) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}i}{100} & 0 & 0 & 0 & -\frac{\sqrt{14}i}{20} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{210}i}{100} & 0 & 0 & 0 & \frac{3\sqrt{70}i}{100} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{70}i}{100} & 0 & 0 & 0 & -\frac{\sqrt{210}i}{100} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}i}{20} & 0 & 0 & 0 & \frac{\sqrt{10}i}{100} \\ 0 & 0 & -\frac{\sqrt{210}i}{140} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}i}{420} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{42}i}{28} & 0 & 0 & \frac{\sqrt{10}i}{300} & 0 & 0 & 0 & \frac{\sqrt{14}i}{210} & 0 & 0 & 0 \\ -\frac{\sqrt{210}i}{140} & 0 & 0 & 0 & -\frac{\sqrt{42}i}{28} & 0 & 0 & -\frac{2\sqrt{35}i}{525} & 0 & 0 & 0 & \frac{\sqrt{105}i}{1050} & 0 & 0 \\ 0 & \frac{\sqrt{42}i}{28} & 0 & 0 & 0 & \frac{\sqrt{210}i}{140} & 0 & 0 & \frac{\sqrt{105}i}{1050} & 0 & 0 & 0 & -\frac{2\sqrt{35}i}{525} & 0 \\ 0 & 0 & -\frac{\sqrt{42}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}i}{210} & 0 & 0 & 0 & \frac{\sqrt{10}i}{300} \\ 0 & 0 & 0 & \frac{\sqrt{210}i}{140} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}i}{420} & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x359}} \quad \mathbb{T}_{1,1}^{(1,0;a)}(E_u) = \begin{bmatrix} -\frac{\sqrt{10}i}{20} & 0 & \frac{i}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{6}i}{20} & 0 & \frac{\sqrt{3}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{3}i}{20} & 0 & \frac{\sqrt{6}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{i}{20} & 0 & \frac{\sqrt{10}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{3\sqrt{10}i}{70} & 0 & 0 & 0 & 0 & \frac{\sqrt{21}i}{28} & 0 & -\frac{i}{28} & 0 & 0 & 0 & 0 & 0 \\ -\frac{3\sqrt{10}i}{70} & 0 & -\frac{6i}{35} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{28} & 0 & -\frac{\sqrt{3}i}{28} & 0 & 0 & 0 & 0 \\ 0 & -\frac{6i}{35} & 0 & -\frac{9\sqrt{2}i}{70} & 0 & 0 & 0 & 0 & \frac{\sqrt{10}i}{28} & 0 & -\frac{\sqrt{6}i}{28} & 0 & 0 & 0 \\ 0 & 0 & -\frac{9\sqrt{2}i}{70} & 0 & -\frac{6i}{35} & 0 & 0 & 0 & 0 & \frac{\sqrt{6}i}{28} & 0 & -\frac{\sqrt{10}i}{28} & 0 & 0 \\ 0 & 0 & 0 & -\frac{6i}{35} & 0 & -\frac{3\sqrt{10}i}{70} & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{28} & 0 & -\frac{\sqrt{15}i}{28} & 0 \\ 0 & 0 & 0 & 0 & -\frac{3\sqrt{10}i}{70} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{i}{28} & 0 & -\frac{\sqrt{21}i}{28} \end{bmatrix}$$

$$\boxed{\text{x360}} \quad \mathbb{T}_{1,2}^{(1,0;a)}(E_u) = \begin{bmatrix} \frac{\sqrt{10}}{20} & 0 & \frac{1}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{6}}{20} & 0 & \frac{\sqrt{3}}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{3}}{20} & 0 & \frac{\sqrt{6}}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{1}{20} & 0 & \frac{\sqrt{10}}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{3\sqrt{10}}{70} & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}}{28} & 0 & -\frac{1}{28} & 0 & 0 & 0 & 0 & 0 \\ \frac{3\sqrt{10}}{70} & 0 & -\frac{6}{35} & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{28} & 0 & -\frac{\sqrt{3}}{28} & 0 & 0 & 0 & 0 \\ 0 & \frac{6}{35} & 0 & -\frac{9\sqrt{2}}{70} & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}}{28} & 0 & -\frac{\sqrt{6}}{28} & 0 & 0 & 0 \\ 0 & 0 & \frac{9\sqrt{2}}{70} & 0 & -\frac{6}{35} & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{28} & 0 & -\frac{\sqrt{10}}{28} & 0 & 0 \\ 0 & 0 & 0 & \frac{6}{35} & 0 & -\frac{3\sqrt{10}}{70} & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{28} & 0 & -\frac{\sqrt{15}}{28} & 0 \\ 0 & 0 & 0 & 0 & \frac{3\sqrt{10}}{70} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{1}{28} & 0 & -\frac{\sqrt{21}}{28} \end{bmatrix}$$

$$\boxed{\text{x361}} \quad \mathbb{T}_{3,1}^{(1,0;a)}(E_u, 1) = \begin{bmatrix} -\frac{3\sqrt{35}i}{1120} & 0 & \frac{9\sqrt{14}i}{1120} & 0 & -\frac{3\sqrt{7}i}{224} & 0 & 0 & \frac{\sqrt{210}i}{112} & 0 & -\frac{\sqrt{42}i}{56} & 0 & \frac{\sqrt{70}i}{112} & 0 & 0 \\ 0 & \frac{\sqrt{21}i}{160} & 0 & -\frac{\sqrt{42}i}{1120} & 0 & -\frac{\sqrt{105}i}{224} & \frac{\sqrt{10}i}{16} & 0 & 0 & 0 & -\frac{3\sqrt{14}i}{112} & 0 & \frac{\sqrt{70}i}{56} & 0 \\ \frac{\sqrt{105}i}{224} & 0 & \frac{\sqrt{42}i}{1120} & 0 & -\frac{\sqrt{21}i}{160} & 0 & 0 & \frac{\sqrt{70}i}{56} & 0 & -\frac{3\sqrt{14}i}{112} & 0 & 0 & 0 & \frac{\sqrt{10}i}{16} \\ 0 & \frac{3\sqrt{7}i}{224} & 0 & -\frac{9\sqrt{14}i}{1120} & 0 & \frac{3\sqrt{35}i}{1120} & 0 & 0 & \frac{\sqrt{70}i}{112} & 0 & -\frac{\sqrt{42}i}{56} & 0 & \frac{\sqrt{210}i}{112} & 0 \\ 0 & -\frac{3\sqrt{35}i}{140} & 0 & \frac{\sqrt{70}i}{56} & 0 & 0 & \frac{\sqrt{6}i}{96} & 0 & -\frac{\sqrt{14}i}{112} & 0 & \frac{\sqrt{210}i}{672} & 0 & 0 & 0 \\ -\frac{3\sqrt{35}i}{140} & 0 & \frac{3\sqrt{14}i}{280} & 0 & \frac{\sqrt{7}i}{14} & 0 & 0 & -\frac{\sqrt{210}i}{672} & 0 & -\frac{\sqrt{42}i}{336} & 0 & \frac{\sqrt{70}i}{224} & 0 & 0 \\ 0 & \frac{3\sqrt{14}i}{280} & 0 & \frac{3\sqrt{7}i}{70} & 0 & \frac{\sqrt{70}i}{56} & -\frac{\sqrt{15}i}{96} & 0 & -\frac{\sqrt{35}i}{224} & 0 & \frac{\sqrt{21}i}{672} & 0 & \frac{\sqrt{105}i}{224} & 0 \\ \frac{\sqrt{70}i}{56} & 0 & \frac{3\sqrt{7}i}{70} & 0 & \frac{3\sqrt{14}i}{280} & 0 & 0 & -\frac{\sqrt{105}i}{224} & 0 & -\frac{\sqrt{21}i}{672} & 0 & \frac{\sqrt{35}i}{224} & 0 & \frac{\sqrt{15}i}{96} \\ 0 & \frac{\sqrt{7}i}{14} & 0 & \frac{3\sqrt{14}i}{280} & 0 & -\frac{3\sqrt{35}i}{140} & 0 & 0 & -\frac{\sqrt{70}i}{224} & 0 & \frac{\sqrt{42}i}{336} & 0 & \frac{\sqrt{210}i}{672} & 0 \\ 0 & 0 & \frac{\sqrt{70}i}{56} & 0 & -\frac{3\sqrt{35}i}{140} & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}i}{672} & 0 & \frac{\sqrt{14}i}{112} & 0 & -\frac{\sqrt{6}i}{96} \end{bmatrix}$$

$$\boxed{\text{x362}} \quad \mathbb{T}_{3,2}^{(1,0;a)}(E_u, 1) = \begin{bmatrix} \frac{3\sqrt{35}}{1120} & 0 & \frac{9\sqrt{14}}{1120} & 0 & \frac{3\sqrt{7}}{224} & 0 & 0 & -\frac{\sqrt{210}}{112} & 0 & -\frac{\sqrt{42}}{56} & 0 & -\frac{\sqrt{70}}{112} & 0 & 0 \\ 0 & -\frac{\sqrt{21}}{160} & 0 & -\frac{\sqrt{42}}{1120} & 0 & \frac{\sqrt{105}}{224} & \frac{\sqrt{10}}{16} & 0 & 0 & 0 & -\frac{3\sqrt{14}}{112} & 0 & -\frac{\sqrt{70}}{56} & 0 \\ \frac{\sqrt{105}}{224} & 0 & -\frac{\sqrt{42}}{1120} & 0 & -\frac{\sqrt{21}}{160} & 0 & 0 & \frac{\sqrt{70}}{56} & 0 & \frac{3\sqrt{14}}{112} & 0 & 0 & 0 & -\frac{\sqrt{10}}{16} \\ 0 & \frac{3\sqrt{7}}{224} & 0 & \frac{9\sqrt{14}}{1120} & 0 & \frac{3\sqrt{35}}{1120} & 0 & \frac{\sqrt{70}}{112} & 0 & \frac{\sqrt{42}}{56} & 0 & \frac{\sqrt{210}}{112} & 0 & 0 \\ 0 & -\frac{3\sqrt{35}}{140} & 0 & -\frac{\sqrt{70}}{56} & 0 & 0 & -\frac{\sqrt{6}}{96} & 0 & -\frac{\sqrt{14}}{112} & 0 & -\frac{\sqrt{210}}{672} & 0 & 0 & 0 \\ \frac{3\sqrt{35}}{140} & 0 & \frac{3\sqrt{14}}{280} & 0 & -\frac{\sqrt{7}}{14} & 0 & 0 & \frac{\sqrt{210}}{672} & 0 & -\frac{\sqrt{42}}{336} & 0 & -\frac{\sqrt{70}}{224} & 0 & 0 \\ 0 & -\frac{3\sqrt{14}}{280} & 0 & \frac{3\sqrt{7}}{70} & 0 & -\frac{\sqrt{70}}{56} & -\frac{\sqrt{15}}{96} & 0 & \frac{\sqrt{35}}{224} & 0 & \frac{\sqrt{21}}{672} & 0 & -\frac{\sqrt{105}}{224} & 0 \\ \frac{\sqrt{70}}{56} & 0 & -\frac{3\sqrt{7}}{70} & 0 & \frac{3\sqrt{14}}{280} & 0 & 0 & -\frac{\sqrt{105}}{224} & 0 & \frac{\sqrt{21}}{672} & 0 & \frac{\sqrt{35}}{224} & 0 & -\frac{\sqrt{15}}{96} \\ 0 & \frac{\sqrt{7}}{14} & 0 & -\frac{3\sqrt{14}}{280} & 0 & -\frac{3\sqrt{35}}{140} & 0 & 0 & -\frac{\sqrt{70}}{224} & 0 & -\frac{\sqrt{42}}{336} & 0 & \frac{\sqrt{210}}{672} & 0 \\ 0 & 0 & \frac{\sqrt{70}}{56} & 0 & \frac{3\sqrt{35}}{140} & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}}{672} & 0 & -\frac{\sqrt{14}}{112} & 0 & -\frac{\sqrt{6}}{96} \end{bmatrix}$$

$$\boxed{\text{x363}} \quad \mathbb{T}_{3,1}^{(1,0;a)}(E_u, 2) = \begin{bmatrix} -\frac{\sqrt{21}i}{224} & 0 & \frac{3\sqrt{210}i}{1120} & 0 & \frac{3\sqrt{105}i}{1120} & 0 & 0 & \frac{5\sqrt{14}i}{112} & 0 & -\frac{\sqrt{70}i}{56} & 0 & -\frac{\sqrt{42}i}{112} & 0 & 0 \\ 0 & \frac{\sqrt{35}i}{160} & 0 & -\frac{\sqrt{70}i}{1120} & 0 & \frac{3\sqrt{7}i}{224} & -\frac{\sqrt{6}i}{16} & 0 & 0 & 0 & -\frac{\sqrt{210}i}{112} & 0 & -\frac{\sqrt{42}i}{56} & 0 \\ -\frac{3\sqrt{7}i}{224} & 0 & \frac{\sqrt{70}i}{1120} & 0 & -\frac{\sqrt{35}i}{160} & 0 & 0 & -\frac{\sqrt{42}i}{56} & 0 & -\frac{\sqrt{210}i}{112} & 0 & 0 & 0 & -\frac{\sqrt{6}i}{16} \\ 0 & -\frac{3\sqrt{105}i}{1120} & 0 & -\frac{3\sqrt{210}i}{1120} & 0 & \frac{\sqrt{21}i}{224} & 0 & 0 & -\frac{\sqrt{42}i}{112} & 0 & -\frac{\sqrt{70}i}{56} & 0 & \frac{5\sqrt{14}i}{112} & 0 \\ 0 & -\frac{\sqrt{21}i}{28} & 0 & -\frac{\sqrt{42}i}{56} & 0 & 0 & \frac{\sqrt{10}i}{96} & 0 & -\frac{\sqrt{210}i}{336} & 0 & -\frac{\sqrt{14}i}{224} & 0 & 0 & 0 \\ -\frac{\sqrt{21}i}{28} & 0 & \frac{\sqrt{210}i}{280} & 0 & -\frac{\sqrt{105}i}{70} & 0 & 0 & -\frac{5\sqrt{14}i}{672} & 0 & -\frac{\sqrt{70}i}{336} & 0 & -\frac{\sqrt{42}i}{224} & 0 & 0 \\ 0 & \frac{\sqrt{210}i}{280} & 0 & \frac{\sqrt{105}i}{70} & 0 & -\frac{\sqrt{42}i}{56} & \frac{i}{32} & 0 & -\frac{5\sqrt{21}i}{672} & 0 & \frac{\sqrt{35}i}{672} & 0 & -\frac{3\sqrt{7}i}{224} & 0 \\ -\frac{\sqrt{42}i}{56} & 0 & \frac{\sqrt{105}i}{70} & 0 & \frac{\sqrt{210}i}{280} & 0 & 0 & \frac{3\sqrt{7}i}{224} & 0 & -\frac{\sqrt{35}i}{672} & 0 & \frac{5\sqrt{21}i}{672} & 0 & -\frac{i}{32} \\ 0 & -\frac{\sqrt{105}i}{70} & 0 & \frac{\sqrt{210}i}{280} & 0 & -\frac{\sqrt{21}i}{28} & 0 & 0 & \frac{\sqrt{42}i}{224} & 0 & \frac{\sqrt{70}i}{336} & 0 & \frac{5\sqrt{14}i}{672} & 0 \\ 0 & 0 & -\frac{\sqrt{42}i}{56} & 0 & -\frac{\sqrt{21}i}{28} & 0 & 0 & 0 & 0 & \frac{\sqrt{14}i}{224} & 0 & \frac{\sqrt{210}i}{336} & 0 & -\frac{\sqrt{10}i}{96} \end{bmatrix}$$

$$\begin{aligned}
\boxed{\text{x364}} \quad \mathbb{T}_{3,2}^{(1,0;a)}(E_u, 2) &= \begin{bmatrix} \frac{\sqrt{21}}{224} & 0 & \frac{3\sqrt{210}}{1120} & 0 & -\frac{3\sqrt{105}}{1120} & 0 & 0 & -\frac{5\sqrt{14}}{112} & 0 & -\frac{\sqrt{70}}{56} & 0 & \frac{\sqrt{42}}{112} & 0 & 0 \\ 0 & -\frac{\sqrt{35}}{160} & 0 & -\frac{\sqrt{70}}{1120} & 0 & -\frac{3\sqrt{7}}{224} & -\frac{\sqrt{6}}{16} & 0 & 0 & 0 & -\frac{\sqrt{210}}{112} & 0 & \frac{\sqrt{42}}{56} & 0 \\ -\frac{3\sqrt{7}}{224} & 0 & -\frac{\sqrt{70}}{1120} & 0 & -\frac{\sqrt{35}}{160} & 0 & 0 & -\frac{\sqrt{42}}{56} & 0 & \frac{\sqrt{210}}{112} & 0 & 0 & 0 & \frac{\sqrt{6}}{16} \\ 0 & -\frac{3\sqrt{105}}{1120} & 0 & \frac{3\sqrt{210}}{1120} & 0 & \frac{\sqrt{21}}{224} & 0 & 0 & -\frac{\sqrt{42}}{112} & 0 & \frac{\sqrt{70}}{56} & 0 & \frac{5\sqrt{14}}{112} & 0 \\ 0 & -\frac{\sqrt{21}}{28} & 0 & \frac{\sqrt{42}}{56} & 0 & 0 & -\frac{\sqrt{10}}{96} & 0 & -\frac{\sqrt{210}}{336} & 0 & \frac{\sqrt{14}}{224} & 0 & 0 & 0 \\ \frac{\sqrt{21}}{28} & 0 & \frac{\sqrt{210}}{280} & 0 & \frac{\sqrt{105}}{70} & 0 & 0 & \frac{5\sqrt{14}}{672} & 0 & -\frac{\sqrt{70}}{336} & 0 & \frac{\sqrt{42}}{224} & 0 & 0 \\ 0 & -\frac{\sqrt{210}}{280} & 0 & \frac{\sqrt{105}}{70} & 0 & \frac{\sqrt{42}}{56} & \frac{1}{32} & 0 & \frac{5\sqrt{21}}{672} & 0 & \frac{\sqrt{35}}{672} & 0 & \frac{3\sqrt{7}}{224} & 0 \\ -\frac{\sqrt{42}}{56} & 0 & -\frac{\sqrt{105}}{70} & 0 & \frac{\sqrt{210}}{280} & 0 & 0 & \frac{3\sqrt{7}}{224} & 0 & \frac{\sqrt{35}}{672} & 0 & \frac{5\sqrt{21}}{672} & 0 & \frac{1}{32} \\ 0 & -\frac{\sqrt{105}}{70} & 0 & -\frac{\sqrt{210}}{280} & 0 & -\frac{\sqrt{21}}{28} & 0 & 0 & \frac{\sqrt{42}}{224} & 0 & -\frac{\sqrt{70}}{336} & 0 & \frac{5\sqrt{14}}{672} & 0 \\ 0 & 0 & -\frac{\sqrt{42}}{56} & 0 & \frac{\sqrt{21}}{28} & 0 & 0 & 0 & 0 & \frac{\sqrt{14}}{224} & 0 & -\frac{\sqrt{210}}{336} & 0 & -\frac{\sqrt{10}}{96} \end{bmatrix} \\
\boxed{\text{x365}} \quad \mathbb{T}_{5,1}^{(1,0;a)}(E_u, 1) &= \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}i}{80} & 0 & -\frac{\sqrt{30}i}{80} & 0 & \frac{7\sqrt{2}i}{80} & 0 & -\frac{3\sqrt{42}i}{80} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}i}{80} & 0 & -\frac{3\sqrt{6}i}{80} & 0 & \frac{3\sqrt{10}i}{80} & 0 & -\frac{7\sqrt{2}i}{80} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{7\sqrt{2}i}{80} & 0 & \frac{3\sqrt{10}i}{80} & 0 & -\frac{3\sqrt{6}i}{80} & 0 & \frac{\sqrt{14}i}{80} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{42}i}{80} & 0 & \frac{7\sqrt{2}i}{80} & 0 & -\frac{\sqrt{30}i}{80} & 0 & \frac{\sqrt{6}i}{80} & 0 \\ 0 & -\frac{3i}{112} & 0 & \frac{\sqrt{2}i}{16} & 0 & -\frac{9\sqrt{5}i}{80} & \frac{\sqrt{210}i}{6720} & 0 & -\frac{\sqrt{10}i}{448} & 0 & \frac{\sqrt{6}i}{192} & 0 & -\frac{\sqrt{30}i}{320} & 0 \\ -\frac{3i}{112} & 0 & \frac{3\sqrt{10}i}{112} & 0 & -\frac{\sqrt{5}i}{16} & 0 & 0 & -\frac{23\sqrt{6}i}{6720} & 0 & \frac{13\sqrt{30}i}{6720} & 0 & -\frac{\sqrt{2}i}{320} & 0 & -\frac{\sqrt{42}i}{320} \\ 0 & \frac{3\sqrt{10}i}{112} & 0 & -\frac{3\sqrt{5}i}{56} & 0 & \frac{\sqrt{2}i}{16} & -\frac{\sqrt{21}i}{480} & 0 & \frac{11i}{1120} & 0 & -\frac{\sqrt{15}i}{3360} & 0 & -\frac{\sqrt{3}i}{160} & 0 \\ \frac{\sqrt{2}i}{16} & 0 & -\frac{3\sqrt{5}i}{56} & 0 & \frac{3\sqrt{10}i}{112} & 0 & 0 & \frac{\sqrt{3}i}{160} & 0 & \frac{\sqrt{15}i}{3360} & 0 & -\frac{11i}{1120} & 0 & \frac{\sqrt{21}i}{480} \\ 0 & -\frac{\sqrt{5}i}{16} & 0 & \frac{3\sqrt{10}i}{112} & 0 & -\frac{3i}{112} & \frac{\sqrt{42}i}{320} & 0 & \frac{\sqrt{2}i}{320} & 0 & -\frac{13\sqrt{30}i}{6720} & 0 & \frac{23\sqrt{6}i}{6720} & 0 \\ -\frac{9\sqrt{5}i}{80} & 0 & \frac{\sqrt{2}i}{16} & 0 & -\frac{3i}{112} & 0 & 0 & \frac{\sqrt{30}i}{320} & 0 & -\frac{\sqrt{6}i}{192} & 0 & \frac{\sqrt{10}i}{448} & 0 & -\frac{\sqrt{210}i}{6720} \end{bmatrix} \\
\boxed{\text{x366}} \quad \mathbb{T}_{5,2}^{(1,0;a)}(E_u, 1) &= \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{80} & 0 & -\frac{\sqrt{30}}{80} & 0 & -\frac{7\sqrt{2}}{80} & 0 & -\frac{3\sqrt{42}}{80} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}}{80} & 0 & \frac{3\sqrt{6}}{80} & 0 & \frac{3\sqrt{10}}{80} & 0 & \frac{7\sqrt{2}}{80} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{7\sqrt{2}}{80} & 0 & -\frac{3\sqrt{10}}{80} & 0 & -\frac{3\sqrt{6}}{80} & 0 & -\frac{\sqrt{14}}{80} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{42}}{80} & 0 & \frac{7\sqrt{2}}{80} & 0 & \frac{\sqrt{30}}{80} & 0 & \frac{\sqrt{6}}{80} & 0 \\ 0 & -\frac{3}{112} & 0 & -\frac{\sqrt{2}}{16} & 0 & -\frac{9\sqrt{5}}{80} & -\frac{\sqrt{210}}{6720} & 0 & -\frac{\sqrt{10}}{448} & 0 & -\frac{\sqrt{6}}{192} & 0 & -\frac{\sqrt{30}}{320} & 0 \\ \frac{3}{112} & 0 & \frac{3\sqrt{10}}{112} & 0 & \frac{\sqrt{5}}{16} & 0 & 0 & \frac{23\sqrt{6}}{6720} & 0 & \frac{13\sqrt{30}}{6720} & 0 & \frac{\sqrt{2}}{320} & 0 & -\frac{\sqrt{42}}{320} \\ 0 & -\frac{3\sqrt{10}}{112} & 0 & -\frac{3\sqrt{5}}{56} & 0 & -\frac{\sqrt{2}}{16} & -\frac{\sqrt{21}}{480} & 0 & -\frac{11}{1120} & 0 & -\frac{\sqrt{15}}{3360} & 0 & \frac{\sqrt{3}}{160} & 0 \\ \frac{\sqrt{2}}{16} & 0 & \frac{3\sqrt{5}}{56} & 0 & \frac{3\sqrt{10}}{112} & 0 & 0 & \frac{\sqrt{3}}{160} & 0 & -\frac{\sqrt{15}}{3360} & 0 & -\frac{11}{1120} & 0 & -\frac{\sqrt{21}}{480} \\ 0 & -\frac{\sqrt{5}}{16} & 0 & -\frac{3\sqrt{10}}{112} & 0 & -\frac{3}{112} & -\frac{\sqrt{42}}{320} & 0 & \frac{\sqrt{2}}{320} & 0 & \frac{13\sqrt{30}}{6720} & 0 & \frac{23\sqrt{6}}{6720} & 0 \\ \frac{9\sqrt{5}}{80} & 0 & \frac{\sqrt{2}}{16} & 0 & \frac{3}{112} & 0 & 0 & -\frac{\sqrt{30}}{320} & 0 & -\frac{\sqrt{6}}{192} & 0 & -\frac{\sqrt{10}}{448} & 0 & -\frac{\sqrt{210}}{6720} \end{bmatrix}
\end{aligned}$$

$$\boxed{\text{x367}} \quad \mathbb{T}_{5,1}^{(1,0;a)}(E_u, 2) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{210}i}{400} & 0 & -\frac{\sqrt{42}i}{80} & 0 & -\frac{9\sqrt{70}i}{400} & 0 & -\frac{\sqrt{30}i}{80} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{9\sqrt{10}i}{400} & 0 & -\frac{3\sqrt{210}i}{400} & 0 & \frac{3\sqrt{14}i}{80} & 0 & \frac{9\sqrt{70}i}{400} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{9\sqrt{70}i}{400} & 0 & \frac{3\sqrt{14}i}{80} & 0 & -\frac{3\sqrt{210}i}{400} & 0 & -\frac{9\sqrt{10}i}{400} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}i}{80} & 0 & -\frac{9\sqrt{70}i}{400} & 0 & -\frac{\sqrt{42}i}{80} & 0 & \frac{\sqrt{210}i}{400} & 0 \\ 0 & -\frac{3\sqrt{35}i}{560} & 0 & -\frac{9\sqrt{70}i}{560} & 0 & -\frac{3\sqrt{7}i}{112} & \frac{\sqrt{6}i}{960} & 0 & -\frac{\sqrt{14}i}{448} & 0 & -\frac{3\sqrt{210}i}{2240} & 0 & -\frac{\sqrt{42}i}{1344} & 0 \\ -\frac{3\sqrt{35}i}{560} & 0 & \frac{3\sqrt{14}i}{112} & 0 & \frac{9\sqrt{7}i}{112} & 0 & 0 & -\frac{23\sqrt{210}i}{33600} & 0 & \frac{13\sqrt{42}i}{6720} & 0 & \frac{9\sqrt{70}i}{11200} & 0 & -\frac{\sqrt{30}i}{960} \\ 0 & \frac{3\sqrt{14}i}{112} & 0 & -\frac{3\sqrt{7}i}{56} & 0 & -\frac{9\sqrt{70}i}{560} & \frac{3\sqrt{15}i}{800} & 0 & \frac{11\sqrt{35}i}{5600} & 0 & -\frac{\sqrt{21}i}{3360} & 0 & \frac{9\sqrt{105}i}{5600} & 0 \\ -\frac{9\sqrt{70}i}{560} & 0 & -\frac{3\sqrt{7}i}{56} & 0 & \frac{3\sqrt{14}i}{112} & 0 & 0 & -\frac{9\sqrt{105}i}{5600} & 0 & \frac{\sqrt{21}i}{3360} & 0 & -\frac{11\sqrt{35}i}{5600} & 0 & -\frac{3\sqrt{15}i}{800} \\ 0 & \frac{9\sqrt{7}i}{112} & 0 & \frac{3\sqrt{14}i}{112} & 0 & -\frac{3\sqrt{35}i}{560} & \frac{\sqrt{30}i}{960} & 0 & -\frac{9\sqrt{70}i}{11200} & 0 & -\frac{13\sqrt{42}i}{6720} & 0 & \frac{23\sqrt{210}i}{33600} & 0 \\ -\frac{3\sqrt{7}i}{112} & 0 & -\frac{9\sqrt{70}i}{560} & 0 & -\frac{3\sqrt{35}i}{560} & 0 & 0 & \frac{\sqrt{42}i}{1344} & 0 & \frac{3\sqrt{210}i}{2240} & 0 & \frac{\sqrt{14}i}{448} & 0 & -\frac{\sqrt{6}i}{960} \end{bmatrix}$$

$$\boxed{\text{x368}} \quad \mathbb{T}_{5,2}^{(1,0;a)}(E_u, 2) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}}{400} & 0 & -\frac{\sqrt{42}}{80} & 0 & \frac{9\sqrt{70}}{400} & 0 & -\frac{\sqrt{30}}{80} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{9\sqrt{10}}{400} & 0 & \frac{3\sqrt{210}}{400} & 0 & \frac{3\sqrt{14}}{80} & 0 & -\frac{9\sqrt{70}}{400} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{9\sqrt{70}}{400} & 0 & -\frac{3\sqrt{14}}{80} & 0 & -\frac{3\sqrt{210}}{400} & 0 & \frac{9\sqrt{10}}{400} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{80} & 0 & -\frac{9\sqrt{70}}{400} & 0 & \frac{\sqrt{42}}{80} & 0 & \frac{\sqrt{210}}{400} & 0 \\ 0 & -\frac{3\sqrt{35}}{560} & 0 & \frac{9\sqrt{70}}{560} & 0 & -\frac{3\sqrt{7}}{112} & -\frac{\sqrt{6}}{960} & 0 & -\frac{\sqrt{14}}{448} & 0 & \frac{3\sqrt{210}}{2240} & 0 & -\frac{\sqrt{42}}{1344} & 0 \\ \frac{3\sqrt{35}}{560} & 0 & \frac{3\sqrt{14}}{112} & 0 & -\frac{9\sqrt{7}}{112} & 0 & 0 & \frac{23\sqrt{210}}{33600} & 0 & \frac{13\sqrt{42}}{6720} & 0 & -\frac{9\sqrt{70}}{11200} & 0 & -\frac{\sqrt{30}}{960} \\ 0 & -\frac{3\sqrt{14}}{112} & 0 & -\frac{3\sqrt{7}}{56} & 0 & \frac{9\sqrt{70}}{560} & \frac{3\sqrt{15}}{800} & 0 & -\frac{11\sqrt{35}}{5600} & 0 & -\frac{\sqrt{21}}{3360} & 0 & -\frac{9\sqrt{105}}{5600} & 0 \\ -\frac{9\sqrt{70}}{560} & 0 & \frac{3\sqrt{7}}{56} & 0 & \frac{3\sqrt{14}}{112} & 0 & 0 & -\frac{9\sqrt{105}}{5600} & 0 & -\frac{\sqrt{21}}{3360} & 0 & -\frac{11\sqrt{35}}{5600} & 0 & \frac{3\sqrt{15}}{800} \\ 0 & \frac{9\sqrt{7}}{112} & 0 & -\frac{3\sqrt{14}}{112} & 0 & -\frac{3\sqrt{35}}{560} & -\frac{\sqrt{30}}{960} & 0 & -\frac{9\sqrt{70}}{11200} & 0 & \frac{13\sqrt{42}}{6720} & 0 & \frac{23\sqrt{210}}{33600} & 0 \\ \frac{3\sqrt{7}}{112} & 0 & -\frac{9\sqrt{70}}{560} & 0 & \frac{3\sqrt{35}}{560} & 0 & 0 & -\frac{\sqrt{42}}{1344} & 0 & \frac{3\sqrt{210}}{2240} & 0 & -\frac{\sqrt{14}}{448} & 0 & -\frac{\sqrt{6}}{960} \end{bmatrix}$$

$$\boxed{\text{x369}} \quad \mathbb{T}_{5,1}^{(1,0;a)}(E_u, 3) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{70}i}{200} & 0 & -\frac{\sqrt{14}i}{40} & 0 & \frac{\sqrt{210}i}{200} & 0 & \frac{3\sqrt{10}i}{40} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{200} & 0 & -\frac{3\sqrt{70}i}{200} & 0 & \frac{\sqrt{42}i}{40} & 0 & -\frac{\sqrt{210}i}{200} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}i}{200} & 0 & \frac{\sqrt{42}i}{40} & 0 & -\frac{3\sqrt{70}i}{200} & 0 & \frac{\sqrt{30}i}{200} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{10}i}{40} & 0 & \frac{\sqrt{210}i}{200} & 0 & -\frac{\sqrt{14}i}{40} & 0 & \frac{\sqrt{70}i}{200} & 0 \\ 0 & -\frac{\sqrt{105}i}{280} & 0 & \frac{\sqrt{210}i}{280} & 0 & \frac{3\sqrt{21}i}{56} & \frac{\sqrt{2}i}{480} & 0 & -\frac{\sqrt{42}i}{672} & 0 & \frac{\sqrt{70}i}{1120} & 0 & \frac{\sqrt{14}i}{224} & 0 \\ -\frac{\sqrt{105}i}{280} & 0 & \frac{\sqrt{42}i}{56} & 0 & -\frac{\sqrt{21}i}{56} & 0 & 0 & -\frac{23\sqrt{70}i}{16800} & 0 & \frac{13\sqrt{14}i}{3360} & 0 & -\frac{\sqrt{210}i}{5600} & 0 & \frac{\sqrt{10}i}{160} \\ 0 & \frac{\sqrt{42}i}{56} & 0 & -\frac{\sqrt{21}i}{28} & 0 & \frac{\sqrt{210}i}{280} & -\frac{\sqrt{5}i}{400} & 0 & \frac{11\sqrt{105}i}{8400} & 0 & -\frac{\sqrt{7}i}{1680} & 0 & -\frac{3\sqrt{35}i}{2800} & 0 \\ \frac{\sqrt{210}i}{280} & 0 & -\frac{\sqrt{21}i}{28} & 0 & \frac{\sqrt{42}i}{56} & 0 & 0 & \frac{3\sqrt{35}i}{2800} & 0 & \frac{\sqrt{7}i}{1680} & 0 & -\frac{11\sqrt{105}i}{8400} & 0 & \frac{\sqrt{5}i}{400} \\ 0 & -\frac{\sqrt{21}i}{56} & 0 & \frac{\sqrt{42}i}{56} & 0 & -\frac{\sqrt{105}i}{280} & -\frac{\sqrt{10}i}{160} & 0 & \frac{\sqrt{210}i}{5600} & 0 & -\frac{13\sqrt{14}i}{3360} & 0 & \frac{23\sqrt{70}i}{16800} & 0 \\ \frac{3\sqrt{21}i}{56} & 0 & \frac{\sqrt{210}i}{280} & 0 & -\frac{\sqrt{105}i}{280} & 0 & 0 & -\frac{\sqrt{14}i}{224} & 0 & -\frac{\sqrt{70}i}{1120} & 0 & \frac{\sqrt{42}i}{672} & 0 & -\frac{\sqrt{2}i}{480} \end{bmatrix}$$



$$\boxed{\text{x370}} \quad \mathbb{T}_{5,2}^{(1,0;a)}(E_u, 3) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}}{200} & 0 & -\frac{\sqrt{14}}{40} & 0 & -\frac{\sqrt{210}}{200} & 0 & \frac{3\sqrt{10}}{40} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{200} & 0 & \frac{3\sqrt{70}}{200} & 0 & \frac{\sqrt{42}}{40} & 0 & \frac{\sqrt{210}}{200} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}}{200} & 0 & -\frac{\sqrt{42}}{40} & 0 & -\frac{3\sqrt{70}}{200} & 0 & -\frac{\sqrt{30}}{200} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{10}}{40} & 0 & \frac{\sqrt{210}}{200} & 0 & \frac{\sqrt{14}}{40} & 0 & \frac{\sqrt{70}}{200} & 0 \\ 0 & -\frac{\sqrt{105}}{280} & 0 & -\frac{\sqrt{210}}{280} & 0 & \frac{3\sqrt{21}}{56} & -\frac{\sqrt{2}}{480} & 0 & -\frac{\sqrt{42}}{672} & 0 & -\frac{\sqrt{70}}{1120} & 0 & \frac{\sqrt{14}}{224} & 0 \\ \frac{\sqrt{105}}{280} & 0 & \frac{\sqrt{42}}{56} & 0 & \frac{\sqrt{21}}{56} & 0 & 0 & \frac{23\sqrt{70}}{16800} & 0 & \frac{13\sqrt{14}}{3360} & 0 & \frac{\sqrt{210}}{5600} & 0 & \frac{\sqrt{10}}{160} \\ 0 & -\frac{\sqrt{42}}{56} & 0 & -\frac{\sqrt{21}}{28} & 0 & -\frac{\sqrt{210}}{280} & -\frac{\sqrt{5}}{400} & 0 & -\frac{11\sqrt{105}}{8400} & 0 & -\frac{\sqrt{7}}{1680} & 0 & \frac{3\sqrt{35}}{2800} & 0 \\ \frac{\sqrt{210}}{280} & 0 & \frac{\sqrt{21}}{28} & 0 & \frac{\sqrt{42}}{56} & 0 & 0 & \frac{3\sqrt{35}}{2800} & 0 & -\frac{\sqrt{7}}{1680} & 0 & -\frac{11\sqrt{105}}{8400} & 0 & -\frac{\sqrt{5}}{400} \\ 0 & -\frac{\sqrt{21}}{56} & 0 & -\frac{\sqrt{42}}{56} & 0 & -\frac{\sqrt{105}}{280} & \frac{\sqrt{10}}{160} & 0 & \frac{\sqrt{210}}{5600} & 0 & \frac{13\sqrt{14}}{3360} & 0 & \frac{23\sqrt{70}}{16800} & 0 \\ -\frac{3\sqrt{21}}{56} & 0 & \frac{\sqrt{210}}{280} & 0 & \frac{\sqrt{105}}{280} & 0 & 0 & \frac{\sqrt{14}}{224} & 0 & -\frac{\sqrt{70}}{1120} & 0 & -\frac{\sqrt{42}}{672} & 0 & -\frac{\sqrt{2}}{480} \end{bmatrix}$$

$$\boxed{\text{x371}} \quad \mathbb{T}_1^{(1,1;a)}(A_{2u}) = \begin{bmatrix} 0 & -\frac{i}{5} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{6}i}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{6}i}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{i}{5} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{2i}{7} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{6i}{35} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{10}i}{28} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{2i}{35} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{14} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{2i}{35} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{14} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{6i}{35} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{10}i}{28} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{2i}{7} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}i}{28} & 0 \end{bmatrix}$$

$$\boxed{\text{x372}} \quad \mathbb{T}_3^{(1,1;a)}(A_{2u}) = \begin{bmatrix} 0 & \frac{9i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}i}{28} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{3\sqrt{6}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{28} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{3\sqrt{6}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{28} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{9i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{10}i}{28} & 0 & 0 \\ \frac{5i}{42} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{i}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{2i}{21} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{28} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{2i}{21} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{28} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{i}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{5i}{42} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}i}{28} & 0 \end{bmatrix}$$

$$\boxed{\text{x373}} \quad \mathbb{T}_3^{(1,1;a)}(B_{1u}) = \begin{bmatrix} 0 & 0 & 0 & \frac{3\sqrt{30}}{56} & 0 & 0 & \frac{\sqrt{14}}{56} & 0 & 0 & 0 & -\frac{\sqrt{10}}{56} & 0 & 0 & 0 \\ \frac{15}{56} & 0 & 0 & 0 & \frac{3\sqrt{5}}{56} & 0 & 0 & -\frac{\sqrt{6}}{56} & 0 & 0 & 0 & -\frac{3\sqrt{2}}{56} & 0 & 0 \\ 0 & -\frac{3\sqrt{5}}{56} & 0 & 0 & 0 & -\frac{15}{56} & 0 & 0 & -\frac{3\sqrt{2}}{56} & 0 & 0 & 0 & -\frac{\sqrt{6}}{56} & 0 \\ 0 & 0 & -\frac{3\sqrt{30}}{56} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}}{56} & 0 & 0 & 0 & \frac{\sqrt{14}}{56} \\ 0 & 0 & \frac{5\sqrt{6}}{84} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}}{28} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{30}}{84} & 0 & 0 & -\frac{\sqrt{14}}{56} & 0 & 0 & 0 & -\frac{\sqrt{10}}{56} & 0 & 0 & 0 \\ -\frac{5\sqrt{6}}{84} & 0 & 0 & 0 & -\frac{\sqrt{30}}{84} & 0 & 0 & -\frac{1}{56} & 0 & 0 & 0 & -\frac{\sqrt{3}}{56} & 0 & 0 \\ 0 & -\frac{\sqrt{30}}{84} & 0 & 0 & 0 & -\frac{5\sqrt{6}}{84} & 0 & 0 & \frac{\sqrt{3}}{56} & 0 & 0 & 0 & \frac{1}{56} & 0 \\ 0 & 0 & \frac{\sqrt{30}}{84} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{10}}{56} & 0 & 0 & 0 & \frac{\sqrt{14}}{56} \\ 0 & 0 & 0 & \frac{5\sqrt{6}}{84} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{28} & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x374}} \quad \mathbb{T}_3^{(1,1;a)}(B_{2u}) = \begin{bmatrix} 0 & 0 & 0 & \frac{3\sqrt{30}i}{56} & 0 & 0 & -\frac{\sqrt{14}i}{56} & 0 & 0 & 0 & -\frac{\sqrt{10}i}{56} & 0 & 0 & 0 \\ -\frac{15i}{56} & 0 & 0 & 0 & \frac{3\sqrt{5}i}{56} & 0 & 0 & \frac{\sqrt{6}i}{56} & 0 & 0 & 0 & -\frac{3\sqrt{2}i}{56} & 0 & 0 \\ 0 & \frac{3\sqrt{5}i}{56} & 0 & 0 & 0 & -\frac{15i}{56} & 0 & 0 & \frac{3\sqrt{2}i}{56} & 0 & 0 & 0 & -\frac{\sqrt{6}i}{56} & 0 \\ 0 & 0 & \frac{3\sqrt{30}i}{56} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{10}i}{56} & 0 & 0 & 0 & \frac{\sqrt{14}i}{56} \\ 0 & 0 & \frac{5\sqrt{6}i}{84} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{28} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{30}i}{84} & 0 & 0 & \frac{\sqrt{14}i}{56} & 0 & 0 & 0 & -\frac{\sqrt{10}i}{56} & 0 & 0 & 0 \\ \frac{5\sqrt{6}i}{84} & 0 & 0 & 0 & -\frac{\sqrt{30}i}{84} & 0 & 0 & \frac{i}{56} & 0 & 0 & 0 & -\frac{\sqrt{3}i}{56} & 0 & 0 \\ 0 & \frac{\sqrt{30}i}{84} & 0 & 0 & 0 & -\frac{5\sqrt{6}i}{84} & 0 & 0 & -\frac{\sqrt{3}i}{56} & 0 & 0 & 0 & \frac{i}{56} & 0 \\ 0 & 0 & -\frac{\sqrt{30}i}{84} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}i}{56} & 0 & 0 & 0 & \frac{\sqrt{14}i}{56} \\ 0 & 0 & 0 & -\frac{5\sqrt{6}i}{84} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{28} & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x375}} \quad \mathbb{T}_{1,1}^{(1,1;a)}(E_u) = \begin{bmatrix} \frac{\sqrt{5}i}{10} & 0 & -\frac{\sqrt{2}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{3}i}{10} & 0 & -\frac{\sqrt{6}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{6}i}{20} & 0 & -\frac{\sqrt{3}i}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{2}i}{20} & 0 & -\frac{\sqrt{5}i}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{2\sqrt{5}i}{35} & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}i}{56} & 0 & \frac{\sqrt{2}i}{56} & 0 & 0 & 0 & 0 & 0 \\ -\frac{2\sqrt{5}i}{35} & 0 & -\frac{4\sqrt{2}i}{35} & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}i}{56} & 0 & \frac{\sqrt{6}i}{56} & 0 & 0 & 0 & 0 \\ 0 & -\frac{4\sqrt{2}i}{35} & 0 & -\frac{6i}{35} & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{28} & 0 & \frac{\sqrt{3}i}{28} & 0 & 0 & 0 \\ 0 & 0 & -\frac{6i}{35} & 0 & -\frac{4\sqrt{2}i}{35} & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{28} & 0 & \frac{\sqrt{5}i}{28} & 0 & 0 \\ 0 & 0 & 0 & -\frac{4\sqrt{2}i}{35} & 0 & -\frac{2\sqrt{5}i}{35} & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}i}{56} & 0 & \frac{\sqrt{30}i}{56} & 0 \\ 0 & 0 & 0 & 0 & -\frac{2\sqrt{5}i}{35} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{56} & 0 & \frac{\sqrt{42}i}{56} \end{bmatrix}$$

$$\boxed{\text{x376}} \quad \mathbb{T}_{1,2}^{(1,1;a)}(E_u) = \begin{bmatrix} -\frac{\sqrt{5}}{10} & 0 & -\frac{\sqrt{2}}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{3}}{10} & 0 & -\frac{\sqrt{6}}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{6}}{20} & 0 & -\frac{\sqrt{3}}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{2}}{20} & 0 & -\frac{\sqrt{5}}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{2\sqrt{5}}{35} & 0 & 0 & 0 & 0 & \frac{\sqrt{42}}{56} & 0 & \frac{\sqrt{2}}{56} & 0 & 0 & 0 & 0 & 0 \\ \frac{2\sqrt{5}}{35} & 0 & -\frac{4\sqrt{2}}{35} & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{56} & 0 & \frac{\sqrt{6}}{56} & 0 & 0 & 0 & 0 \\ 0 & \frac{4\sqrt{2}}{35} & 0 & -\frac{6}{35} & 0 & 0 & 0 & 0 & \frac{\sqrt{5}}{28} & 0 & \frac{\sqrt{3}}{28} & 0 & 0 & 0 \\ 0 & 0 & \frac{6}{35} & 0 & -\frac{4\sqrt{2}}{35} & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{28} & 0 & \frac{\sqrt{5}}{28} & 0 & 0 \\ 0 & 0 & 0 & \frac{4\sqrt{2}}{35} & 0 & -\frac{2\sqrt{5}}{35} & 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{56} & 0 & \frac{\sqrt{30}}{56} & 0 \\ 0 & 0 & 0 & 0 & \frac{2\sqrt{5}}{35} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{56} & 0 & \frac{\sqrt{42}}{56} \end{bmatrix}$$

$$\boxed{\text{x377}} \quad \mathbb{T}_{3,1}^{(1,1;a)}(E_u, 1) = \begin{bmatrix} \frac{9\sqrt{5}i}{224} & 0 & -\frac{27\sqrt{2}i}{224} & 0 & \frac{45i}{224} & 0 & 0 & -\frac{\sqrt{30}i}{112} & 0 & \frac{\sqrt{6}i}{56} & 0 & -\frac{\sqrt{10}i}{112} & 0 & 0 \\ 0 & -\frac{3\sqrt{3}i}{32} & 0 & \frac{3\sqrt{6}i}{224} & 0 & \frac{15\sqrt{15}i}{224} & -\frac{\sqrt{70}i}{112} & 0 & 0 & 0 & \frac{3\sqrt{2}i}{112} & 0 & -\frac{\sqrt{10}i}{56} & 0 \\ -\frac{15\sqrt{15}i}{224} & 0 & -\frac{3\sqrt{6}i}{224} & 0 & \frac{3\sqrt{3}i}{32} & 0 & 0 & -\frac{\sqrt{10}i}{56} & 0 & \frac{3\sqrt{2}i}{112} & 0 & 0 & 0 & -\frac{\sqrt{70}i}{112} \\ 0 & -\frac{45i}{224} & 0 & \frac{27\sqrt{2}i}{224} & 0 & -\frac{9\sqrt{5}i}{224} & 0 & 0 & -\frac{\sqrt{10}i}{112} & 0 & \frac{\sqrt{6}i}{56} & 0 & -\frac{\sqrt{30}i}{112} & 0 \\ 0 & -\frac{\sqrt{5}i}{28} & 0 & \frac{5\sqrt{10}i}{168} & 0 & 0 & -\frac{\sqrt{42}i}{224} & 0 & \frac{3\sqrt{2}i}{112} & 0 & -\frac{\sqrt{30}i}{224} & 0 & 0 & 0 \\ -\frac{\sqrt{5}i}{28} & 0 & \frac{\sqrt{2}i}{56} & 0 & \frac{5i}{42} & 0 & 0 & \frac{\sqrt{30}i}{224} & 0 & \frac{\sqrt{6}i}{112} & 0 & -\frac{3\sqrt{10}i}{224} & 0 & 0 \\ 0 & \frac{\sqrt{2}i}{56} & 0 & \frac{i}{14} & 0 & \frac{5\sqrt{10}i}{168} & \frac{\sqrt{105}i}{224} & 0 & \frac{3\sqrt{5}i}{224} & 0 & -\frac{\sqrt{3}i}{224} & 0 & -\frac{3\sqrt{15}i}{224} & 0 \\ \frac{5\sqrt{10}i}{168} & 0 & \frac{i}{14} & 0 & \frac{\sqrt{2}i}{56} & 0 & 0 & \frac{3\sqrt{15}i}{224} & 0 & \frac{\sqrt{3}i}{224} & 0 & -\frac{3\sqrt{5}i}{224} & 0 & -\frac{\sqrt{105}i}{224} \\ 0 & \frac{5i}{42} & 0 & \frac{\sqrt{2}i}{56} & 0 & -\frac{\sqrt{5}i}{28} & 0 & 0 & \frac{3\sqrt{10}i}{224} & 0 & -\frac{\sqrt{6}i}{112} & 0 & -\frac{\sqrt{30}i}{224} & 0 \\ 0 & 0 & \frac{5\sqrt{10}i}{168} & 0 & -\frac{\sqrt{5}i}{28} & 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{224} & 0 & -\frac{3\sqrt{2}i}{112} & 0 & \frac{\sqrt{42}i}{224} \end{bmatrix}$$

$$\boxed{\text{x378}} \quad \mathbb{T}_{3,2}^{(1,1;a)}(E_u, 1) = \begin{bmatrix} -\frac{9\sqrt{5}}{224} & 0 & -\frac{27\sqrt{2}}{224} & 0 & -\frac{45}{224} & 0 & 0 & \frac{\sqrt{30}}{112} & 0 & \frac{\sqrt{6}}{56} & 0 & \frac{\sqrt{10}}{112} & 0 & 0 \\ 0 & \frac{3\sqrt{3}}{32} & 0 & \frac{3\sqrt{6}}{224} & 0 & -\frac{15\sqrt{15}}{224} & -\frac{\sqrt{70}}{112} & 0 & 0 & 0 & \frac{3\sqrt{2}}{112} & 0 & \frac{\sqrt{10}}{56} & 0 \\ -\frac{15\sqrt{15}}{224} & 0 & \frac{3\sqrt{6}}{224} & 0 & \frac{3\sqrt{3}}{32} & 0 & 0 & -\frac{\sqrt{10}}{56} & 0 & -\frac{3\sqrt{2}}{112} & 0 & 0 & 0 & \frac{\sqrt{70}}{112} \\ 0 & -\frac{45}{224} & 0 & -\frac{27\sqrt{2}}{224} & 0 & -\frac{9\sqrt{5}}{224} & 0 & 0 & -\frac{\sqrt{10}}{112} & 0 & -\frac{\sqrt{6}}{56} & 0 & -\frac{\sqrt{30}}{112} & 0 \\ 0 & -\frac{\sqrt{5}}{28} & 0 & -\frac{5\sqrt{10}}{168} & 0 & 0 & \frac{\sqrt{42}}{224} & 0 & \frac{3\sqrt{2}}{112} & 0 & \frac{\sqrt{30}}{224} & 0 & 0 & 0 \\ \frac{\sqrt{5}}{28} & 0 & \frac{\sqrt{2}}{56} & 0 & -\frac{5}{42} & 0 & 0 & -\frac{\sqrt{30}}{224} & 0 & \frac{\sqrt{6}}{112} & 0 & \frac{3\sqrt{10}}{224} & 0 & 0 \\ 0 & -\frac{\sqrt{2}}{56} & 0 & \frac{1}{14} & 0 & -\frac{5\sqrt{10}}{168} & \frac{\sqrt{105}}{224} & 0 & -\frac{3\sqrt{5}}{224} & 0 & -\frac{\sqrt{3}}{224} & 0 & \frac{3\sqrt{15}}{224} & 0 \\ \frac{5\sqrt{10}}{168} & 0 & -\frac{1}{14} & 0 & \frac{\sqrt{2}}{56} & 0 & 0 & \frac{3\sqrt{15}}{224} & 0 & -\frac{\sqrt{3}}{224} & 0 & -\frac{3\sqrt{5}}{224} & 0 & \frac{\sqrt{105}}{224} \\ 0 & \frac{5}{42} & 0 & -\frac{\sqrt{2}}{56} & 0 & -\frac{\sqrt{5}}{28} & 0 & 0 & \frac{3\sqrt{10}}{224} & 0 & \frac{\sqrt{6}}{112} & 0 & -\frac{\sqrt{30}}{224} & 0 \\ 0 & 0 & \frac{5\sqrt{10}}{168} & 0 & \frac{\sqrt{5}}{28} & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{224} & 0 & \frac{3\sqrt{2}}{112} & 0 & \frac{\sqrt{42}}{224} \end{bmatrix}$$

$$\begin{aligned}
\boxed{\text{x379}} \quad \mathbb{T}_{3,1}^{(1,1;a)}(E_u, 2) &= \begin{bmatrix} \frac{15\sqrt{3}i}{224} & 0 & -\frac{9\sqrt{30}i}{224} & 0 & -\frac{9\sqrt{15}i}{224} & 0 & 0 & -\frac{5\sqrt{2}i}{112} & 0 & \frac{\sqrt{10}i}{56} & 0 & \frac{\sqrt{6}i}{112} & 0 & 0 \\ 0 & -\frac{3\sqrt{5}i}{32} & 0 & \frac{3\sqrt{10}i}{224} & 0 & -\frac{45i}{224} & \frac{\sqrt{42}i}{112} & 0 & 0 & 0 & \frac{\sqrt{30}i}{112} & 0 & \frac{\sqrt{6}i}{56} & 0 \\ \frac{45i}{224} & 0 & -\frac{3\sqrt{10}i}{224} & 0 & \frac{3\sqrt{5}i}{32} & 0 & 0 & \frac{\sqrt{6}i}{56} & 0 & \frac{\sqrt{30}i}{112} & 0 & 0 & 0 & \frac{\sqrt{42}i}{112} \\ 0 & \frac{9\sqrt{15}i}{224} & 0 & \frac{9\sqrt{30}i}{224} & 0 & -\frac{15\sqrt{3}i}{224} & 0 & 0 & \frac{\sqrt{6}i}{112} & 0 & \frac{\sqrt{10}i}{56} & 0 & -\frac{5\sqrt{2}i}{112} & 0 \\ 0 & -\frac{5\sqrt{3}i}{84} & 0 & -\frac{5\sqrt{6}i}{168} & 0 & 0 & -\frac{\sqrt{70}i}{224} & 0 & \frac{\sqrt{30}i}{112} & 0 & \frac{3\sqrt{2}i}{224} & 0 & 0 & 0 \\ -\frac{5\sqrt{3}i}{84} & 0 & \frac{\sqrt{30}i}{168} & 0 & -\frac{\sqrt{15}i}{42} & 0 & 0 & \frac{5\sqrt{2}i}{224} & 0 & \frac{\sqrt{10}i}{112} & 0 & \frac{3\sqrt{6}i}{224} & 0 & 0 \\ 0 & \frac{\sqrt{30}i}{168} & 0 & \frac{\sqrt{15}i}{42} & 0 & -\frac{5\sqrt{6}i}{168} & -\frac{3\sqrt{7}i}{224} & 0 & \frac{5\sqrt{3}i}{224} & 0 & -\frac{\sqrt{5}i}{224} & 0 & \frac{9i}{224} & 0 \\ -\frac{5\sqrt{6}i}{168} & 0 & \frac{\sqrt{15}i}{42} & 0 & \frac{\sqrt{30}i}{168} & 0 & 0 & -\frac{9i}{224} & 0 & \frac{\sqrt{5}i}{224} & 0 & -\frac{5\sqrt{3}i}{224} & 0 & \frac{3\sqrt{7}i}{224} \\ 0 & -\frac{\sqrt{15}i}{42} & 0 & \frac{\sqrt{30}i}{168} & 0 & -\frac{5\sqrt{3}i}{84} & 0 & 0 & -\frac{3\sqrt{6}i}{224} & 0 & -\frac{\sqrt{10}i}{112} & 0 & -\frac{5\sqrt{2}i}{224} & 0 \\ 0 & 0 & -\frac{5\sqrt{6}i}{168} & 0 & -\frac{5\sqrt{3}i}{84} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{2}i}{224} & 0 & -\frac{\sqrt{30}i}{112} & 0 & \frac{\sqrt{70}i}{224} \end{bmatrix} \\
\boxed{\text{x380}} \quad \mathbb{T}_{3,2}^{(1,1;a)}(E_u, 2) &= \begin{bmatrix} -\frac{15\sqrt{3}}{224} & 0 & -\frac{9\sqrt{30}}{224} & 0 & \frac{9\sqrt{15}}{224} & 0 & 0 & \frac{5\sqrt{2}}{112} & 0 & \frac{\sqrt{10}}{56} & 0 & -\frac{\sqrt{6}}{112} & 0 & 0 \\ 0 & \frac{3\sqrt{5}}{32} & 0 & \frac{3\sqrt{10}}{224} & 0 & \frac{45}{224} & \frac{\sqrt{42}}{112} & 0 & 0 & 0 & \frac{\sqrt{30}}{112} & 0 & -\frac{\sqrt{6}}{56} & 0 \\ \frac{45}{224} & 0 & \frac{3\sqrt{10}}{224} & 0 & \frac{3\sqrt{5}}{32} & 0 & 0 & \frac{\sqrt{6}}{56} & 0 & -\frac{\sqrt{30}}{112} & 0 & 0 & 0 & -\frac{\sqrt{42}}{112} \\ 0 & \frac{9\sqrt{15}}{224} & 0 & -\frac{9\sqrt{30}}{224} & 0 & -\frac{15\sqrt{3}}{224} & 0 & 0 & \frac{\sqrt{6}}{112} & 0 & -\frac{\sqrt{10}}{56} & 0 & -\frac{5\sqrt{2}}{112} & 0 \\ 0 & -\frac{5\sqrt{3}}{84} & 0 & \frac{5\sqrt{6}}{168} & 0 & 0 & \frac{\sqrt{70}}{224} & 0 & \frac{\sqrt{30}}{112} & 0 & -\frac{3\sqrt{2}}{224} & 0 & 0 & 0 \\ \frac{5\sqrt{3}}{84} & 0 & \frac{\sqrt{30}}{168} & 0 & \frac{\sqrt{15}}{42} & 0 & 0 & -\frac{5\sqrt{2}}{224} & 0 & \frac{\sqrt{10}}{112} & 0 & -\frac{3\sqrt{6}}{224} & 0 & 0 \\ 0 & -\frac{\sqrt{30}}{168} & 0 & \frac{\sqrt{15}}{42} & 0 & \frac{5\sqrt{6}}{168} & -\frac{3\sqrt{7}}{224} & 0 & -\frac{5\sqrt{3}}{224} & 0 & -\frac{\sqrt{5}}{224} & 0 & -\frac{9}{224} & 0 \\ -\frac{5\sqrt{6}}{168} & 0 & -\frac{\sqrt{15}}{42} & 0 & \frac{\sqrt{30}}{168} & 0 & 0 & -\frac{9}{224} & 0 & -\frac{\sqrt{5}}{224} & 0 & -\frac{5\sqrt{3}}{224} & 0 & -\frac{3\sqrt{7}}{224} \\ 0 & -\frac{\sqrt{15}}{42} & 0 & -\frac{\sqrt{30}}{168} & 0 & -\frac{5\sqrt{3}}{84} & 0 & 0 & -\frac{3\sqrt{6}}{224} & 0 & \frac{\sqrt{10}}{112} & 0 & -\frac{5\sqrt{2}}{224} & 0 \\ 0 & 0 & -\frac{5\sqrt{6}}{168} & 0 & \frac{5\sqrt{3}}{84} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{2}}{224} & 0 & \frac{\sqrt{30}}{112} & 0 & \frac{\sqrt{70}}{224} \end{bmatrix}
\end{aligned}$$

- bra:  $\langle \frac{5}{2}, \frac{5}{2}; f |, \langle \frac{5}{2}, \frac{3}{2}; f |, \langle \frac{5}{2}, \frac{1}{2}; f |, \langle \frac{5}{2}, -\frac{1}{2}; f |, \langle \frac{5}{2}, -\frac{3}{2}; f |, \langle \frac{5}{2}, -\frac{5}{2}; f |, \langle \frac{7}{2}, \frac{7}{2}; f |, \langle \frac{7}{2}, \frac{5}{2}; f |, \langle \frac{7}{2}, \frac{3}{2}; f |, \langle \frac{7}{2}, \frac{1}{2}; f |, \langle \frac{7}{2}, -\frac{1}{2}; f |, \langle \frac{7}{2}, -\frac{3}{2}; f |, \langle \frac{7}{2}, -\frac{5}{2}; f |, \langle \frac{7}{2}, -\frac{7}{2}; f |$
- ket:  $|\frac{5}{2}, \frac{5}{2}; f \rangle, |\frac{5}{2}, \frac{3}{2}; f \rangle, |\frac{5}{2}, \frac{1}{2}; f \rangle, |\frac{5}{2}, -\frac{1}{2}; f \rangle, |\frac{5}{2}, -\frac{3}{2}; f \rangle, |\frac{5}{2}, -\frac{5}{2}; f \rangle, |\frac{7}{2}, \frac{7}{2}; f \rangle, |\frac{7}{2}, \frac{5}{2}; f \rangle, |\frac{7}{2}, \frac{3}{2}; f \rangle, |\frac{7}{2}, \frac{1}{2}; f \rangle, |\frac{7}{2}, -\frac{1}{2}; f \rangle, |\frac{7}{2}, -\frac{3}{2}; f \rangle, |\frac{7}{2}, -\frac{5}{2}; f \rangle, |\frac{7}{2}, -\frac{7}{2}; f \rangle$

x381

x382

$$\boxed{\text{x383}} \quad \mathbb{Q}_4^{(a)}(A_{1g}, 1) = \begin{bmatrix} \frac{\sqrt{33}}{84} & 0 & 0 & 0 & \frac{\sqrt{165}}{84} & 0 & 0 & \frac{5\sqrt{22}}{154} & 0 & 0 & 0 & \frac{5\sqrt{66}}{462} & 0 & 0 \\ 0 & -\frac{\sqrt{33}}{28} & 0 & 0 & 0 & \frac{\sqrt{165}}{84} & 0 & 0 & -\frac{2\sqrt{330}}{231} & 0 & 0 & 0 & \frac{\sqrt{110}}{77} & 0 \\ 0 & 0 & \frac{\sqrt{33}}{42} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{11}}{154} & 0 & 0 & 0 & \frac{\sqrt{385}}{154} \\ 0 & 0 & 0 & \frac{\sqrt{33}}{42} & 0 & 0 & -\frac{\sqrt{385}}{154} & 0 & 0 & 0 & \frac{5\sqrt{11}}{154} & 0 & 0 & 0 \\ \frac{\sqrt{165}}{84} & 0 & 0 & 0 & -\frac{\sqrt{33}}{28} & 0 & 0 & -\frac{\sqrt{110}}{77} & 0 & 0 & 0 & \frac{2\sqrt{330}}{231} & 0 & 0 \\ 0 & \frac{\sqrt{165}}{84} & 0 & 0 & 0 & \frac{\sqrt{33}}{84} & 0 & 0 & -\frac{5\sqrt{66}}{462} & 0 & 0 & 0 & -\frac{5\sqrt{22}}{154} & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{385}}{154} & 0 & 0 & \frac{\sqrt{33}}{44} & 0 & 0 & 0 & \frac{\sqrt{1155}}{308} & 0 & 0 & 0 \\ \frac{5\sqrt{22}}{154} & 0 & 0 & 0 & -\frac{\sqrt{110}}{77} & 0 & 0 & -\frac{13\sqrt{33}}{308} & 0 & 0 & 0 & \frac{15\sqrt{11}}{308} & 0 & 0 \\ 0 & -\frac{2\sqrt{330}}{231} & 0 & 0 & 0 & -\frac{5\sqrt{66}}{462} & 0 & 0 & -\frac{3\sqrt{33}}{308} & 0 & 0 & 0 & \frac{15\sqrt{11}}{308} & 0 \\ 0 & 0 & -\frac{5\sqrt{11}}{154} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{9\sqrt{33}}{308} & 0 & 0 & 0 & \frac{\sqrt{1155}}{308} \\ 0 & 0 & 0 & \frac{5\sqrt{11}}{154} & 0 & 0 & \frac{\sqrt{1155}}{308} & 0 & 0 & 0 & \frac{9\sqrt{33}}{308} & 0 & 0 & 0 \\ \frac{5\sqrt{66}}{462} & 0 & 0 & 0 & \frac{2\sqrt{330}}{231} & 0 & 0 & \frac{15\sqrt{11}}{308} & 0 & 0 & 0 & -\frac{3\sqrt{33}}{308} & 0 & 0 \\ 0 & \frac{\sqrt{110}}{77} & 0 & 0 & 0 & -\frac{5\sqrt{22}}{154} & 0 & 0 & \frac{15\sqrt{11}}{308} & 0 & 0 & 0 & -\frac{13\sqrt{33}}{308} & 0 \\ 0 & 0 & \frac{\sqrt{385}}{154} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{1155}}{308} & 0 & 0 & 0 & \frac{\sqrt{33}}{44} \end{bmatrix}$$

$$\boxed{\text{x384}} \quad \mathbb{Q}_4^{(a)}(A_{1g}, 2) = \begin{bmatrix} \frac{\sqrt{1155}}{588} & 0 & 0 & 0 & -\frac{\sqrt{231}}{84} & 0 & 0 & \frac{5\sqrt{770}}{1078} & 0 & 0 & 0 & -\frac{\sqrt{2310}}{462} & 0 & 0 \\ 0 & -\frac{\sqrt{1155}}{196} & 0 & 0 & 0 & -\frac{\sqrt{231}}{84} & 0 & 0 & -\frac{10\sqrt{462}}{1617} & 0 & 0 & 0 & -\frac{\sqrt{154}}{77} & 0 \\ 0 & 0 & \frac{\sqrt{1155}}{294} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{385}}{1078} & 0 & 0 & 0 & -\frac{\sqrt{11}}{22} \\ 0 & 0 & 0 & \frac{\sqrt{1155}}{294} & 0 & 0 & \frac{\sqrt{11}}{22} & 0 & 0 & 0 & \frac{5\sqrt{385}}{1078} & 0 & 0 & 0 \\ -\frac{\sqrt{231}}{84} & 0 & 0 & 0 & -\frac{\sqrt{1155}}{196} & 0 & 0 & \frac{\sqrt{154}}{77} & 0 & 0 & 0 & \frac{10\sqrt{462}}{1617} & 0 & 0 \\ 0 & -\frac{\sqrt{231}}{84} & 0 & 0 & 0 & \frac{\sqrt{1155}}{588} & 0 & 0 & \frac{\sqrt{2310}}{462} & 0 & 0 & 0 & -\frac{5\sqrt{770}}{1078} & 0 \\ 0 & 0 & 0 & \frac{\sqrt{11}}{22} & 0 & 0 & \frac{\sqrt{1155}}{308} & 0 & 0 & 0 & -\frac{\sqrt{33}}{44} & 0 & 0 & 0 \\ \frac{5\sqrt{770}}{1078} & 0 & 0 & 0 & \frac{\sqrt{154}}{77} & 0 & 0 & -\frac{13\sqrt{1155}}{2156} & 0 & 0 & 0 & -\frac{3\sqrt{385}}{308} & 0 & 0 \\ 0 & -\frac{10\sqrt{462}}{1617} & 0 & 0 & 0 & \frac{\sqrt{2310}}{462} & 0 & 0 & -\frac{3\sqrt{1155}}{2156} & 0 & 0 & 0 & -\frac{3\sqrt{385}}{308} & 0 \\ 0 & 0 & -\frac{5\sqrt{385}}{1078} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{9\sqrt{1155}}{2156} & 0 & 0 & 0 & -\frac{\sqrt{33}}{44} \\ 0 & 0 & 0 & \frac{5\sqrt{385}}{1078} & 0 & 0 & -\frac{\sqrt{33}}{44} & 0 & 0 & 0 & \frac{9\sqrt{1155}}{2156} & 0 & 0 & 0 \\ -\frac{\sqrt{2310}}{462} & 0 & 0 & 0 & \frac{10\sqrt{462}}{1617} & 0 & 0 & -\frac{3\sqrt{385}}{308} & 0 & 0 & 0 & -\frac{3\sqrt{1155}}{2156} & 0 & 0 \\ 0 & -\frac{\sqrt{154}}{77} & 0 & 0 & 0 & -\frac{5\sqrt{770}}{1078} & 0 & 0 & -\frac{3\sqrt{385}}{308} & 0 & 0 & 0 & -\frac{13\sqrt{1155}}{2156} & 0 \\ 0 & 0 & -\frac{\sqrt{11}}{22} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{33}}{44} & 0 & 0 & 0 & \frac{\sqrt{1155}}{308} \end{bmatrix}$$

$$\boxed{\text{x385}} \quad \mathbb{Q}_6^{(a)}(A_{1g}, 1) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{154}}{616} & 0 & 0 & 0 & \frac{\sqrt{462}}{88} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2310}}{616} & 0 & 0 & 0 & -\frac{\sqrt{770}}{88} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{77}}{308} & 0 & 0 & 0 & \frac{\sqrt{55}}{44} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{55}}{44} & 0 & 0 & 0 & \frac{5\sqrt{77}}{308} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{770}}{88} & 0 & 0 & 0 & -\frac{\sqrt{2310}}{616} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{462}}{88} & 0 & 0 & 0 & \frac{\sqrt{154}}{616} & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{55}}{44} & 0 & 0 & -\frac{\sqrt{231}}{1848} & 0 & 0 & 0 & \frac{\sqrt{165}}{88} & 0 & 0 & 0 \\ -\frac{\sqrt{154}}{616} & 0 & 0 & 0 & \frac{\sqrt{770}}{88} & 0 & 0 & 0 & \frac{5\sqrt{231}}{1848} & 0 & 0 & 0 & -\frac{\sqrt{77}}{88} & 0 \\ 0 & \frac{\sqrt{2310}}{616} & 0 & 0 & 0 & -\frac{\sqrt{462}}{88} & 0 & 0 & -\frac{3\sqrt{231}}{616} & 0 & 0 & 0 & -\frac{\sqrt{77}}{88} & 0 \\ 0 & 0 & -\frac{5\sqrt{77}}{308} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{231}}{1848} & 0 & 0 & 0 & \frac{\sqrt{165}}{88} \\ 0 & 0 & 0 & \frac{5\sqrt{77}}{308} & 0 & 0 & \frac{\sqrt{165}}{88} & 0 & 0 & 0 & \frac{5\sqrt{231}}{1848} & 0 & 0 & 0 \\ \frac{\sqrt{462}}{88} & 0 & 0 & 0 & -\frac{\sqrt{2310}}{616} & 0 & 0 & -\frac{\sqrt{77}}{88} & 0 & 0 & 0 & -\frac{3\sqrt{231}}{616} & 0 & 0 \\ 0 & -\frac{\sqrt{770}}{88} & 0 & 0 & 0 & \frac{\sqrt{154}}{616} & 0 & 0 & -\frac{\sqrt{77}}{88} & 0 & 0 & 0 & \frac{5\sqrt{231}}{1848} & 0 \\ 0 & 0 & \frac{\sqrt{55}}{44} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{165}}{88} & 0 & 0 & 0 & -\frac{\sqrt{231}}{1848} \end{bmatrix}$$

$$\boxed{\text{x386}} \quad \mathbb{Q}_6^{(a)}(A_{1g}, 2) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{22}}{88} & 0 & 0 & 0 & -\frac{\sqrt{66}}{88} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{330}}{88} & 0 & 0 & 0 & \frac{\sqrt{110}}{88} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{11}}{44} & 0 & 0 & 0 & -\frac{\sqrt{385}}{308} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{385}}{308} & 0 & 0 & 0 & \frac{5\sqrt{11}}{44} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{110}}{88} & 0 & 0 & 0 & -\frac{\sqrt{330}}{88} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{66}}{88} & 0 & 0 & 0 & \frac{\sqrt{22}}{88} & 0 \\ 0 & 0 & 0 & \frac{\sqrt{385}}{308} & 0 & 0 & -\frac{\sqrt{33}}{264} & 0 & 0 & 0 & -\frac{\sqrt{1155}}{616} & 0 & 0 & 0 \\ -\frac{\sqrt{22}}{88} & 0 & 0 & 0 & -\frac{\sqrt{110}}{88} & 0 & 0 & 0 & \frac{5\sqrt{33}}{264} & 0 & 0 & \frac{\sqrt{11}}{88} & 0 & 0 \\ 0 & \frac{\sqrt{330}}{88} & 0 & 0 & 0 & \frac{\sqrt{66}}{88} & 0 & 0 & -\frac{3\sqrt{33}}{88} & 0 & 0 & 0 & \frac{\sqrt{11}}{88} & 0 \\ 0 & 0 & -\frac{5\sqrt{11}}{44} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{33}}{264} & 0 & 0 & 0 & -\frac{\sqrt{1155}}{616} \\ 0 & 0 & 0 & \frac{5\sqrt{11}}{44} & 0 & 0 & -\frac{\sqrt{1155}}{616} & 0 & 0 & 0 & \frac{5\sqrt{33}}{264} & 0 & 0 & 0 \\ -\frac{\sqrt{66}}{88} & 0 & 0 & 0 & -\frac{\sqrt{330}}{88} & 0 & 0 & \frac{\sqrt{11}}{88} & 0 & 0 & 0 & -\frac{3\sqrt{33}}{88} & 0 & 0 \\ 0 & \frac{\sqrt{110}}{88} & 0 & 0 & 0 & \frac{\sqrt{22}}{88} & 0 & 0 & \frac{\sqrt{11}}{88} & 0 & 0 & 0 & \frac{5\sqrt{33}}{264} & 0 \\ 0 & 0 & -\frac{\sqrt{385}}{308} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{1155}}{616} & 0 & 0 & 0 & -\frac{\sqrt{33}}{264} \end{bmatrix}$$

$$\begin{aligned}
\boxed{\text{x387}} \quad \mathbb{Q}_4^{(a)}(A_{2g}) = & \begin{bmatrix} 0 & 0 & 0 & 0 & -\frac{\sqrt{11}i}{14} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{110}i}{77} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{11}i}{14} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{2\sqrt{66}i}{77} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{231}i}{77} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{231}i}{77} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{11}i}{14} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{2\sqrt{66}i}{77} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{11}i}{14} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{110}i}{77} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{231}i}{77} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{77}i}{154} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{2\sqrt{66}i}{77} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{165}i}{154} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{110}i}{77} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{165}i}{154} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{77}i}{154} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{77}i}{154} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{110}i}{77} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{165}i}{154} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{2\sqrt{66}i}{77} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{165}i}{154} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{231}i}{77} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{77}i}{154} & 0 & 0 & 0 & 0 \end{bmatrix} \\
\boxed{\text{x388}} \quad \mathbb{Q}_6^{(a)}(A_{2g}) = & \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{33}i}{22} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{55}i}{22} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{770}i}{154} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{770}i}{154} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{55}i}{22} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{33}i}{22} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{770}i}{154} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2310}i}{308} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{55}i}{22} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{22}i}{44} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{33}i}{22} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{22}i}{44} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2310}i}{308} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2310}i}{308} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{33}i}{22} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{22}i}{44} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{55}i}{22} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{22}i}{44} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{770}i}{154} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2310}i}{308} & 0 & 0 & 0 & 0 \end{bmatrix}
\end{aligned}$$



$$\boxed{\text{x389}} \quad \mathbb{Q}_2^{(a)}(B_{1g}) = \begin{bmatrix} 0 & 0 & -\frac{3\sqrt{35}}{98} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{294} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{9\sqrt{7}}{98} & 0 & 0 & \frac{\sqrt{15}}{42} & 0 & 0 & 0 & -\frac{2\sqrt{21}}{147} & 0 & 0 & 0 \\ -\frac{3\sqrt{35}}{98} & 0 & 0 & 0 & -\frac{9\sqrt{7}}{98} & 0 & 0 & \frac{\sqrt{210}}{147} & 0 & 0 & 0 & -\frac{\sqrt{70}}{98} & 0 & 0 \\ 0 & -\frac{9\sqrt{7}}{98} & 0 & 0 & 0 & -\frac{3\sqrt{35}}{98} & 0 & 0 & \frac{\sqrt{70}}{98} & 0 & 0 & 0 & -\frac{\sqrt{210}}{147} & 0 \\ 0 & 0 & -\frac{9\sqrt{7}}{98} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{2\sqrt{21}}{147} & 0 & 0 & 0 & -\frac{\sqrt{15}}{42} \\ 0 & 0 & 0 & -\frac{3\sqrt{35}}{98} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}}{294} & 0 & 0 & 0 \\ 0 & \frac{\sqrt{15}}{42} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{6}}{84} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{210}}{147} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{70}}{196} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{70}}{98} & 0 & 0 & -\frac{5\sqrt{6}}{84} & 0 & 0 & 0 & -\frac{5\sqrt{210}}{294} & 0 & 0 & 0 \\ -\frac{\sqrt{105}}{294} & 0 & 0 & 0 & \frac{2\sqrt{21}}{147} & 0 & 0 & -\frac{5\sqrt{70}}{196} & 0 & 0 & 0 & -\frac{5\sqrt{210}}{294} & 0 & 0 \\ 0 & -\frac{2\sqrt{21}}{147} & 0 & 0 & 0 & \frac{\sqrt{105}}{294} & 0 & 0 & -\frac{5\sqrt{210}}{294} & 0 & 0 & 0 & -\frac{5\sqrt{70}}{196} & 0 \\ 0 & 0 & -\frac{\sqrt{70}}{98} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{210}}{294} & 0 & 0 & 0 & -\frac{5\sqrt{6}}{84} \\ 0 & 0 & 0 & -\frac{\sqrt{210}}{147} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{70}}{196} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{42} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{6}}{84} & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x390}} \quad \mathbb{Q}_4^{(a)}(B_{1g}) = \begin{bmatrix} 0 & 0 & -\frac{3\sqrt{154}}{196} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{462}}{539} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{770}}{196} & 0 & 0 & \frac{3\sqrt{66}}{154} & 0 & 0 & 0 & -\frac{\sqrt{2310}}{1078} & 0 & 0 & 0 \\ -\frac{3\sqrt{154}}{196} & 0 & 0 & 0 & \frac{\sqrt{770}}{196} & 0 & 0 & -\frac{9\sqrt{231}}{1078} & 0 & 0 & 0 & \frac{17\sqrt{77}}{1078} & 0 & 0 \\ 0 & \frac{\sqrt{770}}{196} & 0 & 0 & 0 & -\frac{3\sqrt{154}}{196} & 0 & 0 & -\frac{17\sqrt{77}}{1078} & 0 & 0 & 0 & \frac{9\sqrt{231}}{1078} & 0 \\ 0 & 0 & \frac{\sqrt{770}}{196} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2310}}{1078} & 0 & 0 & 0 & -\frac{3\sqrt{66}}{154} \\ 0 & 0 & 0 & -\frac{3\sqrt{154}}{196} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{462}}{539} & 0 & 0 & 0 \\ 0 & \frac{3\sqrt{66}}{154} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{165}}{154} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{9\sqrt{231}}{1078} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{77}}{1078} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{17\sqrt{77}}{1078} & 0 & 0 & -\frac{3\sqrt{165}}{154} & 0 & 0 & 0 & \frac{6\sqrt{231}}{539} & 0 & 0 & 0 \\ -\frac{5\sqrt{462}}{539} & 0 & 0 & 0 & \frac{\sqrt{2310}}{1078} & 0 & 0 & -\frac{3\sqrt{77}}{1078} & 0 & 0 & 0 & \frac{6\sqrt{231}}{539} & 0 & 0 \\ 0 & -\frac{\sqrt{2310}}{1078} & 0 & 0 & 0 & \frac{5\sqrt{462}}{539} & 0 & 0 & 0 & \frac{6\sqrt{231}}{539} & 0 & 0 & -\frac{3\sqrt{77}}{1078} & 0 \\ 0 & 0 & \frac{17\sqrt{77}}{1078} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{6\sqrt{231}}{539} & 0 & 0 & -\frac{3\sqrt{165}}{154} \\ 0 & 0 & 0 & \frac{9\sqrt{231}}{1078} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{77}}{1078} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{3\sqrt{66}}{154} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{165}}{154} & 0 & 0 \end{bmatrix}$$

$$\begin{aligned}
\boxed{\text{x391}} \quad \mathbb{Q}_6^{(a)}(B_{1g}, 1) = & \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{24} & 0 & 0 & 0 & -\frac{\sqrt{210}}{56} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}}{168} & 0 & 0 & 0 & -\frac{\sqrt{30}}{24} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{12} & 0 & 0 & 0 & \frac{1}{4} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{1}{4} & 0 & 0 & 0 & -\frac{\sqrt{3}}{12} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{24} & 0 & 0 & 0 & \frac{\sqrt{42}}{168} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{210}}{56} & 0 & 0 & 0 & -\frac{\sqrt{6}}{24} & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{42}}{168} & 0 & 0 & 0 & \frac{\sqrt{210}}{56} & 0 & 0 & \frac{\sqrt{105}}{168} & 0 & 0 & 0 & -\frac{\sqrt{35}}{56} & 0 \\ 0 & 0 & \frac{\sqrt{3}}{12} & 0 & 0 & 0 & 0 & 0 & -\frac{1}{8} & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}}{56} \\ 0 & 0 & 0 & -\frac{1}{4} & 0 & 0 & \frac{\sqrt{105}}{168} & 0 & 0 & 0 & \frac{\sqrt{3}}{24} & 0 & 0 & 0 \\ \frac{\sqrt{6}}{24} & 0 & 0 & 0 & \frac{\sqrt{30}}{24} & 0 & 0 & -\frac{1}{8} & 0 & 0 & 0 & \frac{\sqrt{3}}{24} & 0 & 0 \\ 0 & -\frac{\sqrt{30}}{24} & 0 & 0 & 0 & -\frac{\sqrt{6}}{24} & 0 & 0 & \frac{\sqrt{3}}{24} & 0 & 0 & 0 & -\frac{1}{8} & 0 \\ 0 & 0 & \frac{1}{4} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{24} & 0 & 0 & 0 & \frac{\sqrt{105}}{168} \\ 0 & 0 & 0 & -\frac{\sqrt{3}}{12} & 0 & 0 & -\frac{\sqrt{35}}{56} & 0 & 0 & 0 & -\frac{1}{8} & 0 & 0 & 0 \\ -\frac{\sqrt{210}}{56} & 0 & 0 & 0 & \frac{\sqrt{42}}{168} & 0 & 0 & -\frac{\sqrt{35}}{56} & 0 & 0 & 0 & \frac{\sqrt{105}}{168} & 0 & 0 \end{bmatrix} \\
\boxed{\text{x392}} \quad \mathbb{Q}_6^{(a)}(B_{1g}, 2) = & \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{330}}{264} & 0 & 0 & 0 & -\frac{\sqrt{462}}{56} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2310}}{1848} & 0 & 0 & 0 & \frac{5\sqrt{66}}{264} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{165}}{132} & 0 & 0 & 0 & -\frac{\sqrt{55}}{44} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{55}}{44} & 0 & 0 & 0 & \frac{\sqrt{165}}{132} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{66}}{264} & 0 & 0 & 0 & -\frac{\sqrt{2310}}{1848} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{462}}{56} & 0 & 0 & 0 & \frac{\sqrt{330}}{264} & 0 & 0 & 0 \\ 0 & \frac{\sqrt{2310}}{1848} & 0 & 0 & 0 & \frac{\sqrt{462}}{56} & 0 & 0 & -\frac{5\sqrt{231}}{1848} & 0 & 0 & 0 & -\frac{\sqrt{77}}{56} & 0 \\ 0 & 0 & -\frac{\sqrt{165}}{132} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{55}}{88} & 0 & 0 & 0 & -\frac{\sqrt{77}}{56} \\ 0 & 0 & 0 & \frac{\sqrt{55}}{44} & 0 & 0 & -\frac{5\sqrt{231}}{1848} & 0 & 0 & 0 & -\frac{\sqrt{165}}{264} & 0 & 0 & 0 \\ -\frac{\sqrt{330}}{264} & 0 & 0 & 0 & -\frac{5\sqrt{66}}{264} & 0 & 0 & \frac{\sqrt{55}}{88} & 0 & 0 & 0 & -\frac{\sqrt{165}}{264} & 0 & 0 \\ 0 & \frac{5\sqrt{66}}{264} & 0 & 0 & 0 & \frac{\sqrt{330}}{264} & 0 & 0 & -\frac{\sqrt{165}}{264} & 0 & 0 & 0 & \frac{\sqrt{55}}{88} & 0 \\ 0 & 0 & -\frac{\sqrt{55}}{44} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{165}}{264} & 0 & 0 & 0 & -\frac{5\sqrt{231}}{1848} \\ 0 & 0 & 0 & \frac{\sqrt{165}}{132} & 0 & 0 & -\frac{\sqrt{77}}{56} & 0 & 0 & 0 & \frac{\sqrt{55}}{88} & 0 & 0 & 0 \\ -\frac{\sqrt{462}}{56} & 0 & 0 & 0 & -\frac{\sqrt{2310}}{1848} & 0 & 0 & -\frac{\sqrt{77}}{56} & 0 & 0 & 0 & -\frac{5\sqrt{231}}{1848} & 0 & 0 \end{bmatrix}
\end{aligned}$$

$$\boxed{\text{x393}} \quad \mathbb{Q}_2^{(a)}(B_{2g}) = \begin{bmatrix} 0 & 0 & \frac{3\sqrt{35}i}{98} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{294} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{9\sqrt{7}i}{98} & 0 & 0 & \frac{\sqrt{15}i}{42} & 0 & 0 & 0 & \frac{2\sqrt{21}i}{147} & 0 & 0 & 0 \\ -\frac{3\sqrt{35}i}{98} & 0 & 0 & 0 & \frac{9\sqrt{7}i}{98} & 0 & 0 & \frac{\sqrt{210}i}{147} & 0 & 0 & 0 & \frac{\sqrt{70}i}{98} & 0 & 0 \\ 0 & -\frac{9\sqrt{7}i}{98} & 0 & 0 & 0 & \frac{3\sqrt{35}i}{98} & 0 & 0 & \frac{\sqrt{70}i}{98} & 0 & 0 & 0 & \frac{\sqrt{210}i}{147} & 0 \\ 0 & 0 & -\frac{9\sqrt{7}i}{98} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{2\sqrt{21}i}{147} & 0 & 0 & 0 & \frac{\sqrt{15}i}{42} \\ 0 & 0 & 0 & -\frac{3\sqrt{35}i}{98} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{294} & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{15}i}{42} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{6}i}{84} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{210}i}{147} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{70}i}{196} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{70}i}{98} & 0 & 0 & -\frac{5\sqrt{6}i}{84} & 0 & 0 & 0 & \frac{5\sqrt{210}i}{294} & 0 & 0 & 0 \\ -\frac{\sqrt{105}i}{294} & 0 & 0 & 0 & -\frac{2\sqrt{21}i}{147} & 0 & 0 & -\frac{5\sqrt{70}i}{196} & 0 & 0 & 0 & \frac{5\sqrt{210}i}{294} & 0 & 0 \\ 0 & -\frac{2\sqrt{21}i}{147} & 0 & 0 & 0 & -\frac{\sqrt{105}i}{294} & 0 & 0 & -\frac{5\sqrt{210}i}{294} & 0 & 0 & 0 & \frac{5\sqrt{70}i}{196} & 0 \\ 0 & 0 & -\frac{\sqrt{70}i}{98} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{210}i}{294} & 0 & 0 & 0 & \frac{5\sqrt{6}i}{84} \\ 0 & 0 & 0 & -\frac{\sqrt{210}i}{147} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{70}i}{196} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{42} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{6}i}{84} & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x394}} \quad \mathbb{Q}_4^{(a)}(B_{2g}) = \begin{bmatrix} 0 & 0 & -\frac{3\sqrt{154}i}{196} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{462}i}{539} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{770}i}{196} & 0 & 0 & -\frac{3\sqrt{66}i}{154} & 0 & 0 & 0 & -\frac{\sqrt{2310}i}{1078} & 0 & 0 & 0 \\ \frac{3\sqrt{154}i}{196} & 0 & 0 & 0 & \frac{\sqrt{770}i}{196} & 0 & 0 & \frac{9\sqrt{231}i}{1078} & 0 & 0 & 0 & \frac{17\sqrt{77}i}{1078} & 0 & 0 \\ 0 & -\frac{\sqrt{770}i}{196} & 0 & 0 & 0 & -\frac{3\sqrt{154}i}{196} & 0 & 0 & \frac{17\sqrt{77}i}{1078} & 0 & 0 & 0 & \frac{9\sqrt{231}i}{1078} & 0 \\ 0 & 0 & -\frac{\sqrt{770}i}{196} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2310}i}{1078} & 0 & 0 & 0 & -\frac{3\sqrt{66}i}{154} \\ 0 & 0 & 0 & \frac{3\sqrt{154}i}{196} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{462}i}{539} & 0 & 0 & 0 \\ 0 & \frac{3\sqrt{66}i}{154} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{165}i}{154} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{9\sqrt{231}i}{1078} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{77}i}{1078} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{17\sqrt{77}i}{1078} & 0 & 0 & \frac{3\sqrt{165}i}{154} & 0 & 0 & 0 & \frac{6\sqrt{231}i}{539} & 0 & 0 & 0 \\ \frac{5\sqrt{462}i}{539} & 0 & 0 & 0 & \frac{\sqrt{2310}i}{1078} & 0 & 0 & \frac{3\sqrt{77}i}{1078} & 0 & 0 & 0 & \frac{6\sqrt{231}i}{539} & 0 & 0 \\ 0 & \frac{\sqrt{2310}i}{1078} & 0 & 0 & 0 & \frac{5\sqrt{462}i}{539} & 0 & 0 & -\frac{6\sqrt{231}i}{539} & 0 & 0 & 0 & -\frac{3\sqrt{77}i}{1078} & 0 \\ 0 & 0 & -\frac{17\sqrt{77}i}{1078} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{6\sqrt{231}i}{539} & 0 & 0 & 0 & -\frac{3\sqrt{165}i}{154} \\ 0 & 0 & 0 & -\frac{9\sqrt{231}i}{1078} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{77}i}{1078} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{3\sqrt{66}i}{154} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{165}i}{154} & 0 & 0 \end{bmatrix}$$



$$\boxed{\text{x397}} \quad \mathbb{Q}_{2,1}^{(a)}(E_g) = \begin{bmatrix} 0 & \frac{3\sqrt{70}i}{98} & 0 & 0 & 0 & 0 & \frac{5\sqrt{3}i}{84} & 0 & \frac{5\sqrt{7}i}{196} & 0 & 0 & 0 & 0 & 0 \\ -\frac{3\sqrt{70}i}{98} & 0 & \frac{3\sqrt{7}i}{49} & 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{588} & 0 & \frac{11\sqrt{21}i}{588} & 0 & 0 & 0 & 0 \\ 0 & -\frac{3\sqrt{7}i}{49} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}i}{196} & 0 & \frac{\sqrt{42}i}{84} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{3\sqrt{7}i}{49} & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}i}{84} & 0 & \frac{\sqrt{70}i}{196} & 0 & 0 \\ 0 & 0 & 0 & \frac{3\sqrt{7}i}{49} & 0 & -\frac{3\sqrt{70}i}{98} & 0 & 0 & 0 & 0 & -\frac{11\sqrt{21}i}{588} & 0 & -\frac{\sqrt{105}i}{588} & 0 \\ 0 & 0 & 0 & 0 & \frac{3\sqrt{70}i}{98} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{7}i}{196} & 0 & -\frac{5\sqrt{3}i}{84} \\ -\frac{5\sqrt{3}i}{84} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{2}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{105}i}{588} & 0 & 0 & 0 & 0 & -\frac{5\sqrt{2}i}{28} & 0 & \frac{5\sqrt{42}i}{147} & 0 & 0 & 0 & 0 & 0 \\ -\frac{5\sqrt{7}i}{196} & 0 & \frac{\sqrt{70}i}{196} & 0 & 0 & 0 & 0 & -\frac{5\sqrt{42}i}{147} & 0 & \frac{5\sqrt{210}i}{588} & 0 & 0 & 0 & 0 \\ 0 & -\frac{11\sqrt{21}i}{588} & 0 & \frac{\sqrt{42}i}{84} & 0 & 0 & 0 & 0 & -\frac{5\sqrt{210}i}{588} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{42}i}{84} & 0 & \frac{11\sqrt{21}i}{588} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{210}i}{588} & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{70}i}{196} & 0 & \frac{5\sqrt{7}i}{196} & 0 & 0 & 0 & 0 & \frac{5\sqrt{210}i}{588} & 0 & -\frac{5\sqrt{42}i}{147} & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{588} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{42}i}{147} & 0 & -\frac{5\sqrt{2}i}{28} \\ 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{3}i}{84} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{2}i}{28} & 0 \end{bmatrix}$$

$$\boxed{\text{x398}} \quad \mathbb{Q}_{2,2}^{(a)}(E_g) = \begin{bmatrix} 0 & -\frac{3\sqrt{70}}{98} & 0 & 0 & 0 & 0 & \frac{5\sqrt{3}}{84} & 0 & -\frac{5\sqrt{7}}{196} & 0 & 0 & 0 & 0 & 0 \\ -\frac{3\sqrt{70}}{98} & 0 & -\frac{3\sqrt{7}}{49} & 0 & 0 & 0 & 0 & \frac{\sqrt{105}}{588} & 0 & -\frac{11\sqrt{21}}{588} & 0 & 0 & 0 & 0 \\ 0 & -\frac{3\sqrt{7}}{49} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}}{196} & 0 & -\frac{\sqrt{42}}{84} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{3\sqrt{7}}{49} & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}}{84} & 0 & -\frac{\sqrt{70}}{196} & 0 & 0 \\ 0 & 0 & 0 & \frac{3\sqrt{7}}{49} & 0 & \frac{3\sqrt{70}}{98} & 0 & 0 & 0 & 0 & -\frac{11\sqrt{21}}{588} & 0 & \frac{\sqrt{105}}{588} & 0 \\ 0 & 0 & 0 & 0 & \frac{3\sqrt{70}}{98} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{7}}{196} & 0 & \frac{5\sqrt{3}}{84} \\ \frac{5\sqrt{3}}{84} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{2}}{28} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{105}}{588} & 0 & 0 & 0 & 0 & -\frac{5\sqrt{2}}{28} & 0 & -\frac{5\sqrt{42}}{147} & 0 & 0 & 0 & 0 & 0 \\ -\frac{5\sqrt{7}}{196} & 0 & -\frac{\sqrt{70}}{196} & 0 & 0 & 0 & 0 & -\frac{5\sqrt{42}}{147} & 0 & -\frac{5\sqrt{210}}{588} & 0 & 0 & 0 & 0 \\ 0 & -\frac{11\sqrt{21}}{588} & 0 & -\frac{\sqrt{42}}{84} & 0 & 0 & 0 & 0 & -\frac{5\sqrt{210}}{588} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{42}}{84} & 0 & -\frac{11\sqrt{21}}{588} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{210}}{588} & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{70}}{196} & 0 & -\frac{5\sqrt{7}}{196} & 0 & 0 & 0 & 0 & \frac{5\sqrt{210}}{588} & 0 & \frac{5\sqrt{42}}{147} & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{105}}{588} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{42}}{147} & 0 & \frac{5\sqrt{2}}{28} \\ 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{3}}{84} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{2}}{28} & 0 \end{bmatrix}$$

$$\boxed{\text{x399}} \quad \mathbb{Q}_{4,1}^{(a)}(E_g, 1) = \begin{bmatrix} 0 & \frac{\sqrt{11}i}{28} & 0 & \frac{\sqrt{22}i}{56} & 0 & 0 & \frac{\sqrt{2310}i}{616} & 0 & \frac{5\sqrt{110}i}{308} & 0 & \frac{5\sqrt{66}i}{616} & 0 & 0 & 0 \\ -\frac{\sqrt{11}i}{28} & 0 & -\frac{\sqrt{110}i}{56} & 0 & 0 & 0 & 0 & -\frac{13\sqrt{66}i}{616} & 0 & -\frac{\sqrt{330}i}{308} & 0 & \frac{\sqrt{22}i}{88} & 0 & 0 \\ 0 & \frac{\sqrt{110}i}{56} & 0 & 0 & 0 & -\frac{\sqrt{22}i}{56} & \frac{3\sqrt{231}i}{616} & 0 & \frac{\sqrt{11}i}{616} & 0 & -\frac{\sqrt{165}i}{88} & 0 & -\frac{\sqrt{33}i}{616} & 0 \\ -\frac{\sqrt{22}i}{56} & 0 & 0 & 0 & \frac{\sqrt{110}i}{56} & 0 & 0 & \frac{\sqrt{33}i}{616} & 0 & \frac{\sqrt{165}i}{88} & 0 & -\frac{\sqrt{11}i}{616} & 0 & -\frac{3\sqrt{231}i}{616} \\ 0 & 0 & 0 & -\frac{\sqrt{110}i}{56} & 0 & -\frac{\sqrt{11}i}{28} & 0 & 0 & -\frac{\sqrt{22}i}{88} & 0 & \frac{\sqrt{330}i}{308} & 0 & \frac{13\sqrt{66}i}{616} & 0 \\ 0 & 0 & \frac{\sqrt{22}i}{56} & 0 & \frac{\sqrt{11}i}{28} & 0 & 0 & 0 & 0 & -\frac{5\sqrt{66}i}{616} & 0 & -\frac{5\sqrt{110}i}{308} & 0 & -\frac{\sqrt{2310}i}{616} \\ -\frac{\sqrt{2310}i}{616} & 0 & -\frac{3\sqrt{231}i}{616} & 0 & 0 & 0 & 0 & \frac{3\sqrt{385}i}{308} & 0 & \frac{3\sqrt{77}i}{308} & 0 & 0 & 0 & 0 \\ 0 & \frac{13\sqrt{66}i}{616} & 0 & -\frac{\sqrt{33}i}{616} & 0 & 0 & -\frac{3\sqrt{385}i}{308} & 0 & -\frac{3\sqrt{165}i}{308} & 0 & \frac{3\sqrt{11}i}{154} & 0 & 0 & 0 \\ -\frac{5\sqrt{110}i}{308} & 0 & -\frac{\sqrt{11}i}{616} & 0 & \frac{\sqrt{22}i}{88} & 0 & 0 & \frac{3\sqrt{165}i}{308} & 0 & -\frac{9\sqrt{33}i}{308} & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{330}i}{308} & 0 & -\frac{\sqrt{165}i}{88} & 0 & \frac{5\sqrt{66}i}{616} & -\frac{3\sqrt{77}i}{308} & 0 & \frac{9\sqrt{33}i}{308} & 0 & 0 & 0 & -\frac{3\sqrt{11}i}{154} & 0 \\ -\frac{5\sqrt{66}i}{616} & 0 & \frac{\sqrt{165}i}{88} & 0 & -\frac{\sqrt{330}i}{308} & 0 & 0 & -\frac{3\sqrt{11}i}{154} & 0 & 0 & 0 & \frac{9\sqrt{33}i}{308} & 0 & -\frac{3\sqrt{77}i}{308} \\ 0 & -\frac{\sqrt{22}i}{88} & 0 & \frac{\sqrt{11}i}{616} & 0 & \frac{5\sqrt{110}i}{308} & 0 & 0 & 0 & 0 & -\frac{9\sqrt{33}i}{308} & 0 & \frac{3\sqrt{165}i}{308} & 0 \\ 0 & 0 & \frac{\sqrt{33}i}{616} & 0 & -\frac{13\sqrt{66}i}{616} & 0 & 0 & 0 & 0 & \frac{3\sqrt{11}i}{154} & 0 & -\frac{3\sqrt{165}i}{308} & 0 & -\frac{3\sqrt{385}i}{308} \\ 0 & 0 & 0 & \frac{3\sqrt{231}i}{616} & 0 & \frac{\sqrt{2310}i}{616} & 0 & 0 & 0 & 0 & \frac{3\sqrt{77}i}{308} & 0 & \frac{3\sqrt{385}i}{308} & 0 \end{bmatrix}$$

$$\boxed{\text{x400}} \quad \mathbb{Q}_{4,2}^{(a)}(E_g, 1) = \begin{bmatrix} 0 & -\frac{\sqrt{11}}{28} & 0 & \frac{\sqrt{22}}{56} & 0 & 0 & \frac{\sqrt{2310}}{616} & 0 & -\frac{5\sqrt{110}}{308} & 0 & \frac{5\sqrt{66}}{616} & 0 & 0 & 0 \\ -\frac{\sqrt{11}}{28} & 0 & \frac{\sqrt{110}}{56} & 0 & 0 & 0 & 0 & -\frac{13\sqrt{66}}{616} & 0 & \frac{\sqrt{330}}{308} & 0 & \frac{\sqrt{22}}{88} & 0 & 0 \\ 0 & \frac{\sqrt{110}}{56} & 0 & 0 & 0 & -\frac{\sqrt{22}}{56} & -\frac{3\sqrt{231}}{616} & 0 & \frac{\sqrt{11}}{616} & 0 & \frac{\sqrt{165}}{88} & 0 & -\frac{\sqrt{33}}{616} & 0 \\ \frac{\sqrt{22}}{56} & 0 & 0 & 0 & -\frac{\sqrt{110}}{56} & 0 & 0 & -\frac{\sqrt{33}}{616} & 0 & \frac{\sqrt{165}}{88} & 0 & \frac{\sqrt{11}}{616} & 0 & -\frac{3\sqrt{231}}{616} \\ 0 & 0 & 0 & -\frac{\sqrt{110}}{56} & 0 & \frac{\sqrt{11}}{28} & 0 & 0 & \frac{\sqrt{22}}{88} & 0 & \frac{\sqrt{330}}{308} & 0 & -\frac{13\sqrt{66}}{616} & 0 \\ 0 & 0 & -\frac{\sqrt{22}}{56} & 0 & \frac{\sqrt{11}}{28} & 0 & 0 & 0 & 0 & \frac{5\sqrt{66}}{616} & 0 & -\frac{5\sqrt{110}}{308} & 0 & \frac{\sqrt{2310}}{616} \\ \frac{\sqrt{2310}}{616} & 0 & -\frac{3\sqrt{231}}{616} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{385}}{308} & 0 & \frac{3\sqrt{77}}{308} & 0 & 0 & 0 & 0 \\ 0 & -\frac{13\sqrt{66}}{616} & 0 & -\frac{\sqrt{33}}{616} & 0 & 0 & -\frac{3\sqrt{385}}{308} & 0 & \frac{3\sqrt{165}}{308} & 0 & \frac{3\sqrt{11}}{154} & 0 & 0 & 0 \\ -\frac{5\sqrt{110}}{308} & 0 & \frac{\sqrt{11}}{616} & 0 & \frac{\sqrt{22}}{88} & 0 & 0 & \frac{3\sqrt{165}}{308} & 0 & \frac{9\sqrt{33}}{308} & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{330}}{308} & 0 & \frac{\sqrt{165}}{88} & 0 & \frac{5\sqrt{66}}{616} & \frac{3\sqrt{77}}{308} & 0 & \frac{9\sqrt{33}}{308} & 0 & 0 & 0 & -\frac{3\sqrt{11}}{154} & 0 \\ \frac{5\sqrt{66}}{616} & 0 & \frac{\sqrt{165}}{88} & 0 & \frac{\sqrt{330}}{308} & 0 & 0 & \frac{3\sqrt{11}}{154} & 0 & 0 & 0 & -\frac{9\sqrt{33}}{308} & 0 & -\frac{3\sqrt{77}}{308} \\ 0 & \frac{\sqrt{22}}{88} & 0 & \frac{\sqrt{11}}{616} & 0 & -\frac{5\sqrt{110}}{308} & 0 & 0 & 0 & 0 & -\frac{9\sqrt{33}}{308} & 0 & -\frac{3\sqrt{165}}{308} & 0 \\ 0 & 0 & -\frac{\sqrt{33}}{616} & 0 & -\frac{13\sqrt{66}}{616} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{11}}{154} & 0 & -\frac{3\sqrt{165}}{308} & 0 & \frac{3\sqrt{385}}{308} \\ 0 & 0 & 0 & -\frac{3\sqrt{231}}{616} & 0 & \frac{\sqrt{2310}}{616} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{77}}{308} & 0 & \frac{3\sqrt{385}}{308} & 0 \end{bmatrix}$$

$$\begin{aligned}
\boxed{x401} \quad \mathbb{Q}_{4,1}^{(a)}(E_g, 2) = & \begin{bmatrix} 0 & \frac{\sqrt{77}i}{196} & 0 & -\frac{\sqrt{154}i}{56} & 0 & 0 & \frac{\sqrt{330}i}{616} & 0 & \frac{5\sqrt{770}i}{2156} & 0 & -\frac{5\sqrt{462}i}{616} & 0 & 0 & 0 \\ -\frac{\sqrt{77}i}{196} & 0 & -\frac{\sqrt{770}i}{392} & 0 & 0 & 0 & 0 & -\frac{13\sqrt{462}i}{4312} & 0 & -\frac{\sqrt{2310}i}{2156} & 0 & -\frac{\sqrt{154}i}{88} & 0 & 0 \\ 0 & \frac{\sqrt{770}i}{392} & 0 & 0 & 0 & \frac{\sqrt{154}i}{56} & -\frac{3\sqrt{33}i}{88} & 0 & \frac{\sqrt{77}i}{4312} & 0 & -\frac{\sqrt{1155}i}{616} & 0 & \frac{\sqrt{231}i}{616} & 0 \\ \frac{\sqrt{154}i}{56} & 0 & 0 & 0 & \frac{\sqrt{770}i}{392} & 0 & 0 & -\frac{\sqrt{231}i}{616} & 0 & \frac{\sqrt{1155}i}{616} & 0 & -\frac{\sqrt{77}i}{4312} & 0 & \frac{3\sqrt{33}i}{88} \\ 0 & 0 & 0 & -\frac{\sqrt{770}i}{392} & 0 & -\frac{\sqrt{77}i}{196} & 0 & 0 & \frac{\sqrt{154}i}{88} & 0 & \frac{\sqrt{2310}i}{2156} & 0 & \frac{13\sqrt{462}i}{4312} & 0 \\ 0 & 0 & -\frac{\sqrt{154}i}{56} & 0 & \frac{\sqrt{77}i}{196} & 0 & 0 & 0 & 0 & \frac{5\sqrt{462}i}{616} & 0 & -\frac{5\sqrt{770}i}{2156} & 0 & -\frac{\sqrt{330}i}{616} \\ -\frac{\sqrt{330}i}{616} & 0 & \frac{3\sqrt{33}i}{88} & 0 & 0 & 0 & 0 & \frac{3\sqrt{55}i}{308} & 0 & -\frac{3\sqrt{11}i}{44} & 0 & 0 & 0 & 0 \\ 0 & \frac{13\sqrt{462}i}{4312} & 0 & \frac{\sqrt{231}i}{616} & 0 & 0 & -\frac{3\sqrt{55}i}{308} & 0 & -\frac{3\sqrt{1155}i}{2156} & 0 & -\frac{3\sqrt{77}i}{154} & 0 & 0 & 0 \\ -\frac{5\sqrt{770}i}{2156} & 0 & -\frac{\sqrt{77}i}{4312} & 0 & -\frac{\sqrt{154}i}{88} & 0 & 0 & \frac{3\sqrt{1155}i}{2156} & 0 & -\frac{9\sqrt{231}i}{2156} & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{2310}i}{2156} & 0 & -\frac{\sqrt{1155}i}{616} & 0 & -\frac{5\sqrt{462}i}{616} & \frac{3\sqrt{11}i}{44} & 0 & \frac{9\sqrt{231}i}{2156} & 0 & 0 & 0 & \frac{3\sqrt{77}i}{154} & 0 \\ \frac{5\sqrt{462}i}{616} & 0 & \frac{\sqrt{1155}i}{616} & 0 & -\frac{\sqrt{2310}i}{2156} & 0 & 0 & \frac{3\sqrt{77}i}{154} & 0 & 0 & 0 & \frac{9\sqrt{231}i}{2156} & 0 & \frac{3\sqrt{11}i}{44} \\ 0 & \frac{\sqrt{154}i}{88} & 0 & \frac{\sqrt{77}i}{4312} & 0 & \frac{5\sqrt{770}i}{2156} & 0 & 0 & 0 & 0 & -\frac{9\sqrt{231}i}{2156} & 0 & \frac{3\sqrt{1155}i}{2156} & 0 \\ 0 & 0 & -\frac{\sqrt{231}i}{616} & 0 & -\frac{13\sqrt{462}i}{4312} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{77}i}{154} & 0 & -\frac{3\sqrt{1155}i}{2156} & 0 & -\frac{3\sqrt{55}i}{308} \\ 0 & 0 & 0 & -\frac{3\sqrt{33}i}{88} & 0 & \frac{\sqrt{330}i}{616} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{11}i}{44} & 0 & \frac{3\sqrt{55}i}{308} & 0 \end{bmatrix} \\
\boxed{x402} \quad \mathbb{Q}_{4,2}^{(a)}(E_g, 2) = & \begin{bmatrix} 0 & -\frac{\sqrt{77}}{196} & 0 & -\frac{\sqrt{154}}{56} & 0 & 0 & \frac{\sqrt{330}}{616} & 0 & -\frac{5\sqrt{770}}{2156} & 0 & -\frac{5\sqrt{462}}{616} & 0 & 0 & 0 \\ -\frac{\sqrt{77}}{196} & 0 & \frac{\sqrt{770}}{392} & 0 & 0 & 0 & 0 & -\frac{13\sqrt{462}}{4312} & 0 & \frac{\sqrt{2310}}{2156} & 0 & -\frac{\sqrt{154}}{88} & 0 & 0 \\ 0 & \frac{\sqrt{770}}{392} & 0 & 0 & 0 & \frac{\sqrt{154}}{56} & \frac{3\sqrt{33}}{88} & 0 & \frac{\sqrt{77}}{4312} & 0 & \frac{\sqrt{1155}}{616} & 0 & \frac{\sqrt{231}}{616} & 0 \\ -\frac{\sqrt{154}}{56} & 0 & 0 & 0 & -\frac{\sqrt{770}}{392} & 0 & 0 & \frac{\sqrt{231}}{616} & 0 & \frac{\sqrt{1155}}{616} & 0 & \frac{\sqrt{77}}{4312} & 0 & \frac{3\sqrt{33}}{88} \\ 0 & 0 & 0 & -\frac{\sqrt{770}}{392} & 0 & \frac{\sqrt{77}}{196} & 0 & 0 & -\frac{\sqrt{154}}{88} & 0 & \frac{\sqrt{2310}}{2156} & 0 & -\frac{13\sqrt{462}}{4312} & 0 \\ 0 & 0 & \frac{\sqrt{154}}{56} & 0 & \frac{\sqrt{77}}{196} & 0 & 0 & 0 & 0 & -\frac{5\sqrt{462}}{616} & 0 & -\frac{5\sqrt{770}}{2156} & 0 & \frac{\sqrt{330}}{616} \\ \frac{\sqrt{330}}{616} & 0 & \frac{3\sqrt{33}}{88} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{55}}{308} & 0 & -\frac{3\sqrt{11}}{44} & 0 & 0 & 0 & 0 \\ 0 & -\frac{13\sqrt{462}}{4312} & 0 & \frac{\sqrt{231}}{616} & 0 & 0 & -\frac{3\sqrt{55}}{308} & 0 & \frac{3\sqrt{1155}}{2156} & 0 & -\frac{3\sqrt{77}}{154} & 0 & 0 & 0 \\ -\frac{5\sqrt{770}}{2156} & 0 & \frac{\sqrt{77}}{4312} & 0 & -\frac{\sqrt{154}}{88} & 0 & 0 & \frac{3\sqrt{1155}}{2156} & 0 & \frac{9\sqrt{231}}{2156} & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{2310}}{2156} & 0 & \frac{\sqrt{1155}}{616} & 0 & -\frac{5\sqrt{462}}{616} & -\frac{3\sqrt{11}}{44} & 0 & \frac{9\sqrt{231}}{2156} & 0 & 0 & 0 & \frac{3\sqrt{77}}{154} & 0 \\ -\frac{5\sqrt{462}}{616} & 0 & \frac{\sqrt{1155}}{616} & 0 & \frac{\sqrt{2310}}{2156} & 0 & 0 & -\frac{3\sqrt{77}}{154} & 0 & 0 & 0 & -\frac{9\sqrt{231}}{2156} & 0 & \frac{3\sqrt{11}}{44} \\ 0 & -\frac{\sqrt{154}}{88} & 0 & \frac{\sqrt{77}}{4312} & 0 & -\frac{5\sqrt{770}}{2156} & 0 & 0 & 0 & 0 & -\frac{9\sqrt{231}}{2156} & 0 & -\frac{3\sqrt{1155}}{2156} & 0 \\ 0 & 0 & \frac{\sqrt{231}}{616} & 0 & -\frac{13\sqrt{462}}{4312} & 0 & 0 & 0 & 0 & \frac{3\sqrt{77}}{154} & 0 & -\frac{3\sqrt{1155}}{2156} & 0 & \frac{3\sqrt{55}}{308} \\ 0 & 0 & 0 & \frac{3\sqrt{33}}{88} & 0 & \frac{\sqrt{330}}{616} & 0 & 0 & 0 & 0 & \frac{3\sqrt{11}}{44} & 0 & \frac{3\sqrt{55}}{308} & 0 \end{bmatrix}
\end{aligned}$$

$$\begin{aligned}
\boxed{x403} \quad \mathbb{Q}_{6,1}^{(a)}(E_g, 1) = & \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{77}i}{1232} & 0 & \frac{\sqrt{33}i}{176} & 0 & -\frac{3\sqrt{55}i}{176} & 0 & -\frac{\sqrt{11}i}{16} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{55}i}{176} & 0 & -\frac{5\sqrt{11}i}{176} & 0 & \frac{3\sqrt{165}i}{176} & 0 & \frac{\sqrt{385}i}{112} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{770}i}{1232} & 0 & \frac{\sqrt{330}i}{176} & 0 & \frac{5\sqrt{22}i}{176} & 0 & -\frac{3\sqrt{110}i}{176} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{110}i}{176} & 0 & -\frac{5\sqrt{22}i}{176} & 0 & -\frac{\sqrt{330}i}{176} & 0 & \frac{3\sqrt{770}i}{1232} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{385}i}{112} & 0 & -\frac{3\sqrt{165}i}{176} & 0 & \frac{5\sqrt{11}i}{176} & 0 & \frac{\sqrt{55}i}{176} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{11}i}{16} & 0 & \frac{3\sqrt{55}i}{176} & 0 & -\frac{\sqrt{33}i}{176} & 0 & -\frac{\sqrt{77}i}{1232} \\ -\frac{\sqrt{77}i}{1232} & 0 & \frac{3\sqrt{770}i}{1232} & 0 & \frac{\sqrt{385}i}{112} & 0 & 0 & \frac{\sqrt{462}i}{1232} & 0 & -\frac{\sqrt{2310}i}{616} & 0 & -\frac{\sqrt{154}i}{112} & 0 & 0 \\ 0 & \frac{\sqrt{55}i}{176} & 0 & -\frac{3\sqrt{110}i}{176} & 0 & -\frac{\sqrt{11}i}{16} & -\frac{\sqrt{462}i}{1232} & 0 & -\frac{\sqrt{22}i}{88} & 0 & \frac{\sqrt{330}i}{176} & 0 & 0 & 0 \\ -\frac{\sqrt{33}i}{176} & 0 & -\frac{\sqrt{330}i}{176} & 0 & \frac{3\sqrt{165}i}{176} & 0 & 0 & \frac{\sqrt{22}i}{88} & 0 & \frac{\sqrt{110}i}{176} & 0 & 0 & 0 & \frac{\sqrt{154}i}{112} \\ 0 & \frac{5\sqrt{11}i}{176} & 0 & \frac{5\sqrt{22}i}{176} & 0 & -\frac{3\sqrt{55}i}{176} & \frac{\sqrt{2310}i}{616} & 0 & -\frac{\sqrt{110}i}{176} & 0 & 0 & 0 & -\frac{\sqrt{330}i}{176} & 0 \\ \frac{3\sqrt{55}i}{176} & 0 & -\frac{5\sqrt{22}i}{176} & 0 & -\frac{5\sqrt{11}i}{176} & 0 & 0 & -\frac{\sqrt{330}i}{176} & 0 & 0 & 0 & -\frac{\sqrt{110}i}{176} & 0 & \frac{\sqrt{2310}i}{616} \\ 0 & -\frac{3\sqrt{165}i}{176} & 0 & \frac{\sqrt{330}i}{176} & 0 & \frac{\sqrt{33}i}{176} & \frac{\sqrt{154}i}{112} & 0 & 0 & 0 & \frac{\sqrt{110}i}{176} & 0 & \frac{\sqrt{22}i}{88} & 0 \\ \frac{\sqrt{11}i}{16} & 0 & \frac{3\sqrt{110}i}{176} & 0 & -\frac{\sqrt{55}i}{176} & 0 & 0 & 0 & 0 & \frac{\sqrt{330}i}{176} & 0 & -\frac{\sqrt{22}i}{88} & 0 & -\frac{\sqrt{462}i}{1232} \\ 0 & -\frac{\sqrt{385}i}{112} & 0 & -\frac{3\sqrt{770}i}{1232} & 0 & \frac{\sqrt{77}i}{1232} & 0 & 0 & -\frac{\sqrt{154}i}{112} & 0 & -\frac{\sqrt{2310}i}{616} & 0 & \frac{\sqrt{462}i}{1232} & 0 \end{bmatrix} \\
\boxed{x404} \quad \mathbb{Q}_{6,2}^{(a)}(E_g, 1) = & \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{77}}{1232} & 0 & -\frac{\sqrt{33}}{176} & 0 & -\frac{3\sqrt{55}}{176} & 0 & \frac{\sqrt{11}}{16} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{55}}{176} & 0 & \frac{5\sqrt{11}}{176} & 0 & \frac{3\sqrt{165}}{176} & 0 & -\frac{\sqrt{385}}{112} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{770}}{1232} & 0 & \frac{\sqrt{330}}{176} & 0 & -\frac{5\sqrt{22}}{176} & 0 & -\frac{3\sqrt{110}}{176} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{110}}{176} & 0 & -\frac{5\sqrt{22}}{176} & 0 & \frac{\sqrt{330}}{176} & 0 & \frac{3\sqrt{770}}{1232} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{385}}{112} & 0 & \frac{3\sqrt{165}}{176} & 0 & \frac{5\sqrt{11}}{176} & 0 & -\frac{\sqrt{55}}{176} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{11}}{16} & 0 & -\frac{3\sqrt{55}}{176} & 0 & -\frac{\sqrt{33}}{176} & 0 & \frac{\sqrt{77}}{1232} \\ \frac{\sqrt{77}}{1232} & 0 & \frac{3\sqrt{770}}{1232} & 0 & -\frac{\sqrt{385}}{112} & 0 & 0 & -\frac{\sqrt{462}}{1232} & 0 & -\frac{\sqrt{2310}}{616} & 0 & \frac{\sqrt{154}}{112} & 0 & 0 \\ 0 & -\frac{\sqrt{55}}{176} & 0 & -\frac{3\sqrt{110}}{176} & 0 & \frac{\sqrt{11}}{16} & -\frac{\sqrt{462}}{1232} & 0 & \frac{\sqrt{22}}{88} & 0 & \frac{\sqrt{330}}{176} & 0 & 0 & 0 \\ -\frac{\sqrt{33}}{176} & 0 & \frac{\sqrt{330}}{176} & 0 & \frac{3\sqrt{165}}{176} & 0 & 0 & \frac{\sqrt{22}}{88} & 0 & -\frac{\sqrt{110}}{176} & 0 & 0 & 0 & -\frac{\sqrt{154}}{112} \\ 0 & \frac{5\sqrt{11}}{176} & 0 & -\frac{5\sqrt{22}}{176} & 0 & -\frac{3\sqrt{55}}{176} & -\frac{\sqrt{2310}}{616} & 0 & -\frac{\sqrt{110}}{176} & 0 & 0 & 0 & -\frac{\sqrt{330}}{176} & 0 \\ -\frac{3\sqrt{55}}{176} & 0 & -\frac{5\sqrt{22}}{176} & 0 & \frac{5\sqrt{11}}{176} & 0 & 0 & \frac{\sqrt{330}}{176} & 0 & 0 & 0 & 0 & \frac{\sqrt{110}}{176} & \frac{\sqrt{2310}}{616} \\ 0 & \frac{3\sqrt{165}}{176} & 0 & \frac{\sqrt{330}}{176} & 0 & -\frac{\sqrt{33}}{176} & \frac{\sqrt{154}}{112} & 0 & 0 & 0 & \frac{\sqrt{110}}{176} & 0 & -\frac{\sqrt{22}}{88} & 0 \\ \frac{\sqrt{11}}{16} & 0 & -\frac{3\sqrt{110}}{176} & 0 & -\frac{\sqrt{55}}{176} & 0 & 0 & 0 & 0 & -\frac{\sqrt{330}}{176} & 0 & -\frac{\sqrt{22}}{88} & 0 & \frac{\sqrt{462}}{1232} \\ 0 & -\frac{\sqrt{385}}{112} & 0 & \frac{3\sqrt{770}}{1232} & 0 & \frac{\sqrt{77}}{1232} & 0 & 0 & -\frac{\sqrt{154}}{112} & 0 & \frac{\sqrt{2310}}{616} & 0 & \frac{\sqrt{462}}{1232} & 0 \end{bmatrix}
\end{aligned}$$



$$\begin{aligned}
\boxed{x405} \quad \mathbb{Q}_{6,1}^{(a)}(E_g, 2) = & \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{42}i}{448} & 0 & \frac{3\sqrt{2}i}{64} & 0 & \frac{\sqrt{30}i}{64} & 0 & \frac{\sqrt{6}i}{64} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}i}{64} & 0 & -\frac{5\sqrt{6}i}{64} & 0 & -\frac{3\sqrt{10}i}{64} & 0 & -\frac{\sqrt{210}i}{448} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{224} & 0 & \frac{3\sqrt{5}i}{32} & 0 & \frac{5\sqrt{3}i}{32} & 0 & \frac{\sqrt{15}i}{32} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{32} & 0 & -\frac{5\sqrt{3}i}{32} & 0 & -\frac{3\sqrt{5}i}{32} & 0 & -\frac{\sqrt{105}i}{224} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{210}i}{448} & 0 & \frac{3\sqrt{10}i}{64} & 0 & \frac{5\sqrt{6}i}{64} & 0 & \frac{\sqrt{30}i}{64} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}i}{64} & 0 & -\frac{\sqrt{30}i}{64} & 0 & -\frac{3\sqrt{2}i}{64} & 0 & -\frac{\sqrt{42}i}{448} \\ -\frac{\sqrt{42}i}{448} & 0 & -\frac{\sqrt{105}i}{224} & 0 & -\frac{\sqrt{210}i}{448} & 0 & 0 & \frac{3\sqrt{7}i}{224} & 0 & \frac{\sqrt{35}i}{112} & 0 & \frac{\sqrt{21}i}{224} & 0 & 0 \\ 0 & \frac{\sqrt{30}i}{64} & 0 & \frac{\sqrt{15}i}{32} & 0 & \frac{\sqrt{6}i}{64} & -\frac{3\sqrt{7}i}{224} & 0 & -\frac{\sqrt{3}i}{16} & 0 & -\frac{\sqrt{5}i}{32} & 0 & 0 & 0 \\ -\frac{3\sqrt{2}i}{64} & 0 & -\frac{3\sqrt{5}i}{32} & 0 & -\frac{3\sqrt{10}i}{64} & 0 & 0 & \frac{\sqrt{3}i}{16} & 0 & \frac{\sqrt{15}i}{32} & 0 & 0 & 0 & -\frac{\sqrt{21}i}{224} \\ 0 & \frac{5\sqrt{6}i}{64} & 0 & \frac{5\sqrt{3}i}{32} & 0 & \frac{\sqrt{30}i}{64} & -\frac{\sqrt{35}i}{112} & 0 & -\frac{\sqrt{15}i}{32} & 0 & 0 & 0 & \frac{\sqrt{5}i}{32} & 0 \\ -\frac{\sqrt{30}i}{64} & 0 & -\frac{5\sqrt{3}i}{32} & 0 & -\frac{5\sqrt{6}i}{64} & 0 & 0 & \frac{\sqrt{5}i}{32} & 0 & 0 & 0 & -\frac{\sqrt{15}i}{32} & 0 & -\frac{\sqrt{35}i}{112} \\ 0 & \frac{3\sqrt{10}i}{64} & 0 & \frac{3\sqrt{5}i}{32} & 0 & \frac{3\sqrt{2}i}{64} & -\frac{\sqrt{21}i}{224} & 0 & 0 & 0 & \frac{\sqrt{15}i}{32} & 0 & \frac{\sqrt{3}i}{16} & 0 \\ -\frac{\sqrt{6}i}{64} & 0 & -\frac{\sqrt{15}i}{32} & 0 & -\frac{\sqrt{30}i}{64} & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{32} & 0 & -\frac{\sqrt{3}i}{16} & 0 & -\frac{3\sqrt{7}i}{224} \\ 0 & \frac{\sqrt{210}i}{448} & 0 & \frac{\sqrt{105}i}{224} & 0 & \frac{\sqrt{42}i}{448} & 0 & 0 & \frac{\sqrt{21}i}{224} & 0 & \frac{\sqrt{35}i}{112} & 0 & \frac{3\sqrt{7}i}{224} & 0 \end{bmatrix} \\
\boxed{x406} \quad \mathbb{Q}_{6,2}^{(a)}(E_g, 2) = & \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{42}}{448} & 0 & -\frac{3\sqrt{2}}{64} & 0 & \frac{\sqrt{30}}{64} & 0 & -\frac{\sqrt{6}}{64} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}}{64} & 0 & \frac{5\sqrt{6}}{64} & 0 & -\frac{3\sqrt{10}}{64} & 0 & \frac{\sqrt{210}}{448} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{224} & 0 & \frac{3\sqrt{5}}{32} & 0 & -\frac{5\sqrt{3}}{32} & 0 & \frac{\sqrt{15}}{32} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{32} & 0 & -\frac{5\sqrt{3}}{32} & 0 & \frac{3\sqrt{5}}{32} & 0 & -\frac{\sqrt{105}}{224} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{210}}{448} & 0 & -\frac{3\sqrt{10}}{64} & 0 & \frac{5\sqrt{6}}{64} & 0 & -\frac{\sqrt{30}}{64} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{64} & 0 & \frac{\sqrt{30}}{64} & 0 & -\frac{3\sqrt{2}}{64} & 0 & \frac{\sqrt{42}}{448} \\ \frac{\sqrt{42}}{448} & 0 & -\frac{\sqrt{105}}{224} & 0 & \frac{\sqrt{210}}{448} & 0 & 0 & -\frac{3\sqrt{7}}{224} & 0 & \frac{\sqrt{35}}{112} & 0 & -\frac{\sqrt{21}}{224} & 0 & 0 \\ 0 & -\frac{\sqrt{30}}{64} & 0 & \frac{\sqrt{15}}{32} & 0 & -\frac{\sqrt{6}}{64} & -\frac{3\sqrt{7}}{224} & 0 & \frac{\sqrt{3}}{16} & 0 & -\frac{\sqrt{5}}{32} & 0 & 0 & 0 \\ -\frac{3\sqrt{2}}{64} & 0 & \frac{3\sqrt{5}}{32} & 0 & -\frac{3\sqrt{10}}{64} & 0 & 0 & 0 & \frac{\sqrt{3}}{16} & 0 & -\frac{\sqrt{15}}{32} & 0 & 0 & \frac{\sqrt{21}}{224} \\ 0 & \frac{5\sqrt{6}}{64} & 0 & -\frac{5\sqrt{3}}{32} & 0 & \frac{\sqrt{30}}{64} & \frac{\sqrt{35}}{112} & 0 & -\frac{\sqrt{15}}{32} & 0 & 0 & 0 & \frac{\sqrt{5}}{32} & 0 \\ \frac{\sqrt{30}}{64} & 0 & -\frac{5\sqrt{3}}{32} & 0 & \frac{5\sqrt{6}}{64} & 0 & 0 & -\frac{\sqrt{5}}{32} & 0 & 0 & 0 & \frac{\sqrt{15}}{32} & 0 & -\frac{\sqrt{35}}{112} \\ 0 & -\frac{3\sqrt{10}}{64} & 0 & \frac{3\sqrt{5}}{32} & 0 & -\frac{3\sqrt{2}}{64} & -\frac{\sqrt{21}}{224} & 0 & 0 & 0 & \frac{\sqrt{15}}{32} & 0 & -\frac{\sqrt{3}}{16} & 0 \\ -\frac{\sqrt{6}}{64} & 0 & \frac{\sqrt{15}}{32} & 0 & -\frac{\sqrt{30}}{64} & 0 & 0 & 0 & 0 & \frac{\sqrt{5}}{32} & 0 & -\frac{\sqrt{3}}{16} & 0 & \frac{3\sqrt{7}}{224} \\ 0 & \frac{\sqrt{210}}{448} & 0 & -\frac{\sqrt{105}}{224} & 0 & \frac{\sqrt{42}}{448} & 0 & 0 & \frac{\sqrt{21}}{224} & 0 & -\frac{\sqrt{35}}{112} & 0 & \frac{3\sqrt{7}}{224} & 0 \end{bmatrix}
\end{aligned}$$

$$\boxed{\text{x407}} \quad \mathbb{Q}_{6,1}^{(a)}(E_g, 3) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2310}i}{14784} & 0 & \frac{\sqrt{110}i}{704} & 0 & -\frac{9\sqrt{66}i}{704} & 0 & \frac{\sqrt{330}i}{64} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{66}i}{2112} & 0 & -\frac{5\sqrt{330}i}{2112} & 0 & \frac{27\sqrt{22}i}{704} & 0 & -\frac{5\sqrt{462}i}{448} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{9\sqrt{231}i}{2464} & 0 & \frac{5\sqrt{11}i}{352} & 0 & \frac{5\sqrt{165}i}{1056} & 0 & -\frac{9\sqrt{33}i}{352} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{9\sqrt{33}i}{352} & 0 & -\frac{5\sqrt{165}i}{1056} & 0 & -\frac{5\sqrt{11}i}{352} & 0 & \frac{9\sqrt{231}i}{2464} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{462}i}{448} & 0 & -\frac{27\sqrt{22}i}{704} & 0 & \frac{5\sqrt{330}i}{2112} & 0 & \frac{5\sqrt{66}i}{2112} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{330}i}{64} & 0 & \frac{9\sqrt{66}i}{704} & 0 & -\frac{\sqrt{110}i}{704} & 0 & -\frac{\sqrt{2310}i}{14784} \\ -\frac{\sqrt{2310}i}{14784} & 0 & \frac{9\sqrt{231}i}{2464} & 0 & -\frac{5\sqrt{462}i}{448} & 0 & 0 & \frac{\sqrt{385}i}{2464} & 0 & -\frac{9\sqrt{77}i}{1232} & 0 & \frac{\sqrt{1155}i}{224} & 0 & 0 \\ 0 & \frac{5\sqrt{66}i}{2112} & 0 & -\frac{9\sqrt{33}i}{352} & 0 & \frac{\sqrt{330}i}{64} & -\frac{\sqrt{385}i}{2464} & 0 & -\frac{\sqrt{165}i}{528} & 0 & \frac{9\sqrt{11}i}{352} & 0 & 0 & 0 \\ -\frac{\sqrt{110}i}{704} & 0 & -\frac{5\sqrt{11}i}{352} & 0 & \frac{27\sqrt{22}i}{704} & 0 & 0 & \frac{\sqrt{165}i}{528} & 0 & \frac{5\sqrt{33}i}{1056} & 0 & 0 & 0 & -\frac{\sqrt{1155}i}{224} \\ 0 & \frac{5\sqrt{330}i}{2112} & 0 & \frac{5\sqrt{165}i}{1056} & 0 & -\frac{9\sqrt{66}i}{704} & \frac{9\sqrt{77}i}{1232} & 0 & -\frac{5\sqrt{33}i}{1056} & 0 & 0 & 0 & -\frac{9\sqrt{11}i}{352} & 0 \\ \frac{9\sqrt{66}i}{704} & 0 & -\frac{5\sqrt{165}i}{1056} & 0 & -\frac{5\sqrt{330}i}{2112} & 0 & 0 & -\frac{9\sqrt{11}i}{352} & 0 & 0 & 0 & -\frac{5\sqrt{33}i}{1056} & 0 & \frac{9\sqrt{77}i}{1232} \\ 0 & -\frac{27\sqrt{22}i}{704} & 0 & \frac{5\sqrt{11}i}{352} & 0 & \frac{\sqrt{110}i}{704} & -\frac{\sqrt{1155}i}{224} & 0 & 0 & 0 & \frac{5\sqrt{33}i}{1056} & 0 & \frac{\sqrt{165}i}{528} & 0 \\ -\frac{\sqrt{330}i}{64} & 0 & \frac{9\sqrt{33}i}{352} & 0 & -\frac{5\sqrt{66}i}{2112} & 0 & 0 & 0 & 0 & \frac{9\sqrt{11}i}{352} & 0 & -\frac{\sqrt{165}i}{528} & 0 & -\frac{\sqrt{385}i}{2464} \\ 0 & \frac{5\sqrt{462}i}{448} & 0 & -\frac{9\sqrt{231}i}{2464} & 0 & \frac{\sqrt{2310}i}{14784} & 0 & 0 & \frac{\sqrt{1155}i}{224} & 0 & -\frac{9\sqrt{77}i}{1232} & 0 & \frac{\sqrt{385}i}{2464} & 0 \end{bmatrix}$$

$$\boxed{\text{x408}} \quad \mathbb{Q}_{6,2}^{(a)}(E_g, 3) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2310}}{14784} & 0 & -\frac{\sqrt{110}}{704} & 0 & -\frac{9\sqrt{66}}{704} & 0 & -\frac{\sqrt{330}}{64} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{66}}{2112} & 0 & \frac{5\sqrt{330}}{2112} & 0 & \frac{27\sqrt{22}}{704} & 0 & \frac{5\sqrt{462}}{448} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{9\sqrt{231}}{2464} & 0 & \frac{5\sqrt{11}}{352} & 0 & -\frac{5\sqrt{165}}{1056} & 0 & -\frac{9\sqrt{33}}{352} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{9\sqrt{33}}{352} & 0 & -\frac{5\sqrt{165}}{1056} & 0 & \frac{5\sqrt{11}}{352} & 0 & \frac{9\sqrt{231}}{2464} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{462}}{448} & 0 & \frac{27\sqrt{22}}{704} & 0 & \frac{5\sqrt{330}}{2112} & 0 & -\frac{5\sqrt{66}}{2112} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{330}}{64} & 0 & -\frac{9\sqrt{66}}{704} & 0 & -\frac{\sqrt{110}}{704} & 0 & \frac{\sqrt{2310}}{14784} \\ \frac{\sqrt{2310}}{14784} & 0 & \frac{9\sqrt{231}}{2464} & 0 & \frac{5\sqrt{462}}{448} & 0 & 0 & -\frac{\sqrt{385}}{2464} & 0 & -\frac{9\sqrt{77}}{1232} & 0 & -\frac{\sqrt{1155}}{224} & 0 & 0 \\ 0 & -\frac{5\sqrt{66}}{2112} & 0 & -\frac{9\sqrt{33}}{352} & 0 & -\frac{\sqrt{330}}{64} & -\frac{\sqrt{385}}{2464} & 0 & \frac{\sqrt{165}}{528} & 0 & \frac{9\sqrt{11}}{352} & 0 & 0 & 0 \\ -\frac{\sqrt{110}}{704} & 0 & \frac{5\sqrt{11}}{352} & 0 & \frac{27\sqrt{22}}{704} & 0 & 0 & \frac{\sqrt{165}}{528} & 0 & -\frac{5\sqrt{33}}{1056} & 0 & 0 & 0 & \frac{\sqrt{1155}}{224} \\ 0 & \frac{5\sqrt{330}}{2112} & 0 & -\frac{5\sqrt{165}}{1056} & 0 & -\frac{9\sqrt{66}}{704} & -\frac{9\sqrt{77}}{1232} & 0 & -\frac{5\sqrt{33}}{1056} & 0 & 0 & 0 & -\frac{9\sqrt{11}}{352} & 0 \\ -\frac{9\sqrt{66}}{704} & 0 & -\frac{5\sqrt{165}}{1056} & 0 & \frac{5\sqrt{330}}{2112} & 0 & 0 & \frac{9\sqrt{11}}{352} & 0 & 0 & 0 & \frac{5\sqrt{33}}{1056} & 0 & \frac{9\sqrt{77}}{1232} \\ 0 & \frac{27\sqrt{22}}{704} & 0 & \frac{5\sqrt{11}}{352} & 0 & -\frac{\sqrt{110}}{704} & -\frac{\sqrt{1155}}{224} & 0 & 0 & 0 & \frac{5\sqrt{33}}{1056} & 0 & -\frac{\sqrt{165}}{528} & 0 \\ -\frac{\sqrt{330}}{64} & 0 & -\frac{9\sqrt{33}}{352} & 0 & -\frac{5\sqrt{66}}{2112} & 0 & 0 & 0 & 0 & -\frac{9\sqrt{11}}{352} & 0 & -\frac{\sqrt{165}}{528} & 0 & \frac{\sqrt{385}}{2464} \\ 0 & \frac{5\sqrt{462}}{448} & 0 & \frac{9\sqrt{231}}{2464} & 0 & \frac{\sqrt{2310}}{14784} & 0 & 0 & \frac{\sqrt{1155}}{224} & 0 & \frac{9\sqrt{77}}{1232} & 0 & \frac{\sqrt{385}}{2464} & 0 \end{bmatrix}$$

$$\boxed{\text{x409}} \quad \mathbb{Q}_2^{(1,-1;a)}(A_{1g}) = \begin{bmatrix} -\frac{5\sqrt{21}}{147} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{15\sqrt{14}}{196} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{21}}{147} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{210}}{196} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{4\sqrt{21}}{147} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{7}}{98} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{4\sqrt{21}}{147} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{7}}{98} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{147} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{210}}{196} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{21}}{147} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{15\sqrt{14}}{196} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{14} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{15\sqrt{14}}{196} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{98} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{3\sqrt{210}}{196} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{21}}{98} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{3\sqrt{7}}{98} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{21}}{98} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{3\sqrt{7}}{98} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{21}}{98} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{3\sqrt{210}}{196} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{21}}{98} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{15\sqrt{14}}{196} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{98} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{14} \end{bmatrix}$$

$$\boxed{\text{x410}} \quad \mathbb{Q}_4^{(1,-1;a)}(A_{1g}, 1) = \begin{bmatrix} \frac{1}{42} & 0 & 0 & 0 & \frac{\sqrt{5}}{42} & 0 & 0 & \frac{5\sqrt{6}}{84} & 0 & 0 & 0 & \frac{5\sqrt{2}}{84} & 0 & 0 \\ 0 & -\frac{1}{14} & 0 & 0 & 0 & \frac{\sqrt{5}}{42} & 0 & 0 & -\frac{\sqrt{10}}{21} & 0 & 0 & 0 & \frac{\sqrt{30}}{42} & 0 \\ 0 & 0 & \frac{1}{21} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{3}}{84} & 0 & 0 & 0 & \frac{\sqrt{105}}{84} \\ 0 & 0 & 0 & \frac{1}{21} & 0 & 0 & -\frac{\sqrt{105}}{84} & 0 & 0 & 0 & \frac{5\sqrt{3}}{84} & 0 & 0 & 0 \\ \frac{\sqrt{5}}{42} & 0 & 0 & 0 & -\frac{1}{14} & 0 & 0 & -\frac{\sqrt{30}}{42} & 0 & 0 & 0 & \frac{\sqrt{10}}{21} & 0 & 0 \\ 0 & \frac{\sqrt{5}}{42} & 0 & 0 & 0 & \frac{1}{42} & 0 & 0 & -\frac{5\sqrt{2}}{84} & 0 & 0 & 0 & -\frac{5\sqrt{6}}{84} & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{105}}{84} & 0 & 0 & -\frac{1}{6} & 0 & 0 & 0 & -\frac{\sqrt{35}}{42} & 0 & 0 & 0 \\ \frac{5\sqrt{6}}{84} & 0 & 0 & 0 & -\frac{\sqrt{30}}{42} & 0 & 0 & \frac{13}{42} & 0 & 0 & 0 & -\frac{5\sqrt{3}}{42} & 0 & 0 \\ 0 & -\frac{\sqrt{10}}{21} & 0 & 0 & 0 & -\frac{5\sqrt{2}}{84} & 0 & 0 & \frac{1}{14} & 0 & 0 & 0 & -\frac{5\sqrt{3}}{42} & 0 \\ 0 & 0 & -\frac{5\sqrt{3}}{84} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3}{14} & 0 & 0 & 0 & -\frac{\sqrt{35}}{42} \\ 0 & 0 & 0 & \frac{5\sqrt{3}}{84} & 0 & 0 & -\frac{\sqrt{35}}{42} & 0 & 0 & 0 & -\frac{3}{14} & 0 & 0 & 0 \\ \frac{5\sqrt{2}}{84} & 0 & 0 & 0 & \frac{\sqrt{10}}{21} & 0 & 0 & -\frac{5\sqrt{3}}{42} & 0 & 0 & 0 & \frac{1}{14} & 0 & 0 \\ 0 & \frac{\sqrt{30}}{42} & 0 & 0 & 0 & -\frac{5\sqrt{6}}{84} & 0 & 0 & -\frac{5\sqrt{3}}{42} & 0 & 0 & 0 & \frac{13}{42} & 0 \\ 0 & 0 & \frac{\sqrt{105}}{84} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}}{42} & 0 & 0 & 0 & -\frac{1}{6} \end{bmatrix}$$

$$\boxed{\text{x411}} \quad \mathbb{Q}_4^{(1,-1;a)}(A_{1g}, 2) = \begin{bmatrix} \frac{\sqrt{35}}{294} & 0 & 0 & 0 & -\frac{\sqrt{7}}{42} & 0 & 0 & \frac{5\sqrt{210}}{588} & 0 & 0 & 0 & -\frac{\sqrt{70}}{84} & 0 & 0 \\ 0 & -\frac{\sqrt{35}}{98} & 0 & 0 & 0 & -\frac{\sqrt{7}}{42} & 0 & 0 & -\frac{5\sqrt{14}}{147} & 0 & 0 & 0 & -\frac{\sqrt{42}}{42} & 0 \\ 0 & 0 & \frac{\sqrt{35}}{147} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{105}}{588} & 0 & 0 & 0 & -\frac{\sqrt{3}}{12} \\ 0 & 0 & 0 & \frac{\sqrt{35}}{147} & 0 & 0 & \frac{\sqrt{3}}{12} & 0 & 0 & 0 & \frac{5\sqrt{105}}{588} & 0 & 0 & 0 \\ -\frac{\sqrt{7}}{42} & 0 & 0 & 0 & -\frac{\sqrt{35}}{98} & 0 & 0 & \frac{\sqrt{42}}{42} & 0 & 0 & 0 & \frac{5\sqrt{14}}{147} & 0 & 0 \\ 0 & -\frac{\sqrt{7}}{42} & 0 & 0 & 0 & \frac{\sqrt{35}}{294} & 0 & 0 & \frac{\sqrt{70}}{84} & 0 & 0 & 0 & -\frac{5\sqrt{210}}{588} & 0 \\ 0 & 0 & 0 & \frac{\sqrt{3}}{12} & 0 & 0 & -\frac{\sqrt{35}}{42} & 0 & 0 & 0 & \frac{1}{6} & 0 & 0 & 0 \\ \frac{5\sqrt{210}}{588} & 0 & 0 & 0 & \frac{\sqrt{42}}{42} & 0 & 0 & \frac{13\sqrt{35}}{294} & 0 & 0 & 0 & \frac{\sqrt{105}}{42} & 0 & 0 \\ 0 & -\frac{5\sqrt{14}}{147} & 0 & 0 & 0 & \frac{\sqrt{70}}{84} & 0 & 0 & \frac{\sqrt{35}}{98} & 0 & 0 & 0 & \frac{\sqrt{105}}{42} & 0 \\ 0 & 0 & -\frac{5\sqrt{105}}{588} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{35}}{98} & 0 & 0 & 0 & \frac{1}{6} \\ 0 & 0 & 0 & \frac{5\sqrt{105}}{588} & 0 & 0 & \frac{1}{6} & 0 & 0 & 0 & -\frac{3\sqrt{35}}{98} & 0 & 0 & 0 \\ -\frac{\sqrt{70}}{84} & 0 & 0 & 0 & \frac{5\sqrt{14}}{147} & 0 & 0 & \frac{\sqrt{105}}{42} & 0 & 0 & 0 & \frac{\sqrt{35}}{98} & 0 & 0 \\ 0 & -\frac{\sqrt{42}}{42} & 0 & 0 & 0 & -\frac{5\sqrt{210}}{588} & 0 & 0 & \frac{\sqrt{105}}{42} & 0 & 0 & 0 & \frac{13\sqrt{35}}{294} & 0 \\ 0 & 0 & -\frac{\sqrt{3}}{12} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{1}{6} & 0 & 0 & 0 & -\frac{\sqrt{35}}{42} \end{bmatrix}$$

$$\boxed{\text{x412}} \quad \mathbb{Q}_6^{(1,-1;a)}(A_{1g}, 1) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{231}}{1848} & 0 & 0 & 0 & \frac{\sqrt{77}}{88} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{385}}{616} & 0 & 0 & 0 & -\frac{\sqrt{1155}}{264} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{462}}{1848} & 0 & 0 & 0 & \frac{\sqrt{330}}{264} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{330}}{264} & 0 & 0 & 0 & \frac{5\sqrt{462}}{1848} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{1155}}{264} & 0 & 0 & 0 & -\frac{\sqrt{385}}{616} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{77}}{88} & 0 & 0 & 0 & \frac{\sqrt{231}}{1848} & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{330}}{264} & 0 & 0 & \frac{\sqrt{154}}{616} & 0 & 0 & 0 & -\frac{3\sqrt{110}}{88} & 0 & 0 & 0 \\ -\frac{\sqrt{231}}{1848} & 0 & 0 & 0 & \frac{\sqrt{1155}}{264} & 0 & 0 & -\frac{5\sqrt{154}}{616} & 0 & 0 & 0 & \frac{\sqrt{462}}{88} & 0 & 0 \\ 0 & \frac{\sqrt{385}}{616} & 0 & 0 & 0 & -\frac{\sqrt{77}}{88} & 0 & 0 & \frac{9\sqrt{154}}{616} & 0 & 0 & 0 & \frac{\sqrt{462}}{88} & 0 \\ 0 & 0 & -\frac{5\sqrt{462}}{1848} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{154}}{616} & 0 & 0 & 0 & -\frac{3\sqrt{110}}{88} \\ 0 & 0 & 0 & \frac{5\sqrt{462}}{1848} & 0 & 0 & -\frac{3\sqrt{110}}{88} & 0 & 0 & 0 & -\frac{5\sqrt{154}}{616} & 0 & 0 & 0 \\ \frac{\sqrt{77}}{88} & 0 & 0 & 0 & -\frac{\sqrt{385}}{616} & 0 & 0 & \frac{\sqrt{462}}{88} & 0 & 0 & 0 & \frac{9\sqrt{154}}{616} & 0 & 0 \\ 0 & -\frac{\sqrt{1155}}{264} & 0 & 0 & 0 & \frac{\sqrt{231}}{1848} & 0 & 0 & \frac{\sqrt{462}}{88} & 0 & 0 & 0 & -\frac{5\sqrt{154}}{616} & 0 \\ 0 & 0 & \frac{\sqrt{330}}{264} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{110}}{88} & 0 & 0 & 0 & \frac{\sqrt{154}}{616} \end{bmatrix}$$

$$\boxed{\text{x413}} \quad \mathbb{Q}_6^{(1,-1;a)}(A_{1g}, 2) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{33}}{264} & 0 & 0 & 0 & -\frac{\sqrt{11}}{88} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{55}}{88} & 0 & 0 & 0 & \frac{\sqrt{165}}{264} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{66}}{264} & 0 & 0 & 0 & -\frac{\sqrt{2310}}{1848} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2310}}{1848} & 0 & 0 & 0 & \frac{5\sqrt{66}}{264} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{165}}{264} & 0 & 0 & 0 & -\frac{\sqrt{55}}{88} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{11}}{88} & 0 & 0 & 0 & \frac{\sqrt{33}}{264} & 0 \\ 0 & 0 & 0 & \frac{\sqrt{2310}}{1848} & 0 & 0 & \frac{\sqrt{22}}{88} & 0 & 0 & 0 & \frac{3\sqrt{770}}{616} & 0 & 0 & 0 \\ -\frac{\sqrt{33}}{264} & 0 & 0 & 0 & -\frac{\sqrt{165}}{264} & 0 & 0 & -\frac{5\sqrt{22}}{88} & 0 & 0 & 0 & -\frac{\sqrt{66}}{88} & 0 & 0 \\ 0 & \frac{\sqrt{55}}{88} & 0 & 0 & 0 & \frac{\sqrt{11}}{88} & 0 & 0 & \frac{9\sqrt{22}}{88} & 0 & 0 & 0 & -\frac{\sqrt{66}}{88} & 0 \\ 0 & 0 & -\frac{5\sqrt{66}}{264} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{22}}{88} & 0 & 0 & 0 & \frac{3\sqrt{770}}{616} \\ 0 & 0 & 0 & \frac{5\sqrt{66}}{264} & 0 & 0 & \frac{3\sqrt{770}}{616} & 0 & 0 & 0 & -\frac{5\sqrt{22}}{88} & 0 & 0 & 0 \\ -\frac{\sqrt{11}}{88} & 0 & 0 & 0 & -\frac{\sqrt{55}}{88} & 0 & 0 & -\frac{\sqrt{66}}{88} & 0 & 0 & 0 & \frac{9\sqrt{22}}{88} & 0 & 0 \\ 0 & \frac{\sqrt{165}}{264} & 0 & 0 & 0 & \frac{\sqrt{33}}{264} & 0 & 0 & -\frac{\sqrt{66}}{88} & 0 & 0 & 0 & -\frac{5\sqrt{22}}{88} & 0 \\ 0 & 0 & -\frac{\sqrt{2310}}{1848} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{770}}{616} & 0 & 0 & 0 & \frac{\sqrt{22}}{88} \end{bmatrix}$$

$$\boxed{\text{x414}} \quad \mathbb{Q}_4^{(1,-1;a)}(A_{2g}) = \begin{bmatrix} 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{21} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}i}{42} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{21} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{7} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}i}{14} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}i}{14} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{3}i}{21} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{7} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{3}i}{21} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}i}{42} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{7}i}{14} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}i}{21} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{7} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}i}{7} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{42} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}i}{7} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}i}{21} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}i}{21} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{30}i}{42} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{7} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{2}i}{7} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{7} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{7}i}{14} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}i}{21} & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\begin{aligned}
\boxed{x415} \quad \mathbb{Q}_6^{(1,-1;a)}(A_{2g}) = & \begin{bmatrix}
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{22}i}{44} & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{330}i}{132} & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{1155}i}{462} \\
0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{1155}i}{462} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{330}i}{132} & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{22}i}{44} & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & -\frac{\sqrt{1155}i}{462} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{385}i}{154} & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & \frac{\sqrt{330}i}{132} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{33}i}{22} & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{22}i}{44} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{33}i}{22} & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{385}i}{154} \\
0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{385}i}{154} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
-\frac{\sqrt{22}i}{44} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{33}i}{22} & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & \frac{\sqrt{330}i}{132} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{33}i}{22} & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & -\frac{\sqrt{1155}i}{462} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{385}i}{154} & 0 & 0 & 0 & 0
\end{bmatrix} \\
\boxed{x416} \quad \mathbb{Q}_2^{(1,-1;a)}(B_{1g}) = & \begin{bmatrix}
0 & 0 & -\frac{\sqrt{70}}{98} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}}{196} & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & -\frac{3\sqrt{14}}{98} & 0 & 0 & \frac{\sqrt{30}}{28} & 0 & 0 & 0 & -\frac{\sqrt{42}}{49} & 0 & 0 & 0 \\
-\frac{\sqrt{70}}{98} & 0 & 0 & 0 & -\frac{3\sqrt{14}}{98} & 0 & 0 & \frac{\sqrt{105}}{49} & 0 & 0 & 0 & -\frac{3\sqrt{35}}{98} & 0 & 0 \\
0 & -\frac{3\sqrt{14}}{98} & 0 & 0 & 0 & -\frac{\sqrt{70}}{98} & 0 & 0 & \frac{3\sqrt{35}}{98} & 0 & 0 & 0 & -\frac{\sqrt{105}}{49} & 0 \\
0 & 0 & -\frac{3\sqrt{14}}{98} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{42}}{49} & 0 & 0 & 0 & -\frac{\sqrt{30}}{28} \\
0 & 0 & 0 & -\frac{\sqrt{70}}{98} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{210}}{196} & 0 & 0 & 0 \\
0 & \frac{\sqrt{30}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{14} & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & \frac{\sqrt{105}}{49} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{35}}{98} & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & \frac{3\sqrt{35}}{98} & 0 & 0 & \frac{\sqrt{3}}{14} & 0 & 0 & 0 & \frac{\sqrt{105}}{49} & 0 & 0 & 0 \\
-\frac{\sqrt{210}}{196} & 0 & 0 & 0 & \frac{\sqrt{42}}{49} & 0 & 0 & \frac{3\sqrt{35}}{98} & 0 & 0 & 0 & \frac{\sqrt{105}}{49} & 0 & 0 \\
0 & -\frac{\sqrt{42}}{49} & 0 & 0 & 0 & \frac{\sqrt{210}}{196} & 0 & 0 & \frac{\sqrt{105}}{49} & 0 & 0 & 0 & \frac{3\sqrt{35}}{98} & 0 \\
0 & 0 & -\frac{3\sqrt{35}}{98} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}}{49} & 0 & 0 & 0 & \frac{\sqrt{3}}{14} \\
0 & 0 & 0 & -\frac{\sqrt{105}}{49} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{35}}{98} & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & -\frac{\sqrt{30}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{14} & 0 & 0
\end{bmatrix}
\end{aligned}$$

$$\boxed{\text{x417}} \quad \mathbb{Q}_4^{(1,-1;a)}(B_{1g}) = \begin{bmatrix} 0 & 0 & -\frac{\sqrt{42}}{98} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{14}}{98} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{210}}{294} & 0 & 0 & \frac{3\sqrt{2}}{28} & 0 & 0 & 0 & -\frac{\sqrt{70}}{196} & 0 & 0 & 0 \\ -\frac{\sqrt{42}}{98} & 0 & 0 & 0 & \frac{\sqrt{210}}{294} & 0 & 0 & -\frac{9\sqrt{7}}{196} & 0 & 0 & 0 & \frac{17\sqrt{21}}{588} & 0 & 0 \\ 0 & \frac{\sqrt{210}}{294} & 0 & 0 & 0 & -\frac{\sqrt{42}}{98} & 0 & 0 & -\frac{17\sqrt{21}}{588} & 0 & 0 & 0 & \frac{9\sqrt{7}}{196} & 0 \\ 0 & 0 & \frac{\sqrt{210}}{294} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{70}}{196} & 0 & 0 & 0 & -\frac{3\sqrt{2}}{28} \\ 0 & 0 & 0 & -\frac{\sqrt{42}}{98} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{14}}{98} & 0 & 0 & 0 \\ 0 & \frac{3\sqrt{2}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}}{7} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{9\sqrt{7}}{196} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{147} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{17\sqrt{21}}{588} & 0 & 0 & \frac{\sqrt{5}}{7} & 0 & 0 & 0 & -\frac{4\sqrt{7}}{49} & 0 & 0 & 0 \\ -\frac{5\sqrt{14}}{98} & 0 & 0 & 0 & \frac{\sqrt{70}}{196} & 0 & 0 & \frac{\sqrt{21}}{147} & 0 & 0 & 0 & -\frac{4\sqrt{7}}{49} & 0 & 0 \\ 0 & -\frac{\sqrt{70}}{196} & 0 & 0 & 0 & \frac{5\sqrt{14}}{98} & 0 & 0 & -\frac{4\sqrt{7}}{49} & 0 & 0 & 0 & \frac{\sqrt{21}}{147} & 0 \\ 0 & 0 & \frac{17\sqrt{21}}{588} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{4\sqrt{7}}{49} & 0 & 0 & 0 & \frac{\sqrt{5}}{7} \\ 0 & 0 & 0 & \frac{9\sqrt{7}}{196} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{147} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{3\sqrt{2}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}}{7} & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x418}} \quad \mathbb{Q}_6^{(1,-1;a)}(B_{1g}, 1) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{1}{24} & 0 & 0 & 0 & -\frac{\sqrt{35}}{56} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}}{168} & 0 & 0 & 0 & -\frac{\sqrt{5}}{24} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{24} & 0 & 0 & 0 & \frac{\sqrt{6}}{24} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{24} & 0 & 0 & 0 & -\frac{\sqrt{2}}{24} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}}{24} & 0 & 0 & 0 & \frac{\sqrt{7}}{168} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{35}}{56} & 0 & 0 & 0 & -\frac{1}{24} & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{7}}{168} & 0 & 0 & 0 & \frac{\sqrt{35}}{56} & 0 & 0 & -\frac{\sqrt{70}}{56} & 0 & 0 & 0 & \frac{\sqrt{210}}{56} & 0 \\ 0 & 0 & \frac{\sqrt{2}}{24} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{8} & 0 & 0 & 0 & \frac{\sqrt{210}}{56} \\ 0 & 0 & 0 & -\frac{\sqrt{6}}{24} & 0 & 0 & -\frac{\sqrt{70}}{56} & 0 & 0 & 0 & -\frac{\sqrt{2}}{8} & 0 & 0 & 0 \\ \frac{1}{24} & 0 & 0 & 0 & \frac{\sqrt{5}}{24} & 0 & 0 & \frac{\sqrt{6}}{8} & 0 & 0 & 0 & -\frac{\sqrt{2}}{8} & 0 & 0 \\ 0 & -\frac{\sqrt{5}}{24} & 0 & 0 & 0 & -\frac{1}{24} & 0 & 0 & -\frac{\sqrt{2}}{8} & 0 & 0 & 0 & \frac{\sqrt{6}}{8} & 0 \\ 0 & 0 & \frac{\sqrt{6}}{24} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}}{8} & 0 & 0 & 0 & -\frac{\sqrt{70}}{56} \\ 0 & 0 & 0 & -\frac{\sqrt{2}}{24} & 0 & 0 & \frac{\sqrt{210}}{56} & 0 & 0 & 0 & \frac{\sqrt{6}}{8} & 0 & 0 & 0 \\ -\frac{\sqrt{35}}{56} & 0 & 0 & 0 & \frac{\sqrt{7}}{168} & 0 & 0 & \frac{\sqrt{210}}{56} & 0 & 0 & 0 & -\frac{\sqrt{70}}{56} & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x419}} \quad \mathbb{Q}_6^{(1,-1;a)}(B_{1g}, 2) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{55}}{264} & 0 & 0 & 0 & -\frac{\sqrt{77}}{56} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{385}}{1848} & 0 & 0 & 0 & \frac{5\sqrt{11}}{264} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{110}}{264} & 0 & 0 & 0 & -\frac{\sqrt{330}}{264} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{330}}{264} & 0 & 0 & 0 & \frac{\sqrt{110}}{264} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{11}}{264} & 0 & 0 & 0 & -\frac{\sqrt{385}}{1848} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{77}}{56} & 0 & 0 & 0 & \frac{\sqrt{55}}{264} & 0 & 0 & 0 \\ 0 & \frac{\sqrt{385}}{1848} & 0 & 0 & 0 & \frac{\sqrt{77}}{56} & 0 & 0 & \frac{5\sqrt{154}}{616} & 0 & 0 & 0 & \frac{\sqrt{462}}{56} & 0 \\ 0 & 0 & -\frac{\sqrt{110}}{264} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{330}}{88} & 0 & 0 & 0 & \frac{\sqrt{462}}{56} \\ 0 & 0 & 0 & \frac{\sqrt{330}}{264} & 0 & 0 & \frac{5\sqrt{154}}{616} & 0 & 0 & 0 & \frac{\sqrt{110}}{88} & 0 & 0 & 0 \\ -\frac{\sqrt{55}}{264} & 0 & 0 & 0 & -\frac{5\sqrt{11}}{264} & 0 & 0 & -\frac{\sqrt{330}}{88} & 0 & 0 & 0 & \frac{\sqrt{110}}{88} & 0 & 0 \\ 0 & \frac{5\sqrt{11}}{264} & 0 & 0 & 0 & \frac{\sqrt{55}}{264} & 0 & 0 & \frac{\sqrt{110}}{88} & 0 & 0 & 0 & -\frac{\sqrt{330}}{88} & 0 \\ 0 & 0 & -\frac{\sqrt{330}}{264} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{110}}{88} & 0 & 0 & 0 & \frac{5\sqrt{154}}{616} \\ 0 & 0 & 0 & \frac{\sqrt{110}}{264} & 0 & 0 & \frac{\sqrt{462}}{56} & 0 & 0 & 0 & -\frac{\sqrt{330}}{88} & 0 & 0 & 0 \\ -\frac{\sqrt{77}}{56} & 0 & 0 & 0 & -\frac{\sqrt{385}}{1848} & 0 & 0 & \frac{\sqrt{462}}{56} & 0 & 0 & 0 & \frac{5\sqrt{154}}{616} & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x420}} \quad \mathbb{Q}_2^{(1,-1;a)}(B_{2g}) = \begin{bmatrix} 0 & 0 & \frac{\sqrt{70}i}{98} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{210}i}{196} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{3\sqrt{14}i}{98} & 0 & 0 & \frac{\sqrt{30}i}{28} & 0 & 0 & 0 & 0 & \frac{\sqrt{42}i}{49} & 0 & 0 & 0 \\ -\frac{\sqrt{70}i}{98} & 0 & 0 & 0 & \frac{3\sqrt{14}i}{98} & 0 & 0 & \frac{\sqrt{105}i}{49} & 0 & 0 & 0 & 0 & \frac{3\sqrt{35}i}{98} & 0 & 0 \\ 0 & -\frac{3\sqrt{14}i}{98} & 0 & 0 & 0 & \frac{\sqrt{70}i}{98} & 0 & 0 & \frac{3\sqrt{35}i}{98} & 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{49} & 0 \\ 0 & 0 & -\frac{3\sqrt{14}i}{98} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{42}i}{49} & 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{28} \\ 0 & 0 & 0 & -\frac{\sqrt{70}i}{98} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{210}i}{196} & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{30}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{14} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{105}i}{49} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{35}i}{98} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{3\sqrt{35}i}{98} & 0 & 0 & \frac{\sqrt{3}i}{14} & 0 & 0 & 0 & -\frac{\sqrt{105}i}{49} & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{210}i}{196} & 0 & 0 & 0 & -\frac{\sqrt{42}i}{49} & 0 & 0 & \frac{3\sqrt{35}i}{98} & 0 & 0 & 0 & -\frac{\sqrt{105}i}{49} & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{42}i}{49} & 0 & 0 & 0 & -\frac{\sqrt{210}i}{196} & 0 & 0 & \frac{\sqrt{105}i}{49} & 0 & 0 & 0 & -\frac{3\sqrt{35}i}{98} & 0 & 0 \\ 0 & 0 & -\frac{3\sqrt{35}i}{98} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{49} & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{14} \\ 0 & 0 & 0 & -\frac{\sqrt{105}i}{49} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{35}i}{98} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{30}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{14} & 0 & 0 & 0 \end{bmatrix}$$



$$\boxed{\text{x421}} \quad \mathbb{Q}_4^{(1,-1;a)}(B_{2g}) = \begin{bmatrix} 0 & 0 & -\frac{\sqrt{42}i}{98} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{14}i}{98} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{210}i}{294} & 0 & 0 & -\frac{3\sqrt{2}i}{28} & 0 & 0 & 0 & -\frac{\sqrt{70}i}{196} & 0 & 0 & 0 \\ \frac{\sqrt{42}i}{98} & 0 & 0 & 0 & \frac{\sqrt{210}i}{294} & 0 & 0 & \frac{9\sqrt{7}i}{196} & 0 & 0 & 0 & \frac{17\sqrt{21}i}{588} & 0 & 0 \\ 0 & -\frac{\sqrt{210}i}{294} & 0 & 0 & 0 & -\frac{\sqrt{42}i}{98} & 0 & 0 & \frac{17\sqrt{21}i}{588} & 0 & 0 & 0 & \frac{9\sqrt{7}i}{196} & 0 \\ 0 & 0 & -\frac{\sqrt{210}i}{294} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}i}{196} & 0 & 0 & 0 & -\frac{3\sqrt{2}i}{28} \\ 0 & 0 & 0 & \frac{\sqrt{42}i}{98} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{14}i}{98} & 0 & 0 & 0 \\ 0 & \frac{3\sqrt{2}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}i}{7} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{9\sqrt{7}i}{196} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}i}{147} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{17\sqrt{21}i}{588} & 0 & 0 & -\frac{\sqrt{5}i}{7} & 0 & 0 & 0 & -\frac{4\sqrt{7}i}{49} & 0 & 0 & 0 \\ \frac{5\sqrt{14}i}{98} & 0 & 0 & 0 & \frac{\sqrt{70}i}{196} & 0 & 0 & -\frac{\sqrt{21}i}{147} & 0 & 0 & 0 & -\frac{4\sqrt{7}i}{49} & 0 & 0 \\ 0 & \frac{\sqrt{70}i}{196} & 0 & 0 & 0 & \frac{5\sqrt{14}i}{98} & 0 & 0 & \frac{4\sqrt{7}i}{49} & 0 & 0 & 0 & \frac{\sqrt{21}i}{147} & 0 \\ 0 & 0 & -\frac{17\sqrt{21}i}{588} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{4\sqrt{7}i}{49} & 0 & 0 & 0 & \frac{\sqrt{5}i}{7} \\ 0 & 0 & 0 & -\frac{9\sqrt{7}i}{196} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}i}{147} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{3\sqrt{2}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{7} & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x422}} \quad \mathbb{Q}_6^{(1,-1;a)}(B_{2g}, 1) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}i}{14} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}i}{14} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}i}{14} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}i}{14} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}i}{14} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{42}i}{14} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{7}i}{14} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{42}i}{14} & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x423}} \quad \mathbb{Q}_6^{(1,-1;a)}(B_{2g}, 2) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{11}i}{66} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{77}i}{462} & 0 & 0 & 0 & -\frac{\sqrt{55}i}{66} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{22}i}{66} & 0 & 0 & 0 & \frac{\sqrt{66}i}{66} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{66}i}{66} & 0 & 0 & 0 & -\frac{\sqrt{22}i}{66} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{55}i}{66} & 0 & 0 & 0 & \frac{\sqrt{77}i}{462} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{11}i}{66} & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{77}i}{462} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{770}i}{154} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{22}i}{66} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{66}i}{22} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{66}i}{66} & 0 & 0 & \frac{\sqrt{770}i}{154} & 0 & 0 & 0 & -\frac{\sqrt{22}i}{22} & 0 & 0 & 0 \\ -\frac{\sqrt{11}i}{66} & 0 & 0 & 0 & \frac{\sqrt{55}i}{66} & 0 & 0 & -\frac{\sqrt{66}i}{22} & 0 & 0 & 0 & -\frac{\sqrt{22}i}{22} & 0 & 0 \\ 0 & \frac{\sqrt{55}i}{66} & 0 & 0 & 0 & -\frac{\sqrt{11}i}{66} & 0 & 0 & \frac{\sqrt{22}i}{22} & 0 & 0 & 0 & \frac{\sqrt{66}i}{22} & 0 \\ 0 & 0 & -\frac{\sqrt{66}i}{66} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{22}i}{22} & 0 & 0 & 0 & -\frac{\sqrt{770}i}{154} \\ 0 & 0 & 0 & \frac{\sqrt{22}i}{66} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{66}i}{22} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{77}i}{462} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{770}i}{154} & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x424}} \quad \mathbb{Q}_{2,1}^{(1,-1;a)}(E_g) = \begin{bmatrix} 0 & \frac{\sqrt{35}i}{49} & 0 & 0 & 0 & 0 & \frac{5\sqrt{6}i}{56} & 0 & \frac{15\sqrt{14}i}{392} & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{35}i}{49} & 0 & \frac{\sqrt{14}i}{49} & 0 & 0 & 0 & 0 & \frac{\sqrt{210}i}{392} & 0 & \frac{11\sqrt{42}i}{392} & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{14}i}{49} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{35}i}{196} & 0 & \frac{\sqrt{21}i}{28} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{14}i}{49} & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}i}{28} & 0 & \frac{3\sqrt{35}i}{196} & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{14}i}{49} & 0 & -\frac{\sqrt{35}i}{49} & 0 & 0 & 0 & 0 & -\frac{11\sqrt{42}i}{392} & 0 & -\frac{\sqrt{210}i}{392} & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{35}i}{49} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{15\sqrt{14}i}{392} & 0 & -\frac{5\sqrt{6}i}{56} \\ -\frac{5\sqrt{6}i}{56} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3i}{14} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{210}i}{392} & 0 & 0 & 0 & 0 & \frac{3i}{14} & 0 & -\frac{2\sqrt{21}i}{49} & 0 & 0 & 0 & 0 & 0 \\ -\frac{15\sqrt{14}i}{392} & 0 & \frac{3\sqrt{35}i}{196} & 0 & 0 & 0 & 0 & \frac{2\sqrt{21}i}{49} & 0 & -\frac{\sqrt{105}i}{98} & 0 & 0 & 0 & 0 \\ 0 & -\frac{11\sqrt{42}i}{392} & 0 & \frac{\sqrt{21}i}{28} & 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{98} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{21}i}{28} & 0 & \frac{11\sqrt{42}i}{392} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{98} & 0 & 0 \\ 0 & 0 & 0 & -\frac{3\sqrt{35}i}{196} & 0 & \frac{15\sqrt{14}i}{392} & 0 & 0 & 0 & -\frac{\sqrt{105}i}{98} & 0 & \frac{2\sqrt{21}i}{49} & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{210}i}{392} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{2\sqrt{21}i}{49} & 0 & \frac{3i}{14} \\ 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{6}i}{56} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3i}{14} & 0 \end{bmatrix}$$

$$\boxed{x425} \quad \mathbb{Q}_{2,2}^{(1,-1;a)}(E_g) = \begin{bmatrix} 0 & -\frac{\sqrt{35}}{49} & 0 & 0 & 0 & 0 & \frac{5\sqrt{6}}{56} & 0 & -\frac{15\sqrt{14}}{392} & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{35}}{49} & 0 & -\frac{\sqrt{14}}{49} & 0 & 0 & 0 & 0 & \frac{\sqrt{210}}{392} & 0 & -\frac{11\sqrt{42}}{392} & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{14}}{49} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{35}}{196} & 0 & -\frac{\sqrt{21}}{28} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{14}}{49} & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}}{28} & 0 & -\frac{3\sqrt{35}}{196} & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{14}}{49} & 0 & \frac{\sqrt{35}}{49} & 0 & 0 & 0 & 0 & -\frac{11\sqrt{42}}{392} & 0 & \frac{\sqrt{210}}{392} & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{35}}{49} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{15\sqrt{14}}{392} & 0 & \frac{5\sqrt{6}}{56} \\ \frac{5\sqrt{6}}{56} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3}{14} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{210}}{392} & 0 & 0 & 0 & 0 & \frac{3}{14} & 0 & \frac{2\sqrt{21}}{49} & 0 & 0 & 0 & 0 & 0 \\ -\frac{15\sqrt{14}}{392} & 0 & -\frac{3\sqrt{35}}{196} & 0 & 0 & 0 & 0 & \frac{2\sqrt{21}}{49} & 0 & \frac{\sqrt{105}}{98} & 0 & 0 & 0 & 0 \\ 0 & -\frac{11\sqrt{42}}{392} & 0 & -\frac{\sqrt{21}}{28} & 0 & 0 & 0 & 0 & \frac{\sqrt{105}}{98} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{21}}{28} & 0 & -\frac{11\sqrt{42}}{392} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{98} & 0 & 0 \\ 0 & 0 & 0 & -\frac{3\sqrt{35}}{196} & 0 & -\frac{15\sqrt{14}}{392} & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{98} & 0 & -\frac{2\sqrt{21}}{49} & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{210}}{392} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{2\sqrt{21}}{49} & 0 & -\frac{3}{14} \\ 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{6}}{56} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3}{14} & 0 \end{bmatrix}$$

$$\boxed{x426} \quad \mathbb{Q}_{4,1}^{(1,-1;a)}(E_g, 1) = \begin{bmatrix} 0 & \frac{\sqrt{3}i}{42} & 0 & \frac{\sqrt{6}i}{84} & 0 & 0 & \frac{\sqrt{70}i}{112} & 0 & \frac{5\sqrt{30}i}{168} & 0 & \frac{5\sqrt{2}i}{112} & 0 & 0 & 0 \\ -\frac{\sqrt{3}i}{42} & 0 & -\frac{\sqrt{30}i}{84} & 0 & 0 & 0 & 0 & -\frac{13\sqrt{2}i}{112} & 0 & -\frac{\sqrt{10}i}{56} & 0 & \frac{\sqrt{6}i}{48} & 0 & 0 \\ 0 & \frac{\sqrt{30}i}{84} & 0 & 0 & 0 & -\frac{\sqrt{6}i}{84} & \frac{3\sqrt{7}i}{112} & 0 & \frac{\sqrt{3}i}{336} & 0 & -\frac{\sqrt{5}i}{16} & 0 & -\frac{i}{112} & 0 \\ -\frac{\sqrt{6}i}{84} & 0 & 0 & 0 & \frac{\sqrt{30}i}{84} & 0 & 0 & \frac{i}{112} & 0 & \frac{\sqrt{5}i}{16} & 0 & -\frac{\sqrt{3}i}{336} & 0 & -\frac{3\sqrt{7}i}{112} \\ 0 & 0 & 0 & -\frac{\sqrt{30}i}{84} & 0 & -\frac{\sqrt{3}i}{42} & 0 & 0 & -\frac{\sqrt{6}i}{48} & 0 & \frac{\sqrt{10}i}{56} & 0 & \frac{13\sqrt{2}i}{112} & 0 \\ 0 & 0 & \frac{\sqrt{6}i}{84} & 0 & \frac{\sqrt{3}i}{42} & 0 & 0 & 0 & 0 & -\frac{5\sqrt{2}i}{112} & 0 & -\frac{5\sqrt{30}i}{168} & 0 & -\frac{\sqrt{70}i}{112} \\ -\frac{\sqrt{70}i}{112} & 0 & -\frac{3\sqrt{7}i}{112} & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}i}{42} & 0 & -\frac{\sqrt{21}i}{42} & 0 & 0 & 0 & 0 \\ 0 & \frac{13\sqrt{2}i}{112} & 0 & -\frac{i}{112} & 0 & 0 & \frac{\sqrt{105}i}{42} & 0 & \frac{\sqrt{5}i}{14} & 0 & -\frac{\sqrt{3}i}{21} & 0 & 0 & 0 \\ -\frac{5\sqrt{30}i}{168} & 0 & -\frac{\sqrt{3}i}{336} & 0 & \frac{\sqrt{6}i}{48} & 0 & 0 & -\frac{\sqrt{5}i}{14} & 0 & \frac{3i}{14} & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{10}i}{56} & 0 & -\frac{\sqrt{5}i}{16} & 0 & \frac{5\sqrt{2}i}{112} & \frac{\sqrt{21}i}{42} & 0 & -\frac{3i}{14} & 0 & 0 & 0 & \frac{\sqrt{3}i}{21} & 0 \\ -\frac{5\sqrt{2}i}{112} & 0 & \frac{\sqrt{5}i}{16} & 0 & -\frac{\sqrt{10}i}{56} & 0 & 0 & \frac{\sqrt{3}i}{21} & 0 & 0 & 0 & -\frac{3i}{14} & 0 & \frac{\sqrt{21}i}{42} \\ 0 & -\frac{\sqrt{6}i}{48} & 0 & \frac{\sqrt{3}i}{336} & 0 & \frac{5\sqrt{30}i}{168} & 0 & 0 & 0 & 0 & \frac{3i}{14} & 0 & -\frac{\sqrt{5}i}{14} & 0 \\ 0 & 0 & \frac{i}{112} & 0 & -\frac{13\sqrt{2}i}{112} & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{21} & 0 & \frac{\sqrt{5}i}{14} & 0 & \frac{\sqrt{105}i}{42} \\ 0 & 0 & 0 & \frac{3\sqrt{7}i}{112} & 0 & \frac{\sqrt{70}i}{112} & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}i}{42} & 0 & -\frac{\sqrt{105}i}{42} & 0 \end{bmatrix}$$

$$\boxed{x427} \quad \mathbb{Q}_{4,2}^{(1,-1;a)}(E_g, 1) = \begin{bmatrix} 0 & -\frac{\sqrt{3}}{42} & 0 & \frac{\sqrt{6}}{84} & 0 & 0 & \frac{\sqrt{70}}{112} & 0 & -\frac{5\sqrt{30}}{168} & 0 & \frac{5\sqrt{2}}{112} & 0 & 0 & 0 \\ -\frac{\sqrt{3}}{42} & 0 & \frac{\sqrt{30}}{84} & 0 & 0 & 0 & 0 & -\frac{13\sqrt{2}}{112} & 0 & \frac{\sqrt{10}}{56} & 0 & \frac{\sqrt{6}}{48} & 0 & 0 \\ 0 & \frac{\sqrt{30}}{84} & 0 & 0 & 0 & -\frac{\sqrt{6}}{84} & -\frac{3\sqrt{7}}{112} & 0 & \frac{\sqrt{3}}{336} & 0 & \frac{\sqrt{5}}{16} & 0 & -\frac{1}{112} & 0 \\ \frac{\sqrt{6}}{84} & 0 & 0 & 0 & -\frac{\sqrt{30}}{84} & 0 & 0 & -\frac{1}{112} & 0 & \frac{\sqrt{5}}{16} & 0 & \frac{\sqrt{3}}{336} & 0 & -\frac{3\sqrt{7}}{112} \\ 0 & 0 & 0 & -\frac{\sqrt{30}}{84} & 0 & \frac{\sqrt{3}}{42} & 0 & 0 & 0 & \frac{\sqrt{6}}{48} & 0 & \frac{\sqrt{10}}{56} & 0 & -\frac{13\sqrt{2}}{112} \\ 0 & 0 & -\frac{\sqrt{6}}{84} & 0 & \frac{\sqrt{3}}{42} & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{2}}{112} & 0 & -\frac{5\sqrt{30}}{168} & \frac{\sqrt{70}}{112} \\ \frac{\sqrt{70}}{112} & 0 & -\frac{3\sqrt{7}}{112} & 0 & 0 & 0 & 0 & \frac{\sqrt{105}}{42} & 0 & -\frac{\sqrt{21}}{42} & 0 & 0 & 0 & 0 \\ 0 & -\frac{13\sqrt{2}}{112} & 0 & -\frac{1}{112} & 0 & 0 & \frac{\sqrt{105}}{42} & 0 & -\frac{\sqrt{5}}{14} & 0 & -\frac{\sqrt{3}}{21} & 0 & 0 & 0 \\ -\frac{5\sqrt{30}}{168} & 0 & \frac{\sqrt{3}}{336} & 0 & \frac{\sqrt{6}}{48} & 0 & 0 & -\frac{\sqrt{5}}{14} & 0 & -\frac{3}{14} & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{10}}{56} & 0 & \frac{\sqrt{5}}{16} & 0 & \frac{5\sqrt{2}}{112} & -\frac{\sqrt{21}}{42} & 0 & -\frac{3}{14} & 0 & 0 & 0 & \frac{\sqrt{3}}{21} & 0 \\ \frac{5\sqrt{2}}{112} & 0 & \frac{\sqrt{5}}{16} & 0 & \frac{\sqrt{10}}{56} & 0 & 0 & -\frac{\sqrt{3}}{21} & 0 & 0 & 0 & \frac{3}{14} & 0 & \frac{\sqrt{21}}{42} \\ 0 & \frac{\sqrt{6}}{48} & 0 & \frac{\sqrt{3}}{336} & 0 & -\frac{5\sqrt{30}}{168} & 0 & 0 & 0 & 0 & \frac{3}{14} & 0 & \frac{\sqrt{5}}{14} & 0 \\ 0 & 0 & -\frac{1}{112} & 0 & -\frac{13\sqrt{2}}{112} & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{21} & 0 & \frac{\sqrt{5}}{14} & 0 & -\frac{\sqrt{105}}{42} \\ 0 & 0 & 0 & -\frac{3\sqrt{7}}{112} & 0 & \frac{\sqrt{70}}{112} & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{42} & 0 & -\frac{\sqrt{105}}{42} & 0 \end{bmatrix}$$

$$\boxed{x428} \quad \mathbb{Q}_{4,1}^{(1,-1;a)}(E_g, 2) = \begin{bmatrix} 0 & \frac{\sqrt{21}i}{294} & 0 & -\frac{\sqrt{42}i}{84} & 0 & 0 & \frac{\sqrt{10}i}{112} & 0 & \frac{5\sqrt{210}i}{1176} & 0 & -\frac{5\sqrt{14}i}{112} & 0 & 0 & 0 \\ -\frac{\sqrt{21}i}{294} & 0 & -\frac{\sqrt{210}i}{588} & 0 & 0 & 0 & 0 & -\frac{13\sqrt{14}i}{784} & 0 & -\frac{\sqrt{70}i}{392} & 0 & -\frac{\sqrt{42}i}{48} & 0 & 0 \\ 0 & \frac{\sqrt{210}i}{588} & 0 & 0 & 0 & \frac{\sqrt{42}i}{84} & -\frac{3i}{16} & 0 & \frac{\sqrt{21}i}{2352} & 0 & -\frac{\sqrt{35}i}{112} & 0 & \frac{\sqrt{7}i}{112} & 0 \\ \frac{\sqrt{42}i}{84} & 0 & 0 & 0 & \frac{\sqrt{210}i}{588} & 0 & 0 & -\frac{\sqrt{7}i}{112} & 0 & \frac{\sqrt{35}i}{112} & 0 & -\frac{\sqrt{21}i}{2352} & 0 & \frac{3i}{16} \\ 0 & 0 & 0 & -\frac{\sqrt{210}i}{588} & 0 & -\frac{\sqrt{21}i}{294} & 0 & 0 & \frac{\sqrt{42}i}{48} & 0 & \frac{\sqrt{70}i}{392} & 0 & \frac{13\sqrt{14}i}{784} & 0 \\ 0 & 0 & -\frac{\sqrt{42}i}{84} & 0 & \frac{\sqrt{21}i}{294} & 0 & 0 & 0 & 0 & \frac{5\sqrt{14}i}{112} & 0 & -\frac{5\sqrt{210}i}{1176} & 0 & -\frac{\sqrt{10}i}{112} \\ -\frac{\sqrt{10}i}{112} & 0 & \frac{3i}{16} & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{42} & 0 & \frac{\sqrt{3}i}{6} & 0 & 0 & 0 & 0 \\ 0 & \frac{13\sqrt{14}i}{784} & 0 & \frac{\sqrt{7}i}{112} & 0 & 0 & \frac{\sqrt{15}i}{42} & 0 & \frac{\sqrt{35}i}{98} & 0 & \frac{\sqrt{21}i}{21} & 0 & 0 & 0 \\ -\frac{5\sqrt{210}i}{1176} & 0 & -\frac{\sqrt{21}i}{2352} & 0 & -\frac{\sqrt{42}i}{48} & 0 & 0 & -\frac{\sqrt{35}i}{98} & 0 & \frac{3\sqrt{7}i}{98} & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{70}i}{392} & 0 & -\frac{\sqrt{35}i}{112} & 0 & -\frac{5\sqrt{14}i}{112} & -\frac{\sqrt{3}i}{6} & 0 & -\frac{3\sqrt{7}i}{98} & 0 & 0 & 0 & -\frac{\sqrt{21}i}{21} & 0 \\ \frac{5\sqrt{14}i}{112} & 0 & \frac{\sqrt{35}i}{112} & 0 & -\frac{\sqrt{70}i}{392} & 0 & 0 & -\frac{\sqrt{21}i}{21} & 0 & 0 & 0 & -\frac{3\sqrt{7}i}{98} & 0 & -\frac{\sqrt{3}i}{6} \\ 0 & \frac{\sqrt{42}i}{48} & 0 & \frac{\sqrt{21}i}{2352} & 0 & \frac{5\sqrt{210}i}{1176} & 0 & 0 & 0 & 0 & \frac{3\sqrt{7}i}{98} & 0 & -\frac{\sqrt{35}i}{98} & 0 \\ 0 & 0 & -\frac{\sqrt{7}i}{112} & 0 & -\frac{13\sqrt{14}i}{784} & 0 & 0 & 0 & 0 & \frac{\sqrt{21}i}{21} & 0 & \frac{\sqrt{35}i}{98} & 0 & \frac{\sqrt{15}i}{42} \\ 0 & 0 & 0 & -\frac{3i}{16} & 0 & \frac{\sqrt{10}i}{112} & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{6} & 0 & -\frac{\sqrt{15}i}{42} & 0 \end{bmatrix}$$

$$\boxed{\text{x429}} \quad \mathbb{Q}_{4,2}^{(1,-1;a)}(E_g, 2) = \begin{bmatrix} 0 & -\frac{\sqrt{21}}{294} & 0 & -\frac{\sqrt{42}}{84} & 0 & 0 & \frac{\sqrt{10}}{112} & 0 & -\frac{5\sqrt{210}}{1176} & 0 & -\frac{5\sqrt{14}}{112} & 0 & 0 & 0 \\ -\frac{\sqrt{21}}{294} & 0 & \frac{\sqrt{210}}{588} & 0 & 0 & 0 & 0 & -\frac{13\sqrt{14}}{784} & 0 & \frac{\sqrt{70}}{392} & 0 & -\frac{\sqrt{42}}{48} & 0 & 0 \\ 0 & \frac{\sqrt{210}}{588} & 0 & 0 & 0 & \frac{\sqrt{42}}{84} & \frac{3}{16} & 0 & \frac{\sqrt{21}}{2352} & 0 & \frac{\sqrt{35}}{112} & 0 & \frac{\sqrt{7}}{112} & 0 \\ -\frac{\sqrt{42}}{84} & 0 & 0 & 0 & -\frac{\sqrt{210}}{588} & 0 & 0 & \frac{\sqrt{7}}{112} & 0 & \frac{\sqrt{35}}{112} & 0 & \frac{\sqrt{21}}{2352} & 0 & \frac{3}{16} \\ 0 & 0 & 0 & -\frac{\sqrt{210}}{588} & 0 & \frac{\sqrt{21}}{294} & 0 & 0 & -\frac{\sqrt{42}}{48} & 0 & \frac{\sqrt{70}}{392} & 0 & -\frac{13\sqrt{14}}{784} & 0 \\ 0 & 0 & \frac{\sqrt{42}}{84} & 0 & \frac{\sqrt{21}}{294} & 0 & 0 & 0 & 0 & -\frac{5\sqrt{14}}{112} & 0 & -\frac{5\sqrt{210}}{1176} & 0 & \frac{\sqrt{10}}{112} \\ \frac{\sqrt{10}}{112} & 0 & \frac{3}{16} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{42} & 0 & \frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 \\ 0 & -\frac{13\sqrt{14}}{784} & 0 & \frac{\sqrt{7}}{112} & 0 & 0 & \frac{\sqrt{15}}{42} & 0 & -\frac{\sqrt{35}}{98} & 0 & \frac{\sqrt{21}}{21} & 0 & 0 & 0 \\ -\frac{5\sqrt{210}}{1176} & 0 & \frac{\sqrt{21}}{2352} & 0 & -\frac{\sqrt{42}}{48} & 0 & 0 & -\frac{\sqrt{35}}{98} & 0 & -\frac{3\sqrt{7}}{98} & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{70}}{392} & 0 & \frac{\sqrt{35}}{112} & 0 & -\frac{5\sqrt{14}}{112} & \frac{\sqrt{3}}{6} & 0 & -\frac{3\sqrt{7}}{98} & 0 & 0 & 0 & -\frac{\sqrt{21}}{21} & 0 \\ -\frac{5\sqrt{14}}{112} & 0 & \frac{\sqrt{35}}{112} & 0 & \frac{\sqrt{70}}{392} & 0 & 0 & \frac{\sqrt{21}}{21} & 0 & 0 & 0 & \frac{3\sqrt{7}}{98} & 0 & -\frac{\sqrt{3}}{6} \\ 0 & -\frac{\sqrt{42}}{48} & 0 & \frac{\sqrt{21}}{2352} & 0 & -\frac{5\sqrt{210}}{1176} & 0 & 0 & 0 & 0 & \frac{3\sqrt{7}}{98} & 0 & \frac{\sqrt{35}}{98} & 0 \\ 0 & 0 & \frac{\sqrt{7}}{112} & 0 & -\frac{13\sqrt{14}}{784} & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}}{21} & 0 & \frac{\sqrt{35}}{98} & 0 & -\frac{\sqrt{15}}{42} \\ 0 & 0 & 0 & \frac{3}{16} & 0 & \frac{\sqrt{10}}{112} & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{6} & 0 & -\frac{\sqrt{15}}{42} & 0 \end{bmatrix}$$

$$\boxed{\text{x430}} \quad \mathbb{Q}_{6,1}^{(1,-1;a)}(E_g, 1) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{462}i}{7392} & 0 & \frac{\sqrt{22}i}{352} & 0 & -\frac{\sqrt{330}i}{352} & 0 & -\frac{\sqrt{66}i}{96} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{330}i}{1056} & 0 & -\frac{5\sqrt{66}i}{1056} & 0 & \frac{3\sqrt{110}i}{352} & 0 & \frac{\sqrt{2310}i}{672} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{1155}i}{1232} & 0 & \frac{\sqrt{55}i}{176} & 0 & \frac{5\sqrt{33}i}{528} & 0 & -\frac{\sqrt{165}i}{176} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{165}i}{176} & 0 & -\frac{5\sqrt{33}i}{528} & 0 & -\frac{\sqrt{55}i}{176} & 0 & \frac{\sqrt{1155}i}{1232} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2310}i}{672} & 0 & -\frac{3\sqrt{110}i}{352} & 0 & \frac{5\sqrt{66}i}{1056} & 0 & \frac{\sqrt{330}i}{1056} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{66}i}{96} & 0 & \frac{\sqrt{330}i}{352} & 0 & -\frac{\sqrt{22}i}{352} & 0 & -\frac{\sqrt{462}i}{7392} \\ -\frac{\sqrt{462}i}{7392} & 0 & \frac{\sqrt{1155}i}{1232} & 0 & \frac{\sqrt{2310}i}{672} & 0 & 0 & -\frac{3\sqrt{77}i}{616} & 0 & \frac{3\sqrt{385}i}{308} & 0 & \frac{\sqrt{231}i}{56} & 0 & 0 \\ 0 & \frac{\sqrt{330}i}{1056} & 0 & -\frac{\sqrt{165}i}{176} & 0 & -\frac{\sqrt{66}i}{96} & \frac{3\sqrt{77}i}{616} & 0 & \frac{\sqrt{33}i}{44} & 0 & -\frac{3\sqrt{55}i}{88} & 0 & 0 & 0 \\ -\frac{\sqrt{22}i}{352} & 0 & -\frac{\sqrt{55}i}{176} & 0 & \frac{3\sqrt{110}i}{352} & 0 & 0 & -\frac{\sqrt{33}i}{44} & 0 & -\frac{\sqrt{165}i}{88} & 0 & 0 & 0 & -\frac{\sqrt{231}i}{56} \\ 0 & \frac{5\sqrt{66}i}{1056} & 0 & \frac{5\sqrt{33}i}{528} & 0 & -\frac{\sqrt{330}i}{352} & -\frac{3\sqrt{385}i}{308} & 0 & \frac{\sqrt{165}i}{88} & 0 & 0 & 0 & \frac{3\sqrt{55}i}{88} & 0 \\ \frac{\sqrt{330}i}{352} & 0 & -\frac{5\sqrt{33}i}{528} & 0 & -\frac{5\sqrt{66}i}{1056} & 0 & 0 & \frac{3\sqrt{55}i}{88} & 0 & 0 & 0 & \frac{\sqrt{165}i}{88} & 0 & -\frac{3\sqrt{385}i}{308} \\ 0 & -\frac{3\sqrt{110}i}{352} & 0 & \frac{\sqrt{55}i}{176} & 0 & \frac{\sqrt{22}i}{352} & -\frac{\sqrt{231}i}{56} & 0 & 0 & 0 & -\frac{\sqrt{165}i}{88} & 0 & -\frac{\sqrt{33}i}{44} & 0 \\ \frac{\sqrt{66}i}{96} & 0 & \frac{\sqrt{165}i}{176} & 0 & -\frac{\sqrt{330}i}{1056} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{55}i}{88} & 0 & \frac{\sqrt{33}i}{44} & 0 & \frac{3\sqrt{77}i}{616} \\ 0 & -\frac{\sqrt{2310}i}{672} & 0 & -\frac{\sqrt{1155}i}{1232} & 0 & \frac{\sqrt{462}i}{7392} & 0 & 0 & \frac{\sqrt{231}i}{56} & 0 & \frac{3\sqrt{385}i}{308} & 0 & -\frac{3\sqrt{77}i}{616} & 0 \end{bmatrix}$$

$$\boxed{x431} \quad \mathbb{Q}_{6,2}^{(1,-1;a)}(E_g, 1) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{462}}{7392} & 0 & -\frac{\sqrt{22}}{352} & 0 & -\frac{\sqrt{330}}{352} & 0 & \frac{\sqrt{66}}{96} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{330}}{1056} & 0 & \frac{5\sqrt{66}}{1056} & 0 & \frac{3\sqrt{110}}{352} & 0 & -\frac{\sqrt{2310}}{672} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{1155}}{1232} & 0 & \frac{\sqrt{55}}{176} & 0 & -\frac{5\sqrt{33}}{528} & 0 & -\frac{\sqrt{165}}{176} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{165}}{176} & 0 & -\frac{5\sqrt{33}}{528} & 0 & \frac{\sqrt{55}}{176} & 0 & \frac{\sqrt{1155}}{1232} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2310}}{672} & 0 & \frac{3\sqrt{110}}{352} & 0 & \frac{5\sqrt{66}}{1056} & 0 & -\frac{\sqrt{330}}{1056} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{66}}{96} & 0 & -\frac{\sqrt{330}}{352} & 0 & -\frac{\sqrt{22}}{352} & 0 & \frac{\sqrt{462}}{7392} \\ \frac{\sqrt{462}}{7392} & 0 & \frac{\sqrt{1155}}{1232} & 0 & -\frac{\sqrt{2310}}{672} & 0 & 0 & \frac{3\sqrt{77}}{616} & 0 & \frac{3\sqrt{385}}{308} & 0 & -\frac{\sqrt{231}}{56} & 0 & 0 \\ 0 & -\frac{\sqrt{330}}{1056} & 0 & -\frac{\sqrt{165}}{176} & 0 & \frac{\sqrt{66}}{96} & \frac{3\sqrt{77}}{616} & 0 & -\frac{\sqrt{33}}{44} & 0 & -\frac{3\sqrt{55}}{88} & 0 & 0 & 0 \\ -\frac{\sqrt{22}}{352} & 0 & \frac{\sqrt{55}}{176} & 0 & \frac{3\sqrt{110}}{352} & 0 & 0 & -\frac{\sqrt{33}}{44} & 0 & \frac{\sqrt{165}}{88} & 0 & 0 & 0 & \frac{\sqrt{231}}{56} \\ 0 & \frac{5\sqrt{66}}{1056} & 0 & -\frac{5\sqrt{33}}{528} & 0 & -\frac{\sqrt{330}}{352} & \frac{3\sqrt{385}}{308} & 0 & \frac{\sqrt{165}}{88} & 0 & 0 & 0 & \frac{3\sqrt{55}}{88} & 0 \\ -\frac{\sqrt{330}}{352} & 0 & -\frac{5\sqrt{33}}{528} & 0 & \frac{5\sqrt{66}}{1056} & 0 & 0 & -\frac{3\sqrt{55}}{88} & 0 & 0 & 0 & -\frac{\sqrt{165}}{88} & 0 & -\frac{3\sqrt{385}}{308} \\ 0 & \frac{3\sqrt{110}}{352} & 0 & \frac{\sqrt{55}}{176} & 0 & -\frac{\sqrt{22}}{352} & -\frac{\sqrt{231}}{56} & 0 & 0 & 0 & -\frac{\sqrt{165}}{88} & 0 & \frac{\sqrt{33}}{44} & 0 \\ \frac{\sqrt{66}}{96} & 0 & -\frac{\sqrt{165}}{176} & 0 & -\frac{\sqrt{330}}{1056} & 0 & 0 & 0 & 0 & \frac{3\sqrt{55}}{88} & 0 & \frac{\sqrt{33}}{44} & 0 & -\frac{3\sqrt{77}}{616} \\ 0 & -\frac{\sqrt{2310}}{672} & 0 & \frac{\sqrt{1155}}{1232} & 0 & \frac{\sqrt{462}}{7392} & 0 & 0 & \frac{\sqrt{231}}{56} & 0 & -\frac{3\sqrt{385}}{308} & 0 & -\frac{3\sqrt{77}}{616} & 0 \end{bmatrix}$$

$$\boxed{x432} \quad \mathbb{Q}_{6,1}^{(1,-1;a)}(E_g, 2) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}i}{448} & 0 & \frac{\sqrt{3}i}{64} & 0 & \frac{\sqrt{5}i}{64} & 0 & \frac{i}{64} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{64} & 0 & -\frac{5i}{64} & 0 & -\frac{\sqrt{15}i}{64} & 0 & -\frac{\sqrt{35}i}{448} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{70}i}{448} & 0 & \frac{\sqrt{30}i}{64} & 0 & \frac{5\sqrt{2}i}{64} & 0 & \frac{\sqrt{10}i}{64} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}i}{64} & 0 & -\frac{5\sqrt{2}i}{64} & 0 & -\frac{\sqrt{30}i}{64} & 0 & -\frac{\sqrt{70}i}{448} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{35}i}{448} & 0 & \frac{\sqrt{15}i}{64} & 0 & \frac{5i}{64} & 0 & \frac{\sqrt{5}i}{64} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{i}{64} & 0 & -\frac{\sqrt{5}i}{64} & 0 & -\frac{\sqrt{3}i}{64} & 0 & -\frac{\sqrt{7}i}{448} \\ -\frac{\sqrt{7}i}{448} & 0 & -\frac{\sqrt{70}i}{448} & 0 & -\frac{\sqrt{35}i}{448} & 0 & 0 & -\frac{3\sqrt{42}i}{224} & 0 & -\frac{\sqrt{210}i}{112} & 0 & -\frac{3\sqrt{14}i}{224} & 0 & 0 \\ 0 & \frac{\sqrt{5}i}{64} & 0 & \frac{\sqrt{10}i}{64} & 0 & \frac{i}{64} & \frac{3\sqrt{42}i}{224} & 0 & \frac{3\sqrt{2}i}{16} & 0 & \frac{\sqrt{30}i}{32} & 0 & 0 & 0 \\ -\frac{\sqrt{3}i}{64} & 0 & -\frac{\sqrt{30}i}{64} & 0 & -\frac{\sqrt{15}i}{64} & 0 & 0 & -\frac{3\sqrt{2}i}{16} & 0 & -\frac{3\sqrt{10}i}{32} & 0 & 0 & 0 & \frac{3\sqrt{14}i}{224} \\ 0 & \frac{5i}{64} & 0 & \frac{5\sqrt{2}i}{64} & 0 & \frac{\sqrt{5}i}{64} & \frac{\sqrt{210}i}{112} & 0 & \frac{3\sqrt{10}i}{32} & 0 & 0 & 0 & -\frac{\sqrt{30}i}{32} & 0 \\ -\frac{\sqrt{5}i}{64} & 0 & -\frac{5\sqrt{2}i}{64} & 0 & -\frac{5i}{64} & 0 & 0 & -\frac{\sqrt{30}i}{32} & 0 & 0 & 0 & \frac{3\sqrt{10}i}{32} & 0 & \frac{\sqrt{210}i}{112} \\ 0 & \frac{\sqrt{15}i}{64} & 0 & \frac{\sqrt{30}i}{64} & 0 & \frac{\sqrt{3}i}{64} & \frac{3\sqrt{14}i}{224} & 0 & 0 & 0 & -\frac{3\sqrt{10}i}{32} & 0 & -\frac{3\sqrt{2}i}{16} & 0 \\ -\frac{i}{64} & 0 & -\frac{\sqrt{10}i}{64} & 0 & -\frac{\sqrt{5}i}{64} & 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{32} & 0 & \frac{3\sqrt{2}i}{16} & 0 & \frac{3\sqrt{42}i}{224} \\ 0 & \frac{\sqrt{35}i}{448} & 0 & \frac{\sqrt{70}i}{448} & 0 & \frac{\sqrt{7}i}{448} & 0 & 0 & -\frac{3\sqrt{14}i}{224} & 0 & -\frac{\sqrt{210}i}{112} & 0 & -\frac{3\sqrt{42}i}{224} & 0 \end{bmatrix}$$

$$\boxed{x433} \quad \mathbb{Q}_{6,2}^{(1,-1;a)}(E_g, 2) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{448} & 0 & -\frac{\sqrt{3}}{64} & 0 & \frac{\sqrt{5}}{64} & 0 & -\frac{1}{64} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{64} & 0 & \frac{5}{64} & 0 & -\frac{\sqrt{15}}{64} & 0 & \frac{\sqrt{35}}{448} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}}{448} & 0 & \frac{\sqrt{30}}{64} & 0 & -\frac{5\sqrt{2}}{64} & 0 & \frac{\sqrt{10}}{64} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{10}}{64} & 0 & -\frac{5\sqrt{2}}{64} & 0 & \frac{\sqrt{30}}{64} & 0 & -\frac{\sqrt{70}}{448} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{35}}{448} & 0 & -\frac{\sqrt{15}}{64} & 0 & \frac{5}{64} & 0 & -\frac{\sqrt{5}}{64} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{1}{64} & 0 & \frac{\sqrt{5}}{64} & 0 & -\frac{\sqrt{3}}{64} & 0 & \frac{\sqrt{7}}{448} \\ \frac{\sqrt{7}}{448} & 0 & -\frac{\sqrt{70}}{448} & 0 & \frac{\sqrt{35}}{448} & 0 & 0 & \frac{3\sqrt{42}}{224} & 0 & -\frac{\sqrt{210}}{112} & 0 & \frac{3\sqrt{14}}{224} & 0 & 0 \\ 0 & -\frac{\sqrt{5}}{64} & 0 & \frac{\sqrt{10}}{64} & 0 & -\frac{1}{64} & \frac{3\sqrt{42}}{224} & 0 & -\frac{3\sqrt{2}}{16} & 0 & \frac{\sqrt{30}}{32} & 0 & 0 & 0 \\ -\frac{\sqrt{3}}{64} & 0 & \frac{\sqrt{30}}{64} & 0 & -\frac{\sqrt{15}}{64} & 0 & 0 & -\frac{3\sqrt{2}}{16} & 0 & \frac{3\sqrt{10}}{32} & 0 & 0 & 0 & -\frac{3\sqrt{14}}{224} \\ 0 & \frac{5}{64} & 0 & -\frac{5\sqrt{2}}{64} & 0 & \frac{\sqrt{5}}{64} & -\frac{\sqrt{210}}{112} & 0 & \frac{3\sqrt{10}}{32} & 0 & 0 & 0 & -\frac{\sqrt{30}}{32} & 0 \\ \frac{\sqrt{5}}{64} & 0 & -\frac{5\sqrt{2}}{64} & 0 & \frac{5}{64} & 0 & 0 & \frac{\sqrt{30}}{32} & 0 & 0 & 0 & -\frac{3\sqrt{10}}{32} & 0 & \frac{\sqrt{210}}{112} \\ 0 & -\frac{\sqrt{15}}{64} & 0 & \frac{\sqrt{30}}{64} & 0 & -\frac{\sqrt{3}}{64} & \frac{3\sqrt{14}}{224} & 0 & 0 & 0 & -\frac{3\sqrt{10}}{32} & 0 & \frac{3\sqrt{2}}{16} & 0 \\ -\frac{1}{64} & 0 & \frac{\sqrt{10}}{64} & 0 & -\frac{\sqrt{5}}{64} & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}}{32} & 0 & \frac{3\sqrt{2}}{16} & 0 & -\frac{3\sqrt{42}}{224} \\ 0 & \frac{\sqrt{35}}{448} & 0 & -\frac{\sqrt{70}}{448} & 0 & \frac{\sqrt{7}}{448} & 0 & 0 & -\frac{3\sqrt{14}}{224} & 0 & \frac{\sqrt{210}}{112} & 0 & -\frac{3\sqrt{42}}{224} & 0 \end{bmatrix}$$

$$\boxed{x434} \quad \mathbb{Q}_{6,1}^{(1,-1;a)}(E_g, 3) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{385}i}{14784} & 0 & \frac{\sqrt{165}i}{2112} & 0 & -\frac{9\sqrt{11}i}{704} & 0 & \frac{\sqrt{55}i}{64} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{11}i}{2112} & 0 & -\frac{5\sqrt{55}i}{2112} & 0 & \frac{9\sqrt{33}i}{704} & 0 & -\frac{5\sqrt{77}i}{448} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{9\sqrt{154}i}{4928} & 0 & \frac{5\sqrt{66}i}{2112} & 0 & \frac{5\sqrt{110}i}{2112} & 0 & -\frac{9\sqrt{22}i}{704} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{9\sqrt{22}i}{704} & 0 & -\frac{5\sqrt{110}i}{2112} & 0 & -\frac{5\sqrt{66}i}{2112} & 0 & \frac{9\sqrt{154}i}{4928} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{77}i}{448} & 0 & -\frac{9\sqrt{33}i}{704} & 0 & \frac{5\sqrt{55}i}{2112} & 0 & \frac{5\sqrt{11}i}{2112} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{55}i}{64} & 0 & \frac{9\sqrt{11}i}{704} & 0 & -\frac{\sqrt{165}i}{2112} & 0 & -\frac{\sqrt{385}i}{14784} \\ -\frac{\sqrt{385}i}{14784} & 0 & \frac{9\sqrt{154}i}{4928} & 0 & -\frac{5\sqrt{77}i}{448} & 0 & 0 & -\frac{\sqrt{2310}i}{2464} & 0 & \frac{9\sqrt{462}i}{1232} & 0 & -\frac{3\sqrt{770}i}{224} & 0 & 0 \\ 0 & \frac{5\sqrt{11}i}{2112} & 0 & -\frac{9\sqrt{22}i}{704} & 0 & \frac{\sqrt{55}i}{64} & \frac{\sqrt{2310}i}{2464} & 0 & \frac{\sqrt{110}i}{176} & 0 & -\frac{9\sqrt{66}i}{352} & 0 & 0 & 0 \\ -\frac{\sqrt{165}i}{2112} & 0 & -\frac{5\sqrt{66}i}{2112} & 0 & \frac{9\sqrt{33}i}{704} & 0 & 0 & -\frac{\sqrt{110}i}{176} & 0 & -\frac{5\sqrt{22}i}{352} & 0 & 0 & 0 & \frac{3\sqrt{770}i}{224} \\ 0 & \frac{5\sqrt{55}i}{2112} & 0 & \frac{5\sqrt{110}i}{2112} & 0 & -\frac{9\sqrt{11}i}{704} & -\frac{9\sqrt{462}i}{1232} & 0 & \frac{5\sqrt{22}i}{352} & 0 & 0 & 0 & \frac{9\sqrt{66}i}{352} & 0 \\ \frac{9\sqrt{11}i}{704} & 0 & -\frac{5\sqrt{110}i}{2112} & 0 & -\frac{5\sqrt{55}i}{2112} & 0 & 0 & \frac{9\sqrt{66}i}{352} & 0 & 0 & 0 & \frac{5\sqrt{22}i}{352} & 0 & -\frac{9\sqrt{462}i}{1232} \\ 0 & -\frac{9\sqrt{33}i}{704} & 0 & \frac{5\sqrt{66}i}{2112} & 0 & \frac{\sqrt{165}i}{2112} & \frac{3\sqrt{770}i}{224} & 0 & 0 & 0 & -\frac{5\sqrt{22}i}{352} & 0 & -\frac{\sqrt{110}i}{176} & 0 \\ -\frac{\sqrt{55}i}{64} & 0 & \frac{9\sqrt{22}i}{704} & 0 & -\frac{5\sqrt{11}i}{2112} & 0 & 0 & 0 & 0 & -\frac{9\sqrt{66}i}{352} & 0 & \frac{\sqrt{110}i}{176} & 0 & \frac{\sqrt{2310}i}{2464} \\ 0 & \frac{5\sqrt{77}i}{448} & 0 & -\frac{9\sqrt{154}i}{4928} & 0 & \frac{\sqrt{385}i}{14784} & 0 & 0 & -\frac{3\sqrt{770}i}{224} & 0 & \frac{9\sqrt{462}i}{1232} & 0 & -\frac{\sqrt{2310}i}{2464} & 0 \end{bmatrix}$$

$$\boxed{x435} \quad \mathbb{Q}_{6,2}^{(1,-1;a)}(E_g, 3) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{385}}{14784} & 0 & -\frac{\sqrt{165}}{2112} & 0 & -\frac{9\sqrt{11}}{704} & 0 & -\frac{\sqrt{55}}{64} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{11}}{2112} & 0 & \frac{5\sqrt{55}}{2112} & 0 & \frac{9\sqrt{33}}{704} & 0 & \frac{5\sqrt{77}}{448} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{9\sqrt{154}}{4928} & 0 & \frac{5\sqrt{66}}{2112} & 0 & -\frac{5\sqrt{110}}{2112} & 0 & -\frac{9\sqrt{22}}{704} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{9\sqrt{22}}{704} & 0 & -\frac{5\sqrt{110}}{2112} & 0 & \frac{5\sqrt{66}}{2112} & 0 & \frac{9\sqrt{154}}{4928} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{77}}{448} & 0 & \frac{9\sqrt{33}}{704} & 0 & \frac{5\sqrt{55}}{2112} & 0 & -\frac{5\sqrt{11}}{2112} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{55}}{64} & 0 & -\frac{9\sqrt{11}}{704} & 0 & -\frac{\sqrt{165}}{2112} & 0 & \frac{\sqrt{385}}{14784} \\ \frac{\sqrt{385}}{14784} & 0 & \frac{9\sqrt{154}}{4928} & 0 & \frac{5\sqrt{77}}{448} & 0 & 0 & \frac{\sqrt{2310}}{2464} & 0 & \frac{9\sqrt{462}}{1232} & 0 & \frac{3\sqrt{770}}{224} & 0 & 0 \\ 0 & -\frac{5\sqrt{11}}{2112} & 0 & -\frac{9\sqrt{22}}{704} & 0 & -\frac{\sqrt{55}}{64} & \frac{\sqrt{2310}}{2464} & 0 & -\frac{\sqrt{110}}{176} & 0 & -\frac{9\sqrt{66}}{352} & 0 & 0 & 0 \\ -\frac{\sqrt{165}}{2112} & 0 & \frac{5\sqrt{66}}{2112} & 0 & \frac{9\sqrt{33}}{704} & 0 & 0 & -\frac{\sqrt{110}}{176} & 0 & \frac{5\sqrt{22}}{352} & 0 & 0 & 0 & -\frac{3\sqrt{770}}{224} \\ 0 & \frac{5\sqrt{55}}{2112} & 0 & -\frac{5\sqrt{110}}{2112} & 0 & -\frac{9\sqrt{11}}{704} & \frac{9\sqrt{462}}{1232} & 0 & \frac{5\sqrt{22}}{352} & 0 & 0 & 0 & \frac{9\sqrt{66}}{352} & 0 \\ -\frac{9\sqrt{11}}{704} & 0 & -\frac{5\sqrt{110}}{2112} & 0 & \frac{5\sqrt{55}}{2112} & 0 & 0 & -\frac{9\sqrt{66}}{352} & 0 & 0 & 0 & -\frac{5\sqrt{22}}{352} & 0 & -\frac{9\sqrt{462}}{1232} \\ 0 & \frac{9\sqrt{33}}{704} & 0 & \frac{5\sqrt{66}}{2112} & 0 & -\frac{\sqrt{165}}{2112} & \frac{3\sqrt{770}}{224} & 0 & 0 & 0 & -\frac{5\sqrt{22}}{352} & 0 & \frac{\sqrt{110}}{176} & 0 \\ -\frac{\sqrt{55}}{64} & 0 & -\frac{9\sqrt{22}}{704} & 0 & -\frac{5\sqrt{11}}{2112} & 0 & 0 & 0 & 0 & \frac{9\sqrt{66}}{352} & 0 & \frac{\sqrt{110}}{176} & 0 & -\frac{\sqrt{2310}}{2464} \\ 0 & \frac{5\sqrt{77}}{448} & 0 & \frac{9\sqrt{154}}{4928} & 0 & \frac{\sqrt{385}}{14784} & 0 & 0 & -\frac{3\sqrt{770}}{224} & 0 & -\frac{9\sqrt{462}}{1232} & 0 & -\frac{\sqrt{2310}}{2464} & 0 \end{bmatrix}$$

$$\boxed{x436} \quad \mathbb{Q}_0^{(1,1;a)}(A_{1g}) = \begin{bmatrix} -\frac{\sqrt{42}}{21} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{42}}{21} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{42}}{21} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{42}}{21} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{42}}{21} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}}{21} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{42}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{42}}{28} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{42}}{28} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{42}}{28} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{42}}{28} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{42}}{28} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{42}}{28} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{42}}{28} \end{bmatrix}$$



$$\boxed{x437} \quad \mathbb{Q}_2^{(1,1;a)}(A_{1g}) = \begin{bmatrix} \frac{15\sqrt{7}}{98} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{42}}{147} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{3\sqrt{7}}{98} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}}{49} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{6\sqrt{7}}{49} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{2\sqrt{21}}{147} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{6\sqrt{7}}{49} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{2\sqrt{21}}{147} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{3\sqrt{7}}{98} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{70}}{49} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{15\sqrt{7}}{98} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{42}}{147} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}}{14} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{5\sqrt{42}}{147} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}}{98} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{70}}{49} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{7}}{98} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{2\sqrt{21}}{147} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{7}}{98} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{2\sqrt{21}}{147} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{7}}{98} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{70}}{49} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{7}}{98} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{42}}{147} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}}{98} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}}{14} \end{bmatrix}$$

$$\boxed{x438} \quad \mathbb{Q}_4^{(1,1;a)}(A_{1g}, 1) = \begin{bmatrix} -\frac{\sqrt{110}}{84} & 0 & 0 & 0 & -\frac{5\sqrt{22}}{84} & 0 & 0 & \frac{2\sqrt{165}}{231} & 0 & 0 & 0 & \frac{2\sqrt{55}}{231} & 0 & 0 \\ 0 & \frac{\sqrt{110}}{28} & 0 & 0 & 0 & -\frac{5\sqrt{22}}{84} & 0 & 0 & -\frac{8\sqrt{11}}{231} & 0 & 0 & 0 & \frac{4\sqrt{33}}{231} & 0 \\ 0 & 0 & -\frac{\sqrt{110}}{42} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{330}}{231} & 0 & 0 & 0 & \frac{\sqrt{462}}{231} \\ 0 & 0 & 0 & -\frac{\sqrt{110}}{42} & 0 & 0 & -\frac{\sqrt{462}}{231} & 0 & 0 & 0 & \frac{\sqrt{330}}{231} & 0 & 0 & 0 \\ -\frac{5\sqrt{22}}{84} & 0 & 0 & 0 & \frac{\sqrt{110}}{28} & 0 & 0 & -\frac{4\sqrt{33}}{231} & 0 & 0 & 0 & \frac{8\sqrt{11}}{231} & 0 & 0 \\ 0 & -\frac{5\sqrt{22}}{84} & 0 & 0 & 0 & -\frac{\sqrt{110}}{84} & 0 & 0 & -\frac{2\sqrt{55}}{231} & 0 & 0 & 0 & -\frac{2\sqrt{165}}{231} & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{462}}{231} & 0 & 0 & \frac{\sqrt{110}}{264} & 0 & 0 & 0 & \frac{5\sqrt{154}}{1848} & 0 & 0 & 0 \\ \frac{2\sqrt{165}}{231} & 0 & 0 & 0 & -\frac{4\sqrt{33}}{231} & 0 & 0 & -\frac{13\sqrt{110}}{1848} & 0 & 0 & 0 & \frac{5\sqrt{330}}{1848} & 0 & 0 \\ 0 & -\frac{8\sqrt{11}}{231} & 0 & 0 & 0 & -\frac{2\sqrt{55}}{231} & 0 & 0 & -\frac{\sqrt{110}}{616} & 0 & 0 & 0 & \frac{5\sqrt{330}}{1848} & 0 \\ 0 & 0 & -\frac{\sqrt{330}}{231} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{110}}{616} & 0 & 0 & 0 & \frac{5\sqrt{154}}{1848} \\ 0 & 0 & 0 & \frac{\sqrt{330}}{231} & 0 & 0 & \frac{5\sqrt{154}}{1848} & 0 & 0 & 0 & \frac{3\sqrt{110}}{616} & 0 & 0 & 0 \\ \frac{2\sqrt{55}}{231} & 0 & 0 & 0 & \frac{8\sqrt{11}}{231} & 0 & 0 & \frac{5\sqrt{330}}{1848} & 0 & 0 & 0 & -\frac{\sqrt{110}}{616} & 0 & 0 \\ 0 & \frac{4\sqrt{33}}{231} & 0 & 0 & 0 & -\frac{2\sqrt{165}}{231} & 0 & 0 & \frac{5\sqrt{330}}{1848} & 0 & 0 & 0 & -\frac{13\sqrt{110}}{1848} & 0 \\ 0 & 0 & \frac{\sqrt{462}}{231} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{154}}{1848} & 0 & 0 & 0 & \frac{\sqrt{110}}{264} \end{bmatrix}$$

$$\boxed{\text{x439}} \quad \mathbb{Q}_4^{(1,1;a)}(A_{1g}, 2) = \begin{bmatrix} -\frac{5\sqrt{154}}{588} & 0 & 0 & 0 & \frac{\sqrt{770}}{84} & 0 & 0 & \frac{10\sqrt{231}}{1617} & 0 & 0 & 0 & -\frac{2\sqrt{77}}{231} & 0 & 0 \\ 0 & \frac{5\sqrt{154}}{196} & 0 & 0 & 0 & \frac{\sqrt{770}}{84} & 0 & 0 & -\frac{8\sqrt{385}}{1617} & 0 & 0 & 0 & -\frac{4\sqrt{1155}}{1155} & 0 \\ 0 & 0 & -\frac{5\sqrt{154}}{294} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{462}}{1617} & 0 & 0 & 0 & -\frac{\sqrt{330}}{165} \\ 0 & 0 & 0 & -\frac{5\sqrt{154}}{294} & 0 & 0 & \frac{\sqrt{330}}{165} & 0 & 0 & 0 & \frac{5\sqrt{462}}{1617} & 0 & 0 & 0 \\ \frac{\sqrt{770}}{84} & 0 & 0 & 0 & \frac{5\sqrt{154}}{196} & 0 & 0 & \frac{4\sqrt{1155}}{1155} & 0 & 0 & 0 & \frac{8\sqrt{385}}{1617} & 0 & 0 \\ 0 & \frac{\sqrt{770}}{84} & 0 & 0 & 0 & -\frac{5\sqrt{154}}{588} & 0 & 0 & \frac{2\sqrt{77}}{231} & 0 & 0 & 0 & -\frac{10\sqrt{231}}{1617} & 0 \\ 0 & 0 & 0 & \frac{\sqrt{330}}{165} & 0 & 0 & \frac{5\sqrt{154}}{1848} & 0 & 0 & 0 & -\frac{\sqrt{110}}{264} & 0 & 0 & 0 \\ \frac{10\sqrt{231}}{1617} & 0 & 0 & 0 & \frac{4\sqrt{1155}}{1155} & 0 & 0 & -\frac{65\sqrt{154}}{12936} & 0 & 0 & 0 & -\frac{5\sqrt{462}}{1848} & 0 & 0 \\ 0 & -\frac{8\sqrt{385}}{1617} & 0 & 0 & 0 & \frac{2\sqrt{77}}{231} & 0 & 0 & -\frac{5\sqrt{154}}{4312} & 0 & 0 & 0 & -\frac{5\sqrt{462}}{1848} & 0 \\ 0 & 0 & -\frac{5\sqrt{462}}{1617} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{15\sqrt{154}}{4312} & 0 & 0 & 0 & -\frac{\sqrt{110}}{264} \\ 0 & 0 & 0 & \frac{5\sqrt{462}}{1617} & 0 & 0 & -\frac{\sqrt{110}}{264} & 0 & 0 & 0 & \frac{15\sqrt{154}}{4312} & 0 & 0 & 0 \\ -\frac{2\sqrt{77}}{231} & 0 & 0 & 0 & \frac{8\sqrt{385}}{1617} & 0 & 0 & -\frac{5\sqrt{462}}{1848} & 0 & 0 & 0 & -\frac{5\sqrt{154}}{4312} & 0 & 0 \\ 0 & -\frac{4\sqrt{1155}}{1155} & 0 & 0 & 0 & -\frac{10\sqrt{231}}{1617} & 0 & 0 & -\frac{5\sqrt{462}}{1848} & 0 & 0 & 0 & -\frac{65\sqrt{154}}{12936} & 0 \\ 0 & 0 & -\frac{\sqrt{330}}{165} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{110}}{264} & 0 & 0 & 0 & \frac{5\sqrt{154}}{1848} \end{bmatrix}$$

$$\boxed{\text{x440}} \quad \mathbb{Q}_4^{(1,1;a)}(A_{2g}) = \begin{bmatrix} 0 & 0 & 0 & 0 & \frac{\sqrt{330}i}{42} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{4\sqrt{33}i}{231} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{330}i}{42} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{8\sqrt{55}i}{385} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{2\sqrt{770}i}{385} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{2\sqrt{770}i}{385} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{330}i}{42} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{8\sqrt{55}i}{385} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{330}i}{42} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{4\sqrt{33}i}{231} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{2\sqrt{770}i}{385} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2310}i}{924} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{8\sqrt{55}i}{385} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{22}i}{308} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{4\sqrt{33}i}{231} & 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{22}i}{308} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2310}i}{924} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2310}i}{924} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{4\sqrt{33}i}{231} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{22}i}{308} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{8\sqrt{55}i}{385} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{22}i}{308} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{2\sqrt{770}i}{385} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2310}i}{924} & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x441}} \quad \mathbb{Q}_2^{(1,1;a)}(B_{1g}) = \begin{bmatrix} 0 & 0 & \frac{3\sqrt{210}}{196} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}}{147} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{9\sqrt{42}}{196} & 0 & 0 & \frac{\sqrt{10}}{21} & 0 & 0 & 0 & -\frac{4\sqrt{14}}{147} & 0 & 0 & 0 \\ \frac{3\sqrt{210}}{196} & 0 & 0 & 0 & \frac{9\sqrt{42}}{196} & 0 & 0 & \frac{4\sqrt{35}}{147} & 0 & 0 & 0 & -\frac{2\sqrt{105}}{147} & 0 & 0 \\ 0 & \frac{9\sqrt{42}}{196} & 0 & 0 & 0 & \frac{3\sqrt{210}}{196} & 0 & 0 & \frac{2\sqrt{105}}{147} & 0 & 0 & 0 & -\frac{4\sqrt{35}}{147} & 0 \\ 0 & 0 & \frac{9\sqrt{42}}{196} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{4\sqrt{14}}{147} & 0 & 0 & 0 & -\frac{\sqrt{10}}{21} \\ 0 & 0 & 0 & \frac{3\sqrt{210}}{196} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{70}}{147} & 0 & 0 & 0 \\ 0 & \frac{\sqrt{10}}{21} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{1}{14} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{4\sqrt{35}}{147} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{98} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{2\sqrt{105}}{147} & 0 & 0 & -\frac{1}{14} & 0 & 0 & 0 & -\frac{\sqrt{35}}{49} & 0 & 0 & 0 \\ -\frac{\sqrt{70}}{147} & 0 & 0 & 0 & \frac{4\sqrt{14}}{147} & 0 & 0 & -\frac{\sqrt{105}}{98} & 0 & 0 & 0 & -\frac{\sqrt{35}}{49} & 0 & 0 \\ 0 & -\frac{4\sqrt{14}}{147} & 0 & 0 & 0 & \frac{\sqrt{70}}{147} & 0 & 0 & -\frac{\sqrt{35}}{49} & 0 & 0 & 0 & -\frac{\sqrt{105}}{98} & 0 \\ 0 & 0 & -\frac{2\sqrt{105}}{147} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}}{49} & 0 & 0 & 0 & -\frac{1}{14} \\ 0 & 0 & 0 & -\frac{4\sqrt{35}}{147} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{98} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{10}}{21} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{1}{14} & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x442}} \quad \mathbb{Q}_4^{(1,1;a)}(B_{1g}) = \begin{bmatrix} 0 & 0 & \frac{\sqrt{1155}}{98} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{4\sqrt{385}}{539} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{5\sqrt{231}}{294} & 0 & 0 & \frac{6\sqrt{55}}{385} & 0 & 0 & 0 & -\frac{2\sqrt{77}}{539} & 0 & 0 & 0 \\ \frac{\sqrt{1155}}{98} & 0 & 0 & 0 & -\frac{5\sqrt{231}}{294} & 0 & 0 & -\frac{9\sqrt{770}}{2695} & 0 & 0 & 0 & \frac{17\sqrt{2310}}{8085} & 0 & 0 \\ 0 & -\frac{5\sqrt{231}}{294} & 0 & 0 & 0 & \frac{\sqrt{1155}}{98} & 0 & 0 & -\frac{17\sqrt{2310}}{8085} & 0 & 0 & 0 & \frac{9\sqrt{770}}{2695} & 0 \\ 0 & 0 & -\frac{5\sqrt{231}}{294} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{2\sqrt{77}}{539} & 0 & 0 & 0 & -\frac{6\sqrt{55}}{385} \\ 0 & 0 & 0 & \frac{\sqrt{1155}}{98} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{4\sqrt{385}}{539} & 0 & 0 & 0 \\ 0 & \frac{6\sqrt{55}}{385} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{22}}{308} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{9\sqrt{770}}{2695} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2310}}{6468} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{17\sqrt{2310}}{8085} & 0 & 0 & -\frac{5\sqrt{22}}{308} & 0 & 0 & 0 & \frac{\sqrt{770}}{539} & 0 & 0 & 0 \\ -\frac{4\sqrt{385}}{539} & 0 & 0 & 0 & \frac{2\sqrt{77}}{539} & 0 & 0 & -\frac{\sqrt{2310}}{6468} & 0 & 0 & 0 & \frac{\sqrt{770}}{539} & 0 & 0 \\ 0 & -\frac{2\sqrt{77}}{539} & 0 & 0 & 0 & \frac{4\sqrt{385}}{539} & 0 & 0 & 0 & \frac{\sqrt{770}}{539} & 0 & 0 & -\frac{\sqrt{2310}}{6468} & 0 \\ 0 & 0 & \frac{17\sqrt{2310}}{8085} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{770}}{539} & 0 & 0 & -\frac{5\sqrt{22}}{308} \\ 0 & 0 & 0 & \frac{9\sqrt{770}}{2695} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2310}}{6468} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{6\sqrt{55}}{385} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{22}}{308} & 0 & 0 \end{bmatrix}$$

$$\boxed{x443} \quad \mathbb{Q}_2^{(1,1;a)}(B_{2g}) = \begin{bmatrix} 0 & 0 & -\frac{3\sqrt{210}i}{196} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{70}i}{147} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{9\sqrt{42}i}{196} & 0 & 0 & \frac{\sqrt{10}i}{21} & 0 & 0 & 0 & \frac{4\sqrt{14}i}{147} & 0 & 0 & 0 \\ \frac{3\sqrt{210}i}{196} & 0 & 0 & 0 & -\frac{9\sqrt{42}i}{196} & 0 & 0 & \frac{4\sqrt{35}i}{147} & 0 & 0 & 0 & \frac{2\sqrt{105}i}{147} & 0 & 0 \\ 0 & \frac{9\sqrt{42}i}{196} & 0 & 0 & 0 & -\frac{3\sqrt{210}i}{196} & 0 & 0 & \frac{2\sqrt{105}i}{147} & 0 & 0 & 0 & \frac{4\sqrt{35}i}{147} & 0 \\ 0 & 0 & \frac{9\sqrt{42}i}{196} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{4\sqrt{14}i}{147} & 0 & 0 & 0 & \frac{\sqrt{10}i}{21} \\ 0 & 0 & 0 & \frac{3\sqrt{210}i}{196} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{70}i}{147} & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{10}i}{21} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{i}{14} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{4\sqrt{35}i}{147} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{98} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{2\sqrt{105}i}{147} & 0 & 0 & -\frac{i}{14} & 0 & 0 & 0 & \frac{\sqrt{35}i}{49} & 0 & 0 & 0 \\ -\frac{\sqrt{70}i}{147} & 0 & 0 & 0 & -\frac{4\sqrt{14}i}{147} & 0 & 0 & -\frac{\sqrt{105}i}{98} & 0 & 0 & 0 & \frac{\sqrt{35}i}{49} & 0 & 0 \\ 0 & -\frac{4\sqrt{14}i}{147} & 0 & 0 & 0 & -\frac{\sqrt{70}i}{147} & 0 & 0 & -\frac{\sqrt{35}i}{49} & 0 & 0 & 0 & \frac{\sqrt{105}i}{98} & 0 \\ 0 & 0 & -\frac{2\sqrt{105}i}{147} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}i}{49} & 0 & 0 & 0 & \frac{i}{14} \\ 0 & 0 & 0 & -\frac{4\sqrt{35}i}{147} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}i}{98} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{10}i}{21} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{i}{14} & 0 & 0 \end{bmatrix}$$

$$\boxed{x444} \quad \mathbb{Q}_4^{(1,1;a)}(B_{2g}) = \begin{bmatrix} 0 & 0 & \frac{\sqrt{1155}i}{98} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{4\sqrt{385}i}{539} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{5\sqrt{231}i}{294} & 0 & 0 & -\frac{6\sqrt{55}i}{385} & 0 & 0 & 0 & -\frac{2\sqrt{77}i}{539} & 0 & 0 & 0 \\ -\frac{\sqrt{1155}i}{98} & 0 & 0 & 0 & -\frac{5\sqrt{231}i}{294} & 0 & 0 & \frac{9\sqrt{770}i}{2695} & 0 & 0 & 0 & \frac{17\sqrt{2310}i}{8085} & 0 & 0 \\ 0 & \frac{5\sqrt{231}i}{294} & 0 & 0 & 0 & \frac{\sqrt{1155}i}{98} & 0 & 0 & \frac{17\sqrt{2310}i}{8085} & 0 & 0 & 0 & \frac{9\sqrt{770}i}{2695} & 0 \\ 0 & 0 & \frac{5\sqrt{231}i}{294} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{2\sqrt{77}i}{539} & 0 & 0 & 0 & -\frac{6\sqrt{55}i}{385} \\ 0 & 0 & 0 & -\frac{\sqrt{1155}i}{98} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{4\sqrt{385}i}{539} & 0 & 0 & 0 \\ 0 & \frac{6\sqrt{55}i}{385} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{22}i}{308} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{9\sqrt{770}i}{2695} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2310}i}{6468} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{17\sqrt{2310}i}{8085} & 0 & 0 & \frac{5\sqrt{22}i}{308} & 0 & 0 & 0 & \frac{\sqrt{770}i}{539} & 0 & 0 & 0 \\ \frac{4\sqrt{385}i}{539} & 0 & 0 & 0 & \frac{2\sqrt{77}i}{539} & 0 & 0 & \frac{\sqrt{2310}i}{6468} & 0 & 0 & 0 & \frac{\sqrt{770}i}{539} & 0 & 0 \\ 0 & \frac{2\sqrt{77}i}{539} & 0 & 0 & 0 & \frac{4\sqrt{385}i}{539} & 0 & 0 & -\frac{\sqrt{770}i}{539} & 0 & 0 & 0 & -\frac{\sqrt{2310}i}{6468} & 0 \\ 0 & 0 & -\frac{17\sqrt{2310}i}{8085} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{770}i}{539} & 0 & 0 & 0 & -\frac{5\sqrt{22}i}{308} \\ 0 & 0 & 0 & -\frac{9\sqrt{770}i}{2695} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2310}i}{6468} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{6\sqrt{55}i}{385} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{22}i}{308} & 0 & 0 \end{bmatrix}$$

$$\boxed{x445} \quad \mathbb{Q}_{2,1}^{(1,1;a)}(E_g) = \begin{bmatrix} 0 & -\frac{3\sqrt{105}i}{98} & 0 & 0 & 0 & 0 & \frac{5\sqrt{2}i}{42} & 0 & \frac{5\sqrt{42}i}{294} & 0 & 0 & 0 & 0 & 0 \\ \frac{3\sqrt{105}i}{98} & 0 & -\frac{3\sqrt{42}i}{98} & 0 & 0 & 0 & 0 & \frac{\sqrt{70}i}{294} & 0 & \frac{11\sqrt{14}i}{294} & 0 & 0 & 0 & 0 \\ 0 & \frac{3\sqrt{42}i}{98} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}i}{147} & 0 & \frac{\sqrt{7}i}{21} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{3\sqrt{42}i}{98} & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}i}{21} & 0 & \frac{\sqrt{105}i}{147} & 0 & 0 \\ 0 & 0 & 0 & -\frac{3\sqrt{42}i}{98} & 0 & \frac{3\sqrt{105}i}{98} & 0 & 0 & 0 & 0 & -\frac{11\sqrt{14}i}{294} & 0 & -\frac{\sqrt{70}i}{294} & 0 \\ 0 & 0 & 0 & 0 & -\frac{3\sqrt{105}i}{98} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{42}i}{294} & 0 & -\frac{5\sqrt{2}i}{42} \\ -\frac{5\sqrt{2}i}{42} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{14} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{70}i}{294} & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{14} & 0 & \frac{2\sqrt{7}i}{49} & 0 & 0 & 0 & 0 & 0 \\ -\frac{5\sqrt{42}i}{294} & 0 & \frac{\sqrt{105}i}{147} & 0 & 0 & 0 & 0 & -\frac{2\sqrt{7}i}{49} & 0 & \frac{\sqrt{35}i}{98} & 0 & 0 & 0 & 0 \\ 0 & -\frac{11\sqrt{14}i}{294} & 0 & \frac{\sqrt{7}i}{21} & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}i}{98} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{7}i}{21} & 0 & \frac{11\sqrt{14}i}{294} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}i}{98} & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{105}i}{147} & 0 & \frac{5\sqrt{42}i}{294} & 0 & 0 & 0 & 0 & \frac{\sqrt{35}i}{98} & 0 & -\frac{2\sqrt{7}i}{49} & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{70}i}{294} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{2\sqrt{7}i}{49} & 0 & -\frac{\sqrt{3}i}{14} \\ 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{2}i}{42} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{14} & 0 \end{bmatrix}$$

$$\boxed{x446} \quad \mathbb{Q}_{2,2}^{(1,1;a)}(E_g) = \begin{bmatrix} 0 & \frac{3\sqrt{105}}{98} & 0 & 0 & 0 & 0 & \frac{5\sqrt{2}}{42} & 0 & -\frac{5\sqrt{42}}{294} & 0 & 0 & 0 & 0 & 0 \\ \frac{3\sqrt{105}}{98} & 0 & \frac{3\sqrt{42}}{98} & 0 & 0 & 0 & 0 & \frac{\sqrt{70}}{294} & 0 & -\frac{11\sqrt{14}}{294} & 0 & 0 & 0 & 0 \\ 0 & \frac{3\sqrt{42}}{98} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{147} & 0 & -\frac{\sqrt{7}}{21} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{3\sqrt{42}}{98} & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}}{21} & 0 & -\frac{\sqrt{105}}{147} & 0 & 0 \\ 0 & 0 & 0 & -\frac{3\sqrt{42}}{98} & 0 & -\frac{3\sqrt{105}}{98} & 0 & 0 & 0 & 0 & -\frac{11\sqrt{14}}{294} & 0 & \frac{\sqrt{70}}{294} & 0 \\ 0 & 0 & 0 & 0 & -\frac{3\sqrt{105}}{98} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{42}}{294} & 0 & \frac{5\sqrt{2}}{42} \\ \frac{5\sqrt{2}}{42} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{14} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{70}}{294} & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{14} & 0 & -\frac{2\sqrt{7}}{49} & 0 & 0 & 0 & 0 & 0 \\ -\frac{5\sqrt{42}}{294} & 0 & -\frac{\sqrt{105}}{147} & 0 & 0 & 0 & 0 & -\frac{2\sqrt{7}}{49} & 0 & -\frac{\sqrt{35}}{98} & 0 & 0 & 0 & 0 \\ 0 & -\frac{11\sqrt{14}}{294} & 0 & -\frac{\sqrt{7}}{21} & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}}{98} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{7}}{21} & 0 & -\frac{11\sqrt{14}}{294} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{35}}{98} & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{105}}{147} & 0 & -\frac{5\sqrt{42}}{294} & 0 & 0 & 0 & 0 & \frac{\sqrt{35}}{98} & 0 & \frac{2\sqrt{7}}{49} & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{70}}{294} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{2\sqrt{7}}{49} & 0 & \frac{\sqrt{3}}{14} \\ 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{2}}{42} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{14} & 0 \end{bmatrix}$$

$$\begin{aligned}
\boxed{x447} \quad \mathbb{Q}_{4,1}^{(1,1;a)}(E_g, 1) = & \begin{bmatrix} 0 & -\frac{\sqrt{330}i}{84} & 0 & -\frac{\sqrt{165}i}{84} & 0 & 0 & \frac{\sqrt{77}i}{154} & 0 & \frac{5\sqrt{33}i}{231} & 0 & \frac{\sqrt{55}i}{154} & 0 & 0 & 0 \\ \frac{\sqrt{330}i}{84} & 0 & \frac{5\sqrt{33}i}{84} & 0 & 0 & 0 & 0 & -\frac{13\sqrt{55}i}{770} & 0 & -\frac{\sqrt{11}i}{77} & 0 & \frac{\sqrt{165}i}{330} & 0 & 0 \\ 0 & -\frac{5\sqrt{33}i}{84} & 0 & 0 & 0 & \frac{\sqrt{165}i}{84} & \frac{3\sqrt{770}i}{1540} & 0 & \frac{\sqrt{330}i}{4620} & 0 & -\frac{\sqrt{22}i}{44} & 0 & -\frac{\sqrt{110}i}{1540} & 0 \\ \frac{\sqrt{165}i}{84} & 0 & 0 & 0 & -\frac{5\sqrt{33}i}{84} & 0 & 0 & \frac{\sqrt{110}i}{1540} & 0 & \frac{\sqrt{22}i}{44} & 0 & -\frac{\sqrt{330}i}{4620} & 0 & -\frac{3\sqrt{770}i}{1540} \\ 0 & 0 & 0 & \frac{5\sqrt{33}i}{84} & 0 & \frac{\sqrt{330}i}{84} & 0 & 0 & -\frac{\sqrt{165}i}{330} & 0 & \frac{\sqrt{11}i}{77} & 0 & \frac{13\sqrt{55}i}{770} & 0 \\ 0 & 0 & -\frac{\sqrt{165}i}{84} & 0 & -\frac{\sqrt{330}i}{84} & 0 & 0 & 0 & 0 & -\frac{\sqrt{55}i}{154} & 0 & -\frac{5\sqrt{33}i}{231} & 0 & -\frac{\sqrt{77}i}{154} \\ -\frac{\sqrt{77}i}{154} & 0 & -\frac{3\sqrt{770}i}{1540} & 0 & 0 & 0 & 0 & \frac{5\sqrt{462}i}{1848} & 0 & \frac{\sqrt{2310}i}{1848} & 0 & 0 & 0 & 0 \\ 0 & \frac{13\sqrt{55}i}{770} & 0 & -\frac{\sqrt{110}i}{1540} & 0 & 0 & -\frac{5\sqrt{462}i}{1848} & 0 & -\frac{5\sqrt{22}i}{616} & 0 & \frac{\sqrt{330}i}{924} & 0 & 0 & 0 \\ -\frac{5\sqrt{33}i}{231} & 0 & -\frac{\sqrt{330}i}{4620} & \frac{\sqrt{165}i}{330} & 0 & 0 & 0 & \frac{5\sqrt{22}i}{616} & 0 & -\frac{3\sqrt{110}i}{616} & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{11}i}{77} & 0 & -\frac{\sqrt{22}i}{44} & 0 & \frac{\sqrt{55}i}{154} & -\frac{\sqrt{2310}i}{1848} & 0 & \frac{3\sqrt{110}i}{616} & 0 & 0 & 0 & -\frac{\sqrt{330}i}{924} & 0 \\ -\frac{\sqrt{55}i}{154} & 0 & \frac{\sqrt{22}i}{44} & 0 & -\frac{\sqrt{11}i}{77} & 0 & 0 & -\frac{\sqrt{330}i}{924} & 0 & 0 & 0 & \frac{3\sqrt{110}i}{616} & 0 & -\frac{\sqrt{2310}i}{1848} \\ 0 & -\frac{\sqrt{165}i}{330} & 0 & \frac{\sqrt{330}i}{4620} & 0 & \frac{5\sqrt{33}i}{231} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{110}i}{616} & 0 & \frac{5\sqrt{22}i}{616} & 0 \\ 0 & 0 & \frac{\sqrt{110}i}{1540} & 0 & -\frac{13\sqrt{55}i}{770} & 0 & 0 & 0 & 0 & \frac{\sqrt{330}i}{924} & 0 & -\frac{5\sqrt{22}i}{616} & 0 & -\frac{5\sqrt{462}i}{1848} \\ 0 & 0 & 0 & \frac{3\sqrt{770}i}{1540} & 0 & \frac{\sqrt{77}i}{154} & 0 & 0 & 0 & 0 & \frac{\sqrt{2310}i}{1848} & 0 & \frac{5\sqrt{462}i}{1848} & 0 \end{bmatrix} \\
\boxed{x448} \quad \mathbb{Q}_{4,2}^{(1,1;a)}(E_g, 1) = & \begin{bmatrix} 0 & \frac{\sqrt{330}}{84} & 0 & -\frac{\sqrt{165}}{84} & 0 & 0 & \frac{\sqrt{77}}{154} & 0 & -\frac{5\sqrt{33}}{231} & 0 & \frac{\sqrt{55}}{154} & 0 & 0 & 0 \\ \frac{\sqrt{330}}{84} & 0 & -\frac{5\sqrt{33}}{84} & 0 & 0 & 0 & 0 & -\frac{13\sqrt{55}}{770} & 0 & \frac{\sqrt{11}}{77} & 0 & \frac{\sqrt{165}}{330} & 0 & 0 \\ 0 & -\frac{5\sqrt{33}}{84} & 0 & 0 & 0 & \frac{\sqrt{165}}{84} & -\frac{3\sqrt{770}}{1540} & 0 & \frac{\sqrt{330}}{4620} & 0 & \frac{\sqrt{22}}{44} & 0 & -\frac{\sqrt{110}}{1540} & 0 \\ -\frac{\sqrt{165}}{84} & 0 & 0 & 0 & \frac{5\sqrt{33}}{84} & 0 & 0 & -\frac{\sqrt{110}}{1540} & 0 & \frac{\sqrt{22}}{44} & 0 & \frac{\sqrt{330}}{4620} & 0 & -\frac{3\sqrt{770}}{1540} \\ 0 & 0 & 0 & \frac{5\sqrt{33}}{84} & 0 & -\frac{\sqrt{330}}{84} & 0 & 0 & \frac{\sqrt{165}}{330} & 0 & \frac{\sqrt{11}}{77} & 0 & -\frac{13\sqrt{55}}{770} & 0 \\ 0 & 0 & \frac{\sqrt{165}}{84} & 0 & -\frac{\sqrt{330}}{84} & 0 & 0 & 0 & 0 & \frac{\sqrt{55}}{154} & 0 & -\frac{5\sqrt{33}}{231} & 0 & \frac{\sqrt{77}}{154} \\ \frac{\sqrt{77}}{154} & 0 & -\frac{3\sqrt{770}}{1540} & 0 & 0 & 0 & 0 & -\frac{5\sqrt{462}}{1848} & 0 & \frac{\sqrt{2310}}{1848} & 0 & 0 & 0 & 0 \\ 0 & -\frac{13\sqrt{55}}{770} & 0 & -\frac{\sqrt{110}}{1540} & 0 & 0 & -\frac{5\sqrt{462}}{1848} & 0 & \frac{5\sqrt{22}}{616} & 0 & \frac{\sqrt{330}}{924} & 0 & 0 & 0 \\ -\frac{5\sqrt{33}}{231} & 0 & \frac{\sqrt{330}}{4620} & 0 & \frac{\sqrt{165}}{330} & 0 & 0 & \frac{5\sqrt{22}}{616} & 0 & \frac{3\sqrt{110}}{616} & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{11}}{77} & 0 & \frac{\sqrt{22}}{44} & 0 & \frac{\sqrt{55}}{154} & \frac{\sqrt{2310}}{1848} & 0 & \frac{3\sqrt{110}}{616} & 0 & 0 & 0 & -\frac{\sqrt{330}}{924} & 0 \\ \frac{\sqrt{55}}{154} & 0 & \frac{\sqrt{22}}{44} & 0 & \frac{\sqrt{11}}{77} & 0 & 0 & \frac{\sqrt{330}}{924} & 0 & 0 & 0 & -\frac{3\sqrt{110}}{616} & 0 & -\frac{\sqrt{2310}}{1848} \\ 0 & \frac{\sqrt{165}}{330} & 0 & \frac{\sqrt{330}}{4620} & -\frac{5\sqrt{33}}{231} & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{110}}{616} & 0 & -\frac{5\sqrt{22}}{616} & 0 \\ 0 & 0 & -\frac{\sqrt{110}}{1540} & 0 & -\frac{13\sqrt{55}}{770} & 0 & 0 & 0 & 0 & -\frac{\sqrt{330}}{924} & 0 & -\frac{5\sqrt{22}}{616} & 0 & \frac{5\sqrt{462}}{1848} \\ 0 & 0 & 0 & -\frac{3\sqrt{770}}{1540} & 0 & \frac{\sqrt{77}}{154} & 0 & 0 & 0 & -\frac{\sqrt{2310}}{1848} & 0 & \frac{5\sqrt{462}}{1848} & 0 & 0 \end{bmatrix}
\end{aligned}$$

$$\begin{aligned}
\boxed{x449} \quad \mathbb{Q}_{4,1}^{(1,1;a)}(E_g, 2) = & \begin{bmatrix} 0 & -\frac{\sqrt{2310}i}{588} & 0 & \frac{\sqrt{1155}i}{84} & 0 & 0 & \frac{\sqrt{11}i}{154} & 0 & \frac{5\sqrt{231}i}{1617} & 0 & -\frac{\sqrt{385}i}{154} & 0 & 0 & 0 \\ \frac{\sqrt{2310}i}{588} & 0 & \frac{5\sqrt{231}i}{588} & 0 & 0 & 0 & 0 & -\frac{13\sqrt{385}i}{5390} & 0 & -\frac{\sqrt{77}i}{539} & 0 & -\frac{\sqrt{1155}i}{330} & 0 & 0 \\ 0 & -\frac{5\sqrt{231}i}{588} & 0 & 0 & 0 & -\frac{\sqrt{1155}i}{84} & -\frac{3\sqrt{110}i}{220} & 0 & \frac{\sqrt{2310}i}{32340} & 0 & -\frac{\sqrt{154}i}{308} & 0 & \frac{\sqrt{770}i}{1540} & 0 \\ -\frac{\sqrt{1155}i}{84} & 0 & 0 & 0 & -\frac{5\sqrt{231}i}{588} & 0 & 0 & -\frac{\sqrt{770}i}{1540} & 0 & \frac{\sqrt{154}i}{308} & 0 & -\frac{\sqrt{2310}i}{32340} & 0 & \frac{3\sqrt{110}i}{220} \\ 0 & 0 & 0 & \frac{5\sqrt{231}i}{588} & 0 & \frac{\sqrt{2310}i}{588} & 0 & 0 & \frac{\sqrt{1155}i}{330} & 0 & \frac{\sqrt{77}i}{539} & 0 & \frac{13\sqrt{385}i}{5390} & 0 \\ 0 & 0 & \frac{\sqrt{1155}i}{84} & 0 & -\frac{\sqrt{2310}i}{588} & 0 & 0 & 0 & 0 & \frac{\sqrt{385}i}{154} & 0 & -\frac{5\sqrt{231}i}{1617} & 0 & -\frac{\sqrt{11}i}{154} \\ -\frac{\sqrt{11}i}{154} & 0 & \frac{3\sqrt{110}i}{220} & 0 & 0 & 0 & 0 & \frac{5\sqrt{66}i}{1848} & 0 & -\frac{\sqrt{330}i}{264} & 0 & 0 & 0 & 0 \\ 0 & \frac{13\sqrt{385}i}{5390} & 0 & \frac{\sqrt{770}i}{1540} & 0 & 0 & -\frac{5\sqrt{66}i}{1848} & 0 & -\frac{5\sqrt{154}i}{4312} & 0 & -\frac{\sqrt{2310}i}{924} & 0 & 0 & 0 \\ -\frac{5\sqrt{231}i}{1617} & 0 & -\frac{\sqrt{2310}i}{32340} & 0 & -\frac{\sqrt{1155}i}{330} & 0 & 0 & \frac{5\sqrt{154}i}{4312} & 0 & -\frac{3\sqrt{770}i}{4312} & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{77}i}{539} & 0 & -\frac{\sqrt{154}i}{308} & 0 & -\frac{\sqrt{385}i}{154} & \frac{\sqrt{330}i}{264} & 0 & \frac{3\sqrt{770}i}{4312} & 0 & 0 & 0 & \frac{\sqrt{2310}i}{924} & 0 \\ \frac{\sqrt{385}i}{154} & 0 & \frac{\sqrt{154}i}{308} & 0 & -\frac{\sqrt{77}i}{539} & 0 & 0 & \frac{\sqrt{2310}i}{924} & 0 & 0 & 0 & \frac{3\sqrt{770}i}{4312} & 0 & \frac{\sqrt{330}i}{264} \\ 0 & \frac{\sqrt{1155}i}{330} & 0 & \frac{\sqrt{2310}i}{32340} & 0 & \frac{5\sqrt{231}i}{1617} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{770}i}{4312} & 0 & \frac{5\sqrt{154}i}{4312} & 0 \\ 0 & 0 & -\frac{\sqrt{770}i}{1540} & 0 & -\frac{13\sqrt{385}i}{5390} & 0 & 0 & 0 & 0 & -\frac{\sqrt{2310}i}{924} & 0 & -\frac{5\sqrt{154}i}{4312} & 0 & -\frac{5\sqrt{66}i}{1848} \\ 0 & 0 & 0 & -\frac{3\sqrt{110}i}{220} & 0 & \frac{\sqrt{11}i}{154} & 0 & 0 & 0 & 0 & -\frac{\sqrt{330}i}{264} & 0 & \frac{5\sqrt{66}i}{1848} & 0 \end{bmatrix} \\
\boxed{x450} \quad \mathbb{Q}_{4,2}^{(1,1;a)}(E_g, 2) = & \begin{bmatrix} 0 & \frac{\sqrt{2310}}{588} & 0 & \frac{\sqrt{1155}}{84} & 0 & 0 & \frac{\sqrt{11}}{154} & 0 & -\frac{5\sqrt{231}}{1617} & 0 & -\frac{\sqrt{385}}{154} & 0 & 0 & 0 \\ \frac{\sqrt{2310}}{588} & 0 & -\frac{5\sqrt{231}}{588} & 0 & 0 & 0 & 0 & -\frac{13\sqrt{385}}{5390} & 0 & \frac{\sqrt{77}}{539} & 0 & -\frac{\sqrt{1155}}{330} & 0 & 0 \\ 0 & -\frac{5\sqrt{231}}{588} & 0 & 0 & 0 & -\frac{\sqrt{1155}}{84} & \frac{3\sqrt{110}}{220} & 0 & \frac{\sqrt{2310}}{32340} & 0 & \frac{\sqrt{154}}{308} & 0 & \frac{\sqrt{770}}{1540} & 0 \\ \frac{\sqrt{1155}}{84} & 0 & 0 & 0 & \frac{5\sqrt{231}}{588} & 0 & 0 & \frac{\sqrt{770}}{1540} & 0 & \frac{\sqrt{154}}{308} & 0 & \frac{\sqrt{2310}}{32340} & 0 & \frac{3\sqrt{110}}{220} \\ 0 & 0 & 0 & \frac{5\sqrt{231}}{588} & 0 & -\frac{\sqrt{2310}}{588} & 0 & 0 & -\frac{\sqrt{1155}}{330} & 0 & \frac{\sqrt{77}}{539} & 0 & -\frac{13\sqrt{385}}{5390} & 0 \\ 0 & 0 & -\frac{\sqrt{1155}}{84} & 0 & -\frac{\sqrt{2310}}{588} & 0 & 0 & 0 & 0 & -\frac{\sqrt{385}}{154} & 0 & -\frac{5\sqrt{231}}{1617} & 0 & \frac{\sqrt{11}}{154} \\ \frac{\sqrt{11}}{154} & 0 & \frac{3\sqrt{110}}{220} & 0 & 0 & 0 & 0 & -\frac{5\sqrt{66}}{1848} & 0 & -\frac{\sqrt{330}}{264} & 0 & 0 & 0 & 0 \\ 0 & -\frac{13\sqrt{385}}{5390} & 0 & \frac{\sqrt{770}}{1540} & 0 & 0 & -\frac{5\sqrt{66}}{1848} & 0 & \frac{5\sqrt{154}}{4312} & 0 & -\frac{\sqrt{2310}}{924} & 0 & 0 & 0 \\ -\frac{5\sqrt{231}}{1617} & 0 & \frac{\sqrt{2310}}{32340} & 0 & -\frac{\sqrt{1155}}{330} & 0 & 0 & \frac{5\sqrt{154}}{4312} & 0 & \frac{3\sqrt{770}}{4312} & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{77}}{539} & 0 & \frac{\sqrt{154}}{308} & 0 & -\frac{\sqrt{385}}{154} & -\frac{\sqrt{330}}{264} & 0 & \frac{3\sqrt{770}}{4312} & 0 & 0 & 0 & \frac{\sqrt{2310}}{924} & 0 \\ -\frac{\sqrt{385}}{154} & 0 & \frac{\sqrt{154}}{308} & 0 & \frac{\sqrt{77}}{539} & 0 & 0 & -\frac{\sqrt{2310}}{924} & 0 & 0 & 0 & -\frac{3\sqrt{770}}{4312} & 0 & \frac{\sqrt{330}}{264} \\ 0 & -\frac{\sqrt{1155}}{330} & 0 & \frac{\sqrt{2310}}{32340} & 0 & -\frac{5\sqrt{231}}{1617} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{770}}{4312} & 0 & -\frac{5\sqrt{154}}{4312} & 0 \\ 0 & 0 & \frac{\sqrt{770}}{1540} & 0 & -\frac{13\sqrt{385}}{5390} & 0 & 0 & 0 & 0 & \frac{\sqrt{2310}}{924} & 0 & -\frac{5\sqrt{154}}{4312} & 0 & \frac{5\sqrt{66}}{1848} \\ 0 & 0 & 0 & \frac{3\sqrt{110}}{220} & 0 & \frac{\sqrt{11}}{154} & 0 & 0 & 0 & 0 & \frac{\sqrt{330}}{264} & 0 & \frac{5\sqrt{66}}{1848} & 0 \end{bmatrix}
\end{aligned}$$

x451

x452



x453

x454

$$\boxed{\text{x455}} \quad \mathbb{G}_5^{(1,0;a)}(A_{2g}, 2) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{4} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}i}{60} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{30} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{30} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}i}{60} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{4} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{105}i}{30} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{60} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{4} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{2}i}{4} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{30}i}{60} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{105}i}{30} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x456}} \quad \mathbb{G}_3^{(1,0;a)}(B_{1g}) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{6} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}}{12} & 0 & 0 & 0 & \frac{\sqrt{10}}{12} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{1}{12} & 0 & 0 & 0 & \frac{\sqrt{3}}{12} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{12} & 0 & 0 & 0 & -\frac{1}{12} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}}{12} & 0 & 0 & 0 & -\frac{\sqrt{14}}{12} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}}{6} & 0 & 0 & 0 \\ 0 & \frac{\sqrt{14}}{12} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{1}{12} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{3}}{12} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{2}}{6} & 0 & 0 & 0 & -\frac{\sqrt{10}}{12} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{10}}{12} & 0 & 0 & 0 & -\frac{\sqrt{2}}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{3}}{12} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{1}{12} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{14}}{12} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x457}} \quad \mathbb{G}_5^{(1,0;a)}(B_{1g}) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{10}}{12} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{70}}{60} & 0 & 0 & 0 & -\frac{\sqrt{2}}{6} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{2\sqrt{5}}{15} & 0 & 0 & 0 & -\frac{\sqrt{15}}{30} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{30} & 0 & 0 & 0 & \frac{2\sqrt{5}}{15} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{6} & 0 & 0 & 0 & -\frac{\sqrt{70}}{60} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}}{12} & 0 & 0 & 0 \\ 0 & \frac{\sqrt{70}}{60} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{2\sqrt{5}}{15} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{15}}{30} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{10}}{12} & 0 & 0 & 0 & \frac{\sqrt{2}}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{2}}{6} & 0 & 0 & 0 & -\frac{\sqrt{10}}{12} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{15}}{30} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{2\sqrt{5}}{15} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{70}}{60} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x458}} \quad \mathbb{G}_3^{(1,0;a)}(B_{2g}) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{6} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}i}{12} & 0 & 0 & 0 & \frac{\sqrt{10}i}{12} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{i}{12} & 0 & 0 & 0 & \frac{\sqrt{3}i}{12} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{12} & 0 & 0 & 0 & -\frac{i}{12} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{10}i}{12} & 0 & 0 & 0 & -\frac{\sqrt{14}i}{12} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{6} & 0 & 0 & 0 \\ 0 & \frac{\sqrt{14}i}{12} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{i}{12} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{3}i}{12} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{2}i}{6} & 0 & 0 & 0 & -\frac{\sqrt{10}i}{12} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{10}i}{12} & 0 & 0 & 0 & -\frac{\sqrt{2}i}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{3}i}{12} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{i}{12} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{14}i}{12} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x459}} \quad \mathbb{G}_5^{(1,0;a)}(B_{2g}) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}i}{12} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{70}i}{60} & 0 & 0 & 0 & \frac{\sqrt{2}i}{6} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{2\sqrt{5}i}{15} & 0 & 0 & 0 & \frac{\sqrt{15}i}{30} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{30} & 0 & 0 & 0 & -\frac{2\sqrt{5}i}{15} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{6} & 0 & 0 & 0 & \frac{\sqrt{70}i}{60} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}i}{12} & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{70}i}{60} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{2\sqrt{5}i}{15} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{15}i}{30} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{10}i}{12} & 0 & 0 & 0 & -\frac{\sqrt{2}i}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{2}i}{6} & 0 & 0 & 0 & \frac{\sqrt{10}i}{12} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{15}i}{30} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{2\sqrt{5}i}{15} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{70}i}{60} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x460}} \quad \mathbb{G}_{1,1}^{(1,0;a)}(E_g) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}i}{8} & 0 & -\frac{\sqrt{14}i}{56} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{210}i}{56} & 0 & -\frac{\sqrt{42}i}{56} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{35}i}{28} & 0 & -\frac{\sqrt{21}i}{28} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}i}{28} & 0 & -\frac{\sqrt{35}i}{28} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{42}i}{56} & 0 & -\frac{\sqrt{210}i}{56} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}i}{56} & 0 & -\frac{\sqrt{6}i}{8} \\ -\frac{\sqrt{6}i}{8} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{210}i}{56} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{14}i}{56} & 0 & -\frac{\sqrt{35}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{42}i}{56} & 0 & -\frac{\sqrt{21}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{21}i}{28} & 0 & -\frac{\sqrt{42}i}{56} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{35}i}{28} & 0 & -\frac{\sqrt{14}i}{56} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{210}i}{56} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}i}{8} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x461}} \quad \mathbb{G}_{1,2}^{(1,0;a)}(E_g) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{8} & 0 & \frac{\sqrt{14}}{56} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{210}}{56} & 0 & \frac{\sqrt{42}}{56} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{35}}{28} & 0 & \frac{\sqrt{21}}{28} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{28} & 0 & \frac{\sqrt{35}}{28} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{42}}{56} & 0 & \frac{\sqrt{210}}{56} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}}{56} & 0 & \frac{\sqrt{6}}{8} \\ \frac{\sqrt{6}}{8} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{210}}{56} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{14}}{56} & 0 & \frac{\sqrt{35}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{42}}{56} & 0 & \frac{\sqrt{21}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{21}}{28} & 0 & \frac{\sqrt{42}}{56} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{35}}{28} & 0 & \frac{\sqrt{14}}{56} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{210}}{56} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{8} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x462}} \quad \mathbb{G}_{3,1}^{(1,0;a)}(E_g, 1) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{42}i}{48} & 0 & -\frac{\sqrt{2}i}{8} & 0 & \frac{\sqrt{30}i}{48} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}i}{48} & 0 & -\frac{\sqrt{6}i}{24} & 0 & \frac{\sqrt{10}i}{16} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}i}{48} & 0 & -\frac{\sqrt{5}i}{16} & 0 & \frac{\sqrt{3}i}{48} & 0 & \frac{\sqrt{15}i}{16} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{16} & 0 & -\frac{\sqrt{3}i}{48} & 0 & \frac{\sqrt{5}i}{16} & 0 & \frac{\sqrt{105}i}{48} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}i}{16} & 0 & \frac{\sqrt{6}i}{24} & 0 & \frac{\sqrt{30}i}{48} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}i}{48} & 0 & \frac{\sqrt{2}i}{8} & 0 & -\frac{\sqrt{42}i}{48} \\ -\frac{\sqrt{42}i}{48} & 0 & \frac{\sqrt{105}i}{48} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{30}i}{48} & 0 & \frac{\sqrt{15}i}{16} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{2}i}{8} & 0 & \frac{\sqrt{5}i}{16} & 0 & \frac{\sqrt{10}i}{16} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{6}i}{24} & 0 & \frac{\sqrt{3}i}{48} & 0 & \frac{\sqrt{30}i}{48} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{30}i}{48} & 0 & -\frac{\sqrt{3}i}{48} & 0 & -\frac{\sqrt{6}i}{24} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{10}i}{16} & 0 & -\frac{\sqrt{5}i}{16} & 0 & -\frac{\sqrt{2}i}{8} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{15}i}{16} & 0 & -\frac{\sqrt{30}i}{48} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{105}i}{48} & 0 & \frac{\sqrt{42}i}{48} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x463}} \quad \mathbb{G}_{3,2}^{(1,0;a)}(E_g, 1) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{42}}{48} & 0 & \frac{\sqrt{2}}{8} & 0 & \frac{\sqrt{30}}{48} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}}{48} & 0 & \frac{\sqrt{6}}{24} & 0 & \frac{\sqrt{10}}{16} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}}{48} & 0 & -\frac{\sqrt{5}}{16} & 0 & -\frac{\sqrt{3}}{48} & 0 & \frac{\sqrt{15}}{16} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{16} & 0 & -\frac{\sqrt{3}}{48} & 0 & -\frac{\sqrt{5}}{16} & 0 & \frac{\sqrt{105}}{48} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{10}}{16} & 0 & \frac{\sqrt{6}}{24} & 0 & -\frac{\sqrt{30}}{48} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{48} & 0 & \frac{\sqrt{2}}{8} & 0 & \frac{\sqrt{42}}{48} \\ \frac{\sqrt{42}}{48} & 0 & \frac{\sqrt{105}}{48} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{30}}{48} & 0 & \frac{\sqrt{15}}{16} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{2}}{8} & 0 & -\frac{\sqrt{5}}{16} & 0 & \frac{\sqrt{10}}{16} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{6}}{24} & 0 & -\frac{\sqrt{3}}{48} & 0 & \frac{\sqrt{30}}{48} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{30}}{48} & 0 & -\frac{\sqrt{3}}{48} & 0 & \frac{\sqrt{6}}{24} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{10}}{16} & 0 & -\frac{\sqrt{5}}{16} & 0 & \frac{\sqrt{2}}{8} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{15}}{16} & 0 & -\frac{\sqrt{30}}{48} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{105}}{48} & 0 & \frac{\sqrt{42}}{48} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x464}} \quad \mathbb{G}_{3,1}^{(1,0;a)}(E_g, 2) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{70}i}{48} & 0 & -\frac{\sqrt{30}i}{24} & 0 & -\frac{\sqrt{2}i}{16} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{2}i}{48} & 0 & -\frac{\sqrt{10}i}{24} & 0 & -\frac{\sqrt{6}i}{16} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}i}{16} & 0 & -\frac{5\sqrt{3}i}{48} & 0 & \frac{\sqrt{5}i}{48} & 0 & -\frac{3i}{16} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3i}{16} & 0 & -\frac{\sqrt{5}i}{48} & 0 & \frac{5\sqrt{3}i}{48} & 0 & -\frac{\sqrt{7}i}{16} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}i}{16} & 0 & \frac{\sqrt{10}i}{24} & 0 & \frac{5\sqrt{2}i}{48} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{16} & 0 & \frac{\sqrt{30}i}{24} & 0 & -\frac{\sqrt{70}i}{48} \\ -\frac{\sqrt{70}i}{48} & 0 & -\frac{\sqrt{7}i}{16} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{5\sqrt{2}i}{48} & 0 & -\frac{3i}{16} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{30}i}{24} & 0 & \frac{5\sqrt{3}i}{48} & 0 & -\frac{\sqrt{6}i}{16} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{10}i}{24} & 0 & \frac{\sqrt{5}i}{48} & 0 & -\frac{\sqrt{2}i}{16} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{2}i}{16} & 0 & -\frac{\sqrt{5}i}{48} & 0 & -\frac{\sqrt{10}i}{24} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{6}i}{16} & 0 & -\frac{5\sqrt{3}i}{48} & 0 & -\frac{\sqrt{30}i}{24} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{3i}{16} & 0 & -\frac{5\sqrt{2}i}{48} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{7}i}{16} & 0 & \frac{\sqrt{70}i}{48} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x465}} \quad \mathbb{G}_{3,2}^{(1,0;a)}(E_g, 2) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{70}}{48} & 0 & \frac{\sqrt{30}}{24} & 0 & -\frac{\sqrt{2}}{16} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{2}}{48} & 0 & \frac{\sqrt{10}}{24} & 0 & -\frac{\sqrt{6}}{16} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}}{16} & 0 & -\frac{5\sqrt{3}}{48} & 0 & -\frac{\sqrt{5}}{48} & 0 & -\frac{3}{16} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3}{16} & 0 & -\frac{\sqrt{5}}{48} & 0 & -\frac{5\sqrt{3}}{48} & 0 & -\frac{\sqrt{7}}{16} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{16} & 0 & \frac{\sqrt{10}}{24} & 0 & -\frac{5\sqrt{2}}{48} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}}{16} & 0 & \frac{\sqrt{30}}{24} & 0 & \frac{\sqrt{70}}{48} \\ \frac{\sqrt{70}}{48} & 0 & -\frac{\sqrt{7}}{16} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{5\sqrt{2}}{48} & 0 & -\frac{3}{16} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{30}}{24} & 0 & -\frac{5\sqrt{3}}{48} & 0 & -\frac{\sqrt{6}}{16} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{10}}{24} & 0 & -\frac{\sqrt{5}}{48} & 0 & -\frac{\sqrt{2}}{16} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{2}}{16} & 0 & -\frac{\sqrt{5}}{48} & 0 & \frac{\sqrt{10}}{24} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{6}}{16} & 0 & -\frac{5\sqrt{3}}{48} & 0 & \frac{\sqrt{30}}{24} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{3}{16} & 0 & -\frac{5\sqrt{2}}{48} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{7}}{16} & 0 & \frac{\sqrt{70}}{48} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x466}} \quad \mathbb{G}_{5,1}^{(1,0;a)}(E_g, 1) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{192} & 0 & -\frac{5\sqrt{70}i}{448} & 0 & \frac{5\sqrt{42}i}{192} & 0 & -\frac{\sqrt{210}i}{64} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{23\sqrt{42}i}{1344} & 0 & \frac{13\sqrt{210}i}{1344} & 0 & -\frac{\sqrt{14}i}{64} & 0 & -\frac{7\sqrt{6}i}{64} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{7\sqrt{3}i}{96} & 0 & \frac{11\sqrt{7}i}{224} & 0 & -\frac{\sqrt{105}i}{672} & 0 & -\frac{\sqrt{21}i}{32} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}i}{32} & 0 & \frac{\sqrt{105}i}{672} & 0 & -\frac{11\sqrt{7}i}{224} & 0 & \frac{7\sqrt{3}i}{96} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{7\sqrt{6}i}{64} & 0 & \frac{\sqrt{14}i}{64} & 0 & -\frac{13\sqrt{210}i}{1344} & 0 & \frac{23\sqrt{42}i}{1344} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{210}i}{64} & 0 & -\frac{5\sqrt{42}i}{192} & 0 & \frac{5\sqrt{70}i}{448} & 0 & -\frac{\sqrt{30}i}{192} \\ -\frac{\sqrt{30}i}{192} & 0 & \frac{7\sqrt{3}i}{96} & 0 & -\frac{7\sqrt{6}i}{64} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{23\sqrt{42}i}{1344} & 0 & -\frac{\sqrt{21}i}{32} & 0 & -\frac{\sqrt{210}i}{64} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{5\sqrt{70}i}{448} & 0 & -\frac{11\sqrt{7}i}{224} & 0 & -\frac{\sqrt{14}i}{64} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{13\sqrt{210}i}{1344} & 0 & -\frac{\sqrt{105}i}{672} & 0 & \frac{5\sqrt{42}i}{192} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{5\sqrt{42}i}{192} & 0 & \frac{\sqrt{105}i}{672} & 0 & \frac{13\sqrt{210}i}{1344} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{14}i}{64} & 0 & \frac{11\sqrt{7}i}{224} & 0 & -\frac{5\sqrt{70}i}{448} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{210}i}{64} & 0 & \frac{\sqrt{21}i}{32} & 0 & -\frac{23\sqrt{42}i}{1344} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{7\sqrt{6}i}{64} & 0 & -\frac{7\sqrt{3}i}{96} & 0 & \frac{\sqrt{30}i}{192} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x467}} \quad \mathbb{G}_{5,2}^{(1,0;a)}(E_g, 1) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{192} & 0 & \frac{5\sqrt{70}}{448} & 0 & \frac{5\sqrt{42}}{192} & 0 & \frac{\sqrt{210}}{64} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{23\sqrt{42}}{1344} & 0 & -\frac{13\sqrt{210}}{1344} & 0 & -\frac{\sqrt{14}}{64} & 0 & \frac{7\sqrt{6}}{64} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{7\sqrt{3}}{96} & 0 & \frac{11\sqrt{7}}{224} & 0 & \frac{\sqrt{105}}{672} & 0 & -\frac{\sqrt{21}}{32} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}}{32} & 0 & \frac{\sqrt{105}}{672} & 0 & \frac{11\sqrt{7}}{224} & 0 & \frac{7\sqrt{3}}{96} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{7\sqrt{6}}{64} & 0 & -\frac{\sqrt{14}}{64} & 0 & -\frac{13\sqrt{210}}{1344} & 0 & -\frac{23\sqrt{42}}{1344} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{210}}{64} & 0 & \frac{5\sqrt{42}}{192} & 0 & \frac{5\sqrt{70}}{448} & 0 & \frac{\sqrt{30}}{192} \\ \frac{\sqrt{30}}{192} & 0 & \frac{7\sqrt{3}}{96} & 0 & \frac{7\sqrt{6}}{64} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{23\sqrt{42}}{1344} & 0 & -\frac{\sqrt{21}}{32} & 0 & \frac{\sqrt{210}}{64} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{5\sqrt{70}}{448} & 0 & \frac{11\sqrt{7}}{224} & 0 & -\frac{\sqrt{14}}{64} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{13\sqrt{210}}{1344} & 0 & \frac{\sqrt{105}}{672} & 0 & \frac{5\sqrt{42}}{192} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{5\sqrt{42}}{192} & 0 & \frac{\sqrt{105}}{672} & 0 & -\frac{13\sqrt{210}}{1344} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{14}}{64} & 0 & \frac{11\sqrt{7}}{224} & 0 & \frac{5\sqrt{70}}{448} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{210}}{64} & 0 & -\frac{\sqrt{21}}{32} & 0 & -\frac{23\sqrt{42}}{1344} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{7\sqrt{6}}{64} & 0 & \frac{7\sqrt{3}}{96} & 0 & \frac{\sqrt{30}}{192} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x468}} \quad \mathbb{G}_{5,1}^{(1,0;a)}(E_g, 2) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{42}i}{192} & 0 & -\frac{5\sqrt{2}i}{64} & 0 & -\frac{3\sqrt{30}i}{64} & 0 & -\frac{5\sqrt{6}i}{192} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{23\sqrt{30}i}{960} & 0 & \frac{13\sqrt{6}i}{192} & 0 & \frac{9\sqrt{10}i}{320} & 0 & -\frac{\sqrt{210}i}{192} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{105}i}{160} & 0 & \frac{11\sqrt{5}i}{160} & 0 & -\frac{\sqrt{3}i}{96} & 0 & \frac{9\sqrt{15}i}{160} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{9\sqrt{15}i}{160} & 0 & \frac{\sqrt{3}i}{96} & 0 & -\frac{11\sqrt{5}i}{160} & 0 & -\frac{3\sqrt{105}i}{160} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{210}i}{192} & 0 & -\frac{9\sqrt{10}i}{320} & 0 & -\frac{13\sqrt{6}i}{192} & 0 & \frac{23\sqrt{30}i}{960} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{6}i}{192} & 0 & \frac{3\sqrt{30}i}{64} & 0 & \frac{5\sqrt{2}i}{64} & 0 & -\frac{\sqrt{42}i}{192} \\ -\frac{\sqrt{42}i}{192} & 0 & -\frac{3\sqrt{105}i}{160} & 0 & -\frac{\sqrt{210}i}{192} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{23\sqrt{30}i}{960} & 0 & \frac{9\sqrt{15}i}{160} & 0 & -\frac{5\sqrt{6}i}{192} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{5\sqrt{2}i}{64} & 0 & -\frac{11\sqrt{5}i}{160} & 0 & \frac{9\sqrt{10}i}{320} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{13\sqrt{6}i}{192} & 0 & -\frac{\sqrt{3}i}{96} & 0 & -\frac{3\sqrt{30}i}{64} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{3\sqrt{30}i}{64} & 0 & \frac{\sqrt{3}i}{96} & 0 & \frac{13\sqrt{6}i}{192} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{9\sqrt{10}i}{320} & 0 & \frac{11\sqrt{5}i}{160} & 0 & -\frac{5\sqrt{2}i}{64} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{5\sqrt{6}i}{192} & 0 & -\frac{9\sqrt{15}i}{160} & 0 & -\frac{23\sqrt{30}i}{960} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{210}i}{192} & 0 & \frac{3\sqrt{105}i}{160} & 0 & \frac{\sqrt{42}i}{192} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$



$$\boxed{\text{x469}} \quad \mathbb{G}_{5,2}^{(1,0;a)}(E_g, 2) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{42}}{192} & 0 & \frac{5\sqrt{2}}{64} & 0 & -\frac{3\sqrt{30}}{64} & 0 & \frac{5\sqrt{6}}{192} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{23\sqrt{30}}{960} & 0 & -\frac{13\sqrt{6}}{192} & 0 & \frac{9\sqrt{10}}{320} & 0 & \frac{\sqrt{210}}{192} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{105}}{160} & 0 & \frac{11\sqrt{5}}{160} & 0 & \frac{\sqrt{3}}{96} & 0 & \frac{9\sqrt{15}}{160} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{9\sqrt{15}}{160} & 0 & \frac{\sqrt{3}}{96} & 0 & \frac{11\sqrt{5}}{160} & 0 & -\frac{3\sqrt{105}}{160} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{210}}{192} & 0 & \frac{9\sqrt{10}}{320} & 0 & -\frac{13\sqrt{6}}{192} & 0 & -\frac{23\sqrt{30}}{960} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{6}}{192} & 0 & -\frac{3\sqrt{30}}{64} & 0 & \frac{5\sqrt{2}}{64} & 0 & \frac{\sqrt{42}}{192} \\ \frac{\sqrt{42}}{192} & 0 & -\frac{3\sqrt{105}}{160} & 0 & \frac{\sqrt{210}}{192} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{23\sqrt{30}}{960} & 0 & \frac{9\sqrt{15}}{160} & 0 & \frac{5\sqrt{6}}{192} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{5\sqrt{2}}{64} & 0 & \frac{11\sqrt{5}}{160} & 0 & \frac{9\sqrt{10}}{320} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{13\sqrt{6}}{192} & 0 & \frac{\sqrt{3}}{96} & 0 & -\frac{3\sqrt{30}}{64} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{3\sqrt{30}}{64} & 0 & \frac{\sqrt{3}}{96} & 0 & -\frac{13\sqrt{6}}{192} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{9\sqrt{10}}{320} & 0 & \frac{11\sqrt{5}}{160} & 0 & \frac{5\sqrt{2}}{64} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{5\sqrt{6}}{192} & 0 & \frac{9\sqrt{15}}{160} & 0 & -\frac{23\sqrt{30}}{960} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{210}}{192} & 0 & -\frac{3\sqrt{105}}{160} & 0 & \frac{\sqrt{42}}{192} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x470}} \quad \mathbb{G}_{5,1}^{(1,0;a)}(E_g, 3) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}i}{96} & 0 & -\frac{5\sqrt{6}i}{96} & 0 & \frac{\sqrt{10}i}{32} & 0 & \frac{5\sqrt{2}i}{32} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{23\sqrt{10}i}{480} & 0 & \frac{13\sqrt{2}i}{96} & 0 & -\frac{\sqrt{30}i}{160} & 0 & \frac{\sqrt{70}i}{32} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}i}{80} & 0 & \frac{11\sqrt{15}i}{240} & 0 & -\frac{i}{48} & 0 & -\frac{3\sqrt{5}i}{80} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{5}i}{80} & 0 & \frac{i}{48} & 0 & -\frac{11\sqrt{15}i}{240} & 0 & \frac{\sqrt{35}i}{80} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}i}{32} & 0 & \frac{\sqrt{30}i}{160} & 0 & -\frac{13\sqrt{2}i}{96} & 0 & \frac{23\sqrt{10}i}{480} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{2}i}{32} & 0 & -\frac{\sqrt{10}i}{32} & 0 & \frac{5\sqrt{6}i}{96} & 0 & -\frac{\sqrt{14}i}{96} \\ -\frac{\sqrt{14}i}{96} & 0 & \frac{\sqrt{35}i}{80} & 0 & \frac{\sqrt{70}i}{32} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{23\sqrt{10}i}{480} & 0 & -\frac{3\sqrt{5}i}{80} & 0 & \frac{5\sqrt{2}i}{32} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{5\sqrt{6}i}{96} & 0 & -\frac{11\sqrt{15}i}{240} & 0 & -\frac{\sqrt{30}i}{160} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{13\sqrt{2}i}{96} & 0 & -\frac{i}{48} & 0 & \frac{\sqrt{10}i}{32} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{10}i}{32} & 0 & \frac{i}{48} & 0 & \frac{13\sqrt{2}i}{96} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{30}i}{160} & 0 & \frac{11\sqrt{15}i}{240} & 0 & -\frac{5\sqrt{6}i}{96} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{5\sqrt{2}i}{32} & 0 & \frac{3\sqrt{5}i}{80} & 0 & -\frac{23\sqrt{10}i}{480} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{70}i}{32} & 0 & -\frac{\sqrt{35}i}{80} & 0 & \frac{\sqrt{14}i}{96} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x471}} \quad \mathbb{G}_{5,2}^{(1,0;a)}(E_g, 3) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}}{96} & 0 & \frac{5\sqrt{6}}{96} & 0 & \frac{\sqrt{10}}{32} & 0 & -\frac{5\sqrt{2}}{32} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{23\sqrt{10}}{480} & 0 & -\frac{13\sqrt{2}}{96} & 0 & -\frac{\sqrt{30}}{160} & 0 & -\frac{\sqrt{70}}{32} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{35}}{80} & 0 & \frac{11\sqrt{15}}{240} & 0 & \frac{1}{48} & 0 & -\frac{3\sqrt{5}}{80} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{5}}{80} & 0 & \frac{1}{48} & 0 & \frac{11\sqrt{15}}{240} & 0 & \frac{\sqrt{35}}{80} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}}{32} & 0 & -\frac{\sqrt{30}}{160} & 0 & -\frac{13\sqrt{2}}{96} & 0 & -\frac{23\sqrt{10}}{480} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{2}}{32} & 0 & \frac{\sqrt{10}}{32} & 0 & \frac{5\sqrt{6}}{96} & 0 & \frac{\sqrt{14}}{96} \\ \frac{\sqrt{14}}{96} & 0 & \frac{\sqrt{35}}{80} & 0 & -\frac{\sqrt{70}}{32} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{23\sqrt{10}}{480} & 0 & -\frac{3\sqrt{5}}{80} & 0 & -\frac{5\sqrt{2}}{32} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{5\sqrt{6}}{96} & 0 & \frac{11\sqrt{15}}{240} & 0 & -\frac{\sqrt{30}}{160} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{13\sqrt{2}}{96} & 0 & \frac{1}{48} & 0 & \frac{\sqrt{10}}{32} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{10}}{32} & 0 & \frac{1}{48} & 0 & -\frac{13\sqrt{2}}{96} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{30}}{160} & 0 & \frac{11\sqrt{15}}{240} & 0 & \frac{5\sqrt{6}}{96} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{5\sqrt{2}}{32} & 0 & -\frac{3\sqrt{5}}{80} & 0 & -\frac{23\sqrt{10}}{480} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{70}}{32} & 0 & \frac{\sqrt{35}}{80} & 0 & \frac{\sqrt{14}}{96} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x472}} \quad \mathbb{M}_5^{(a)}(A_{1g}) = \begin{bmatrix} 0 & 0 & 0 & 0 & -\frac{\sqrt{6}i}{14} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{14} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}i}{14} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{i}{14} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}i}{14} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}i}{14} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{6}i}{14} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{i}{14} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{6}i}{14} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{14} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{14}i}{14} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}i}{28} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{i}{14} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}i}{28} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{14} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{10}i}{28} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{42}i}{28} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{42}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{15}i}{14} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{10}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{i}{14} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}i}{28} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{14}i}{14} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}i}{28} & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x473}} \quad \mathbb{M}_1^{(a)}(A_{2g}) = \begin{bmatrix} \frac{5\sqrt{14}}{49} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{98} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{3\sqrt{14}}{49} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{35}}{98} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{14}}{49} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{42}}{98} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{14}}{49} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{42}}{98} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{3\sqrt{14}}{49} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{35}}{98} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{14}}{49} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{98} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{14}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{21}}{98} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{15\sqrt{14}}{196} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{35}}{98} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{9\sqrt{14}}{196} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{42}}{98} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{14}}{196} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{42}}{98} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{14}}{196} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{35}}{98} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{9\sqrt{14}}{196} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{98} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{15\sqrt{14}}{196} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{14}}{28} \end{bmatrix}$$

$$\boxed{\text{x474}} \quad \mathbb{M}_3^{(a)}(A_{2g}) = \begin{bmatrix} -\frac{5\sqrt{3}}{42} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}}{7} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{2\sqrt{3}}{21} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{1}{7} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{2\sqrt{3}}{21} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{1}{7} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{3}}{42} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}}{7} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{2}}{7} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{3}}{42} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{1}{7} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{14} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{1}{7} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{14} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{6} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}}{7} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{3}}{42} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{6} & 0 \end{bmatrix}$$

$$\boxed{\text{x475}} \quad \mathbb{M}_5^{(a)}(A_{2g}, 1) = \begin{bmatrix} \frac{\sqrt{42}}{294} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{7}}{98} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{5\sqrt{42}}{294} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{105}}{98} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{5\sqrt{42}}{147} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{14}}{98} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{5\sqrt{42}}{147} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{14}}{98} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{5\sqrt{42}}{294} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{105}}{98} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}}{294} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{7}}{98} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{42}}{84} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{5\sqrt{7}}{98} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{23\sqrt{42}}{588} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{3\sqrt{105}}{98} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{17\sqrt{42}}{588} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{5\sqrt{14}}{98} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{42}}{196} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{5\sqrt{14}}{98} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{42}}{196} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{3\sqrt{105}}{98} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{17\sqrt{42}}{588} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{7}}{98} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{23\sqrt{42}}{588} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}}{84} \end{bmatrix}$$

$$\boxed{\text{x476}} \quad \mathbb{M}_5^{(a)}(A_{2g}, 2) = \begin{bmatrix} 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{14} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{14} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{14} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{1}{14} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}}{14} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}}{14} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{6}}{14} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{1}{14} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{6}}{14} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{14} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{14}}{14} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{42}}{28} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{1}{14} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{10}}{28} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{14} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}}{28} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}}{28} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{42}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{15}}{14} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{10}}{28} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{1}{14} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}}{28} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{14}}{14} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}}{28} & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{x477} \quad \mathbb{M}_3^{(a)}(B_{1g}) = \begin{bmatrix} 0 & 0 & \frac{5\sqrt{2}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}i}{21} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{10}i}{28} & 0 & 0 & \frac{\sqrt{42}i}{42} & 0 & 0 & 0 & \frac{\sqrt{30}i}{42} & 0 & 0 & 0 \\ -\frac{5\sqrt{2}i}{28} & 0 & 0 & 0 & -\frac{\sqrt{10}i}{28} & 0 & 0 & \frac{\sqrt{3}i}{42} & 0 & 0 & 0 & \frac{i}{14} & 0 & 0 \\ 0 & -\frac{\sqrt{10}i}{28} & 0 & 0 & 0 & -\frac{5\sqrt{2}i}{28} & 0 & 0 & -\frac{i}{14} & 0 & 0 & 0 & -\frac{\sqrt{3}i}{42} & 0 \\ 0 & 0 & \frac{\sqrt{10}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}i}{42} & 0 & 0 & 0 & -\frac{\sqrt{42}i}{42} \\ 0 & 0 & 0 & \frac{5\sqrt{2}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}i}{21} & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{42}i}{42} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{42} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{3}i}{42} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3i}{14} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{i}{14} & 0 & 0 & -\frac{\sqrt{105}i}{42} & 0 & 0 & 0 & \frac{\sqrt{3}i}{21} & 0 & 0 & 0 \\ -\frac{\sqrt{6}i}{21} & 0 & 0 & 0 & \frac{\sqrt{30}i}{42} & 0 & 0 & -\frac{3i}{14} & 0 & 0 & 0 & -\frac{\sqrt{3}i}{21} & 0 & 0 \\ 0 & -\frac{\sqrt{30}i}{42} & 0 & 0 & 0 & \frac{\sqrt{6}i}{21} & 0 & 0 & -\frac{\sqrt{3}i}{21} & 0 & 0 & 0 & -\frac{3i}{14} & 0 \\ 0 & 0 & -\frac{i}{14} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{21} & 0 & 0 & 0 & -\frac{\sqrt{105}i}{42} \\ 0 & 0 & 0 & \frac{\sqrt{3}i}{42} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3i}{14} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{42}i}{42} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{42} & 0 & 0 \end{bmatrix}$$

$$\boxed{x478} \quad \mathbb{M}_5^{(a)}(B_{1g}) = \begin{bmatrix} 0 & 0 & \frac{i}{14} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{3}i}{42} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{5}i}{14} & 0 & 0 & \frac{\sqrt{21}i}{42} & 0 & 0 & 0 & -\frac{\sqrt{15}i}{21} & 0 & 0 & 0 \\ -\frac{i}{14} & 0 & 0 & 0 & \frac{\sqrt{5}i}{14} & 0 & 0 & -\frac{2\sqrt{6}i}{21} & 0 & 0 & 0 & -\frac{\sqrt{2}i}{14} & 0 & 0 \\ 0 & \frac{\sqrt{5}i}{14} & 0 & 0 & 0 & -\frac{i}{14} & 0 & 0 & \frac{\sqrt{2}i}{14} & 0 & 0 & 0 & \frac{2\sqrt{6}i}{21} & 0 \\ 0 & 0 & -\frac{\sqrt{5}i}{14} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{21} & 0 & 0 & 0 & -\frac{\sqrt{21}i}{42} \\ 0 & 0 & 0 & \frac{i}{14} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{3}i}{42} & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{21}i}{42} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{210}i}{84} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{2\sqrt{6}i}{21} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{2}i}{28} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{2}i}{14} & 0 & 0 & -\frac{\sqrt{210}i}{84} & 0 & 0 & 0 & -\frac{\sqrt{6}i}{21} & 0 & 0 & 0 \\ -\frac{5\sqrt{3}i}{42} & 0 & 0 & 0 & -\frac{\sqrt{15}i}{21} & 0 & 0 & \frac{3\sqrt{2}i}{28} & 0 & 0 & 0 & \frac{\sqrt{6}i}{21} & 0 & 0 \\ 0 & \frac{\sqrt{15}i}{21} & 0 & 0 & 0 & \frac{5\sqrt{3}i}{42} & 0 & 0 & \frac{\sqrt{6}i}{21} & 0 & 0 & 0 & \frac{3\sqrt{2}i}{28} & 0 \\ 0 & 0 & \frac{\sqrt{2}i}{14} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}i}{21} & 0 & 0 & 0 & -\frac{\sqrt{210}i}{84} \\ 0 & 0 & 0 & -\frac{2\sqrt{6}i}{21} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{2}i}{28} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{21}i}{42} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{210}i}{84} & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x479}} \quad \mathbb{M}_3^{(a)}(B_{2g}) = \begin{bmatrix} 0 & 0 & -\frac{5\sqrt{2}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{21} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{10}}{28} & 0 & 0 & \frac{\sqrt{42}}{42} & 0 & 0 & 0 & -\frac{\sqrt{30}}{42} & 0 & 0 & 0 \\ -\frac{5\sqrt{2}}{28} & 0 & 0 & 0 & \frac{\sqrt{10}}{28} & 0 & 0 & \frac{\sqrt{3}}{42} & 0 & 0 & 0 & -\frac{1}{14} & 0 & 0 \\ 0 & -\frac{\sqrt{10}}{28} & 0 & 0 & 0 & \frac{5\sqrt{2}}{28} & 0 & 0 & -\frac{1}{14} & 0 & 0 & 0 & \frac{\sqrt{3}}{42} & 0 \\ 0 & 0 & \frac{\sqrt{10}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}}{42} & 0 & 0 & 0 & \frac{\sqrt{42}}{42} \\ 0 & 0 & 0 & \frac{5\sqrt{2}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{21} & 0 & 0 & 0 \\ 0 & \frac{\sqrt{42}}{42} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{42} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{3}}{42} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3}{14} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{1}{14} & 0 & 0 & -\frac{\sqrt{105}}{42} & 0 & 0 & 0 & -\frac{\sqrt{3}}{21} & 0 & 0 & 0 \\ -\frac{\sqrt{6}}{21} & 0 & 0 & 0 & -\frac{\sqrt{30}}{42} & 0 & 0 & -\frac{3}{14} & 0 & 0 & 0 & \frac{\sqrt{3}}{21} & 0 & 0 \\ 0 & -\frac{\sqrt{30}}{42} & 0 & 0 & 0 & -\frac{\sqrt{6}}{21} & 0 & 0 & -\frac{\sqrt{3}}{21} & 0 & 0 & 0 & \frac{3}{14} & 0 \\ 0 & 0 & -\frac{1}{14} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{21} & 0 & 0 & 0 & \frac{\sqrt{105}}{42} \\ 0 & 0 & 0 & \frac{\sqrt{3}}{42} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3}{14} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{42}}{42} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}}{42} & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x480}} \quad \mathbb{M}_5^{(a)}(B_{2g}) = \begin{bmatrix} 0 & 0 & \frac{1}{14} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{3}}{42} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{5}}{14} & 0 & 0 & -\frac{\sqrt{21}}{42} & 0 & 0 & 0 & -\frac{\sqrt{15}}{21} & 0 & 0 & 0 \\ \frac{1}{14} & 0 & 0 & 0 & \frac{\sqrt{5}}{14} & 0 & 0 & \frac{2\sqrt{6}}{21} & 0 & 0 & 0 & -\frac{\sqrt{2}}{14} & 0 & 0 \\ 0 & -\frac{\sqrt{5}}{14} & 0 & 0 & 0 & -\frac{1}{14} & 0 & 0 & -\frac{\sqrt{2}}{14} & 0 & 0 & 0 & \frac{2\sqrt{6}}{21} & 0 \\ 0 & 0 & \frac{\sqrt{5}}{14} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{21} & 0 & 0 & 0 & -\frac{\sqrt{21}}{42} \\ 0 & 0 & 0 & -\frac{1}{14} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{3}}{42} & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{21}}{42} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{210}}{84} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{2\sqrt{6}}{21} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{2}}{28} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{2}}{14} & 0 & 0 & \frac{\sqrt{210}}{84} & 0 & 0 & 0 & -\frac{\sqrt{6}}{21} & 0 & 0 & 0 \\ \frac{5\sqrt{3}}{42} & 0 & 0 & 0 & -\frac{\sqrt{15}}{21} & 0 & 0 & -\frac{3\sqrt{2}}{28} & 0 & 0 & 0 & \frac{\sqrt{6}}{21} & 0 & 0 \\ 0 & -\frac{\sqrt{15}}{21} & 0 & 0 & 0 & \frac{5\sqrt{3}}{42} & 0 & 0 & -\frac{\sqrt{6}}{21} & 0 & 0 & 0 & \frac{3\sqrt{2}}{28} & 0 \\ 0 & 0 & -\frac{\sqrt{2}}{14} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{21} & 0 & 0 & 0 & -\frac{\sqrt{210}}{84} \\ 0 & 0 & 0 & \frac{2\sqrt{6}}{21} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{2}}{28} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{21}}{42} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}}{84} & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x481}} \quad \mathbb{M}_{1,1}^{(a)}(E_g) = \begin{bmatrix} 0 & \frac{\sqrt{70}}{49} & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{28} & 0 & \frac{\sqrt{7}}{196} & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{70}}{49} & 0 & \frac{4\sqrt{7}}{49} & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{196} & 0 & \frac{\sqrt{21}}{196} & 0 & 0 & 0 & 0 \\ 0 & \frac{4\sqrt{7}}{49} & 0 & \frac{3\sqrt{14}}{49} & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}}{196} & 0 & \frac{\sqrt{42}}{196} & 0 & 0 & 0 \\ 0 & 0 & \frac{3\sqrt{14}}{49} & 0 & \frac{4\sqrt{7}}{49} & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}}{196} & 0 & \frac{\sqrt{70}}{196} & 0 & 0 \\ 0 & 0 & 0 & \frac{4\sqrt{7}}{49} & 0 & \frac{\sqrt{70}}{49} & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}}{196} & 0 & \frac{\sqrt{105}}{196} & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{70}}{49} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}}{196} & 0 & \frac{\sqrt{3}}{28} \\ -\frac{\sqrt{3}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{2}}{28} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{105}}{196} & 0 & 0 & 0 & 0 & \frac{3\sqrt{2}}{28} & 0 & \frac{3\sqrt{42}}{98} & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{7}}{196} & 0 & -\frac{\sqrt{70}}{196} & 0 & 0 & 0 & 0 & \frac{3\sqrt{42}}{98} & 0 & \frac{3\sqrt{210}}{196} & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{21}}{196} & 0 & -\frac{\sqrt{42}}{196} & 0 & 0 & 0 & 0 & \frac{3\sqrt{210}}{196} & 0 & \frac{3\sqrt{14}}{49} & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{42}}{196} & 0 & -\frac{\sqrt{21}}{196} & 0 & 0 & 0 & 0 & \frac{3\sqrt{14}}{49} & 0 & \frac{3\sqrt{210}}{196} & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{70}}{196} & 0 & -\frac{\sqrt{7}}{196} & 0 & 0 & 0 & \frac{3\sqrt{210}}{196} & 0 & \frac{3\sqrt{42}}{98} & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{105}}{196} & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{42}}{98} & 0 & \frac{3\sqrt{2}}{28} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{28} & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{2}}{28} & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x482}} \quad \mathbb{M}_{1,2}^{(a)}(E_g) = \begin{bmatrix} 0 & \frac{\sqrt{70}i}{49} & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{28} & 0 & \frac{\sqrt{7}i}{196} & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{70}i}{49} & 0 & \frac{4\sqrt{7}i}{49} & 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{196} & 0 & \frac{\sqrt{21}i}{196} & 0 & 0 & 0 & 0 \\ 0 & -\frac{4\sqrt{7}i}{49} & 0 & \frac{3\sqrt{14}i}{49} & 0 & 0 & 0 & 0 & \frac{\sqrt{70}i}{196} & 0 & \frac{\sqrt{42}i}{196} & 0 & 0 & 0 \\ 0 & 0 & -\frac{3\sqrt{14}i}{49} & 0 & \frac{4\sqrt{7}i}{49} & 0 & 0 & 0 & 0 & \frac{\sqrt{42}i}{196} & 0 & \frac{\sqrt{70}i}{196} & 0 & 0 \\ 0 & 0 & 0 & -\frac{4\sqrt{7}i}{49} & 0 & \frac{\sqrt{70}i}{49} & 0 & 0 & 0 & 0 & \frac{\sqrt{21}i}{196} & 0 & \frac{\sqrt{105}i}{196} & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{70}i}{49} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}i}{196} & 0 & \frac{\sqrt{3}i}{28} \\ -\frac{\sqrt{3}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{2}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{105}i}{196} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{2}i}{28} & 0 & \frac{3\sqrt{42}i}{98} & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{7}i}{196} & 0 & -\frac{\sqrt{70}i}{196} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{42}i}{98} & 0 & \frac{3\sqrt{210}i}{196} & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{21}i}{196} & 0 & -\frac{\sqrt{42}i}{196} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{210}i}{196} & 0 & \frac{3\sqrt{14}i}{49} & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{42}i}{196} & 0 & -\frac{\sqrt{21}i}{196} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{14}i}{49} & 0 & \frac{3\sqrt{210}i}{196} & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{70}i}{196} & 0 & -\frac{\sqrt{7}i}{196} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{210}i}{196} & 0 & \frac{3\sqrt{42}i}{98} & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{105}i}{196} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{42}i}{98} & 0 & \frac{3\sqrt{2}i}{28} \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{2}i}{28} & 0 \end{bmatrix}$$

$$\boxed{\text{x483}} \quad \mathbb{M}_{3,1}^{(a)}(E_g, 1) = \begin{bmatrix} 0 & \frac{\sqrt{15}}{28} & 0 & -\frac{5\sqrt{30}}{168} & 0 & 0 & -\frac{\sqrt{14}}{56} & 0 & \frac{\sqrt{6}}{28} & 0 & -\frac{\sqrt{10}}{56} & 0 & 0 & 0 \\ \frac{\sqrt{15}}{28} & 0 & -\frac{\sqrt{6}}{56} & 0 & -\frac{5\sqrt{3}}{42} & 0 & 0 & \frac{\sqrt{10}}{56} & 0 & \frac{\sqrt{2}}{28} & 0 & -\frac{\sqrt{30}}{56} & 0 & 0 \\ 0 & -\frac{\sqrt{6}}{56} & 0 & -\frac{\sqrt{3}}{14} & 0 & -\frac{5\sqrt{30}}{168} & \frac{\sqrt{35}}{56} & 0 & \frac{\sqrt{15}}{56} & 0 & -\frac{1}{56} & 0 & -\frac{3\sqrt{5}}{56} & 0 \\ -\frac{5\sqrt{30}}{168} & 0 & -\frac{\sqrt{3}}{14} & 0 & -\frac{\sqrt{6}}{56} & 0 & 0 & \frac{3\sqrt{5}}{56} & 0 & \frac{1}{56} & 0 & -\frac{\sqrt{15}}{56} & 0 & -\frac{\sqrt{35}}{56} \\ 0 & -\frac{5\sqrt{3}}{42} & 0 & -\frac{\sqrt{6}}{56} & 0 & \frac{\sqrt{15}}{28} & 0 & 0 & \frac{\sqrt{30}}{56} & 0 & -\frac{\sqrt{2}}{28} & 0 & -\frac{\sqrt{10}}{56} & 0 \\ 0 & 0 & -\frac{5\sqrt{30}}{168} & 0 & \frac{\sqrt{15}}{28} & 0 & 0 & 0 & 0 & \frac{\sqrt{10}}{56} & 0 & -\frac{\sqrt{6}}{28} & 0 & \frac{\sqrt{14}}{56} \\ -\frac{\sqrt{14}}{56} & 0 & \frac{\sqrt{35}}{56} & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{28} & 0 & -\frac{\sqrt{105}}{84} & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{10}}{56} & 0 & \frac{3\sqrt{5}}{56} & 0 & 0 & \frac{\sqrt{21}}{28} & 0 & \frac{1}{28} & 0 & -\frac{\sqrt{15}}{21} & 0 & 0 & 0 \\ \frac{\sqrt{6}}{28} & 0 & \frac{\sqrt{15}}{56} & 0 & \frac{\sqrt{30}}{56} & 0 & 0 & \frac{1}{28} & 0 & -\frac{\sqrt{5}}{28} & 0 & -\frac{5\sqrt{3}}{42} & 0 & 0 \\ 0 & \frac{\sqrt{2}}{28} & 0 & \frac{1}{56} & 0 & \frac{\sqrt{10}}{56} & -\frac{\sqrt{105}}{84} & 0 & -\frac{\sqrt{5}}{28} & 0 & -\frac{\sqrt{3}}{14} & 0 & -\frac{\sqrt{15}}{21} & 0 \\ -\frac{\sqrt{10}}{56} & 0 & -\frac{1}{56} & 0 & -\frac{\sqrt{2}}{28} & 0 & 0 & -\frac{\sqrt{15}}{21} & 0 & -\frac{\sqrt{3}}{14} & 0 & -\frac{\sqrt{5}}{28} & 0 & -\frac{\sqrt{105}}{84} \\ 0 & -\frac{\sqrt{30}}{56} & 0 & -\frac{\sqrt{15}}{56} & 0 & -\frac{\sqrt{6}}{28} & 0 & 0 & -\frac{5\sqrt{3}}{42} & 0 & -\frac{\sqrt{5}}{28} & 0 & \frac{1}{28} & 0 \\ 0 & 0 & -\frac{3\sqrt{5}}{56} & 0 & -\frac{\sqrt{10}}{56} & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{21} & 0 & \frac{1}{28} & 0 & \frac{\sqrt{21}}{28} \\ 0 & 0 & 0 & -\frac{\sqrt{35}}{56} & 0 & \frac{\sqrt{14}}{56} & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{84} & 0 & \frac{\sqrt{21}}{28} & 0 \end{bmatrix}$$

$$\boxed{\text{x484}} \quad \mathbb{M}_{3,2}^{(a)}(E_g, 1) = \begin{bmatrix} 0 & \frac{\sqrt{15}i}{28} & 0 & \frac{5\sqrt{30}i}{168} & 0 & 0 & \frac{\sqrt{14}i}{56} & 0 & \frac{\sqrt{6}i}{28} & 0 & \frac{\sqrt{10}i}{56} & 0 & 0 & 0 \\ -\frac{\sqrt{15}i}{28} & 0 & -\frac{\sqrt{6}i}{56} & 0 & \frac{5\sqrt{3}i}{42} & 0 & 0 & -\frac{\sqrt{10}i}{56} & 0 & \frac{\sqrt{2}i}{28} & 0 & \frac{\sqrt{30}i}{56} & 0 & 0 \\ 0 & \frac{\sqrt{6}i}{56} & 0 & -\frac{\sqrt{3}i}{14} & 0 & \frac{5\sqrt{30}i}{168} & \frac{\sqrt{35}i}{56} & 0 & -\frac{\sqrt{15}i}{56} & 0 & -\frac{i}{56} & 0 & \frac{3\sqrt{5}i}{56} & 0 \\ -\frac{5\sqrt{30}i}{168} & 0 & \frac{\sqrt{3}i}{14} & 0 & -\frac{\sqrt{6}i}{56} & 0 & 0 & \frac{3\sqrt{5}i}{56} & 0 & -\frac{i}{56} & 0 & -\frac{\sqrt{15}i}{56} & 0 & \frac{\sqrt{35}i}{56} \\ 0 & -\frac{5\sqrt{3}i}{42} & 0 & \frac{\sqrt{6}i}{56} & 0 & \frac{\sqrt{15}i}{28} & 0 & 0 & \frac{\sqrt{30}i}{56} & 0 & \frac{\sqrt{2}i}{28} & 0 & -\frac{\sqrt{10}i}{56} & 0 \\ 0 & 0 & -\frac{5\sqrt{30}i}{168} & 0 & -\frac{\sqrt{15}i}{28} & 0 & 0 & 0 & 0 & \frac{\sqrt{10}i}{56} & 0 & \frac{\sqrt{6}i}{28} & 0 & \frac{\sqrt{14}i}{56} \\ -\frac{\sqrt{14}i}{56} & 0 & -\frac{\sqrt{35}i}{56} & 0 & 0 & 0 & 0 & \frac{\sqrt{21}i}{28} & 0 & \frac{\sqrt{105}i}{84} & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{10}i}{56} & 0 & -\frac{3\sqrt{5}i}{56} & 0 & 0 & -\frac{\sqrt{21}i}{28} & 0 & \frac{i}{28} & 0 & \frac{\sqrt{15}i}{21} & 0 & 0 & 0 \\ -\frac{\sqrt{6}i}{28} & 0 & \frac{\sqrt{15}i}{56} & 0 & -\frac{\sqrt{30}i}{56} & 0 & 0 & -\frac{i}{28} & 0 & -\frac{\sqrt{5}i}{28} & 0 & \frac{5\sqrt{3}i}{42} & 0 & 0 \\ 0 & -\frac{\sqrt{2}i}{28} & 0 & \frac{i}{56} & 0 & -\frac{\sqrt{10}i}{56} & -\frac{\sqrt{105}i}{84} & 0 & \frac{\sqrt{5}i}{28} & 0 & -\frac{\sqrt{3}i}{14} & 0 & \frac{\sqrt{15}i}{21} & 0 \\ -\frac{\sqrt{10}i}{56} & 0 & \frac{i}{56} & 0 & -\frac{\sqrt{2}i}{28} & 0 & 0 & -\frac{\sqrt{15}i}{21} & 0 & \frac{\sqrt{3}i}{14} & 0 & -\frac{\sqrt{5}i}{28} & 0 & \frac{\sqrt{105}i}{84} \\ 0 & -\frac{\sqrt{30}i}{56} & 0 & \frac{\sqrt{15}i}{56} & 0 & -\frac{\sqrt{6}i}{28} & 0 & 0 & -\frac{5\sqrt{3}i}{42} & 0 & \frac{\sqrt{5}i}{28} & 0 & \frac{i}{28} & 0 \\ 0 & 0 & -\frac{3\sqrt{5}i}{56} & 0 & \frac{\sqrt{10}i}{56} & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{21} & 0 & -\frac{i}{28} & 0 & \frac{\sqrt{21}i}{28} \\ 0 & 0 & 0 & -\frac{\sqrt{35}i}{56} & 0 & -\frac{\sqrt{14}i}{56} & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}i}{84} & 0 & -\frac{\sqrt{21}i}{28} & 0 \end{bmatrix}$$



$$\boxed{\text{x485}} \quad \mathbb{M}_{3,1}^{(a)}(E_g, 2) = \begin{bmatrix} 0 & \frac{5}{28} & 0 & \frac{5\sqrt{2}}{56} & 0 & 0 & -\frac{\sqrt{210}}{168} & 0 & \frac{\sqrt{10}}{28} & 0 & \frac{\sqrt{6}}{56} & 0 & 0 & 0 \\ \frac{5}{28} & 0 & -\frac{\sqrt{10}}{56} & 0 & \frac{\sqrt{5}}{14} & 0 & 0 & \frac{5\sqrt{6}}{168} & 0 & \frac{\sqrt{30}}{84} & 0 & \frac{3\sqrt{2}}{56} & 0 & 0 \\ 0 & -\frac{\sqrt{10}}{56} & 0 & -\frac{\sqrt{5}}{14} & 0 & \frac{5\sqrt{2}}{56} & -\frac{\sqrt{21}}{56} & 0 & \frac{5}{56} & 0 & -\frac{\sqrt{15}}{168} & 0 & \frac{3\sqrt{3}}{56} & 0 \\ \frac{5\sqrt{2}}{56} & 0 & -\frac{\sqrt{5}}{14} & 0 & -\frac{\sqrt{10}}{56} & 0 & 0 & -\frac{3\sqrt{3}}{56} & 0 & \frac{\sqrt{15}}{168} & 0 & -\frac{5}{56} & 0 & \frac{\sqrt{21}}{56} \\ 0 & \frac{\sqrt{5}}{14} & 0 & -\frac{\sqrt{10}}{56} & 0 & \frac{5}{28} & 0 & 0 & -\frac{3\sqrt{2}}{56} & 0 & -\frac{\sqrt{30}}{84} & 0 & -\frac{5\sqrt{6}}{168} & 0 \\ 0 & 0 & \frac{5\sqrt{2}}{56} & 0 & \frac{5}{28} & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{56} & 0 & -\frac{\sqrt{10}}{28} & 0 & \frac{\sqrt{210}}{168} \\ -\frac{\sqrt{210}}{168} & 0 & -\frac{\sqrt{21}}{56} & 0 & 0 & 0 & 0 & \frac{\sqrt{35}}{28} & 0 & \frac{\sqrt{7}}{28} & 0 & 0 & 0 & 0 \\ 0 & \frac{5\sqrt{6}}{168} & 0 & -\frac{3\sqrt{3}}{56} & 0 & 0 & \frac{\sqrt{35}}{28} & 0 & \frac{\sqrt{15}}{84} & 0 & \frac{1}{7} & 0 & 0 & 0 \\ \frac{\sqrt{10}}{28} & 0 & \frac{5}{56} & 0 & -\frac{3\sqrt{2}}{56} & 0 & 0 & \frac{\sqrt{15}}{84} & 0 & -\frac{5\sqrt{3}}{84} & 0 & \frac{\sqrt{5}}{14} & 0 & 0 \\ 0 & \frac{\sqrt{30}}{84} & 0 & \frac{\sqrt{15}}{168} & 0 & -\frac{\sqrt{6}}{56} & \frac{\sqrt{7}}{28} & 0 & -\frac{5\sqrt{3}}{84} & 0 & -\frac{\sqrt{5}}{14} & 0 & \frac{1}{7} & 0 \\ \frac{\sqrt{6}}{56} & 0 & -\frac{\sqrt{15}}{168} & 0 & -\frac{\sqrt{30}}{84} & 0 & 0 & \frac{1}{7} & 0 & -\frac{\sqrt{5}}{14} & 0 & -\frac{5\sqrt{3}}{84} & 0 & \frac{\sqrt{7}}{28} \\ 0 & \frac{3\sqrt{2}}{56} & 0 & -\frac{5}{56} & 0 & -\frac{\sqrt{10}}{28} & 0 & 0 & \frac{\sqrt{5}}{14} & 0 & -\frac{5\sqrt{3}}{84} & 0 & \frac{\sqrt{15}}{84} & 0 \\ 0 & 0 & \frac{3\sqrt{3}}{56} & 0 & -\frac{5\sqrt{6}}{168} & 0 & 0 & 0 & 0 & \frac{1}{7} & 0 & \frac{\sqrt{15}}{84} & 0 & \frac{\sqrt{35}}{28} \\ 0 & 0 & 0 & \frac{\sqrt{21}}{56} & 0 & \frac{\sqrt{210}}{168} & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{28} & 0 & \frac{\sqrt{35}}{28} & 0 \end{bmatrix}$$

$$\boxed{\text{x486}} \quad \mathbb{M}_{3,2}^{(a)}(E_g, 2) = \begin{bmatrix} 0 & \frac{5i}{28} & 0 & -\frac{5\sqrt{2}i}{56} & 0 & 0 & \frac{\sqrt{210}i}{168} & 0 & \frac{\sqrt{10}i}{28} & 0 & -\frac{\sqrt{6}i}{56} & 0 & 0 & 0 \\ -\frac{5i}{28} & 0 & -\frac{\sqrt{10}i}{56} & 0 & -\frac{\sqrt{5}i}{14} & 0 & 0 & -\frac{5\sqrt{6}i}{168} & 0 & \frac{\sqrt{30}i}{84} & 0 & -\frac{3\sqrt{2}i}{56} & 0 & 0 \\ 0 & \frac{\sqrt{10}i}{56} & 0 & -\frac{\sqrt{5}i}{14} & 0 & -\frac{5\sqrt{2}i}{56} & -\frac{\sqrt{21}i}{56} & 0 & -\frac{5i}{56} & 0 & -\frac{\sqrt{15}i}{168} & 0 & -\frac{3\sqrt{3}i}{56} & 0 \\ \frac{5\sqrt{2}i}{56} & 0 & \frac{\sqrt{5}i}{14} & 0 & -\frac{\sqrt{10}i}{56} & 0 & 0 & -\frac{3\sqrt{3}i}{56} & 0 & -\frac{\sqrt{15}i}{168} & 0 & -\frac{5i}{56} & 0 & -\frac{\sqrt{21}i}{56} \\ 0 & \frac{\sqrt{5}i}{14} & 0 & \frac{\sqrt{10}i}{56} & 0 & \frac{5i}{28} & 0 & 0 & -\frac{3\sqrt{2}i}{56} & 0 & \frac{\sqrt{30}i}{84} & 0 & -\frac{5\sqrt{6}i}{168} & 0 \\ 0 & 0 & \frac{5\sqrt{2}i}{56} & 0 & -\frac{5i}{28} & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}i}{56} & 0 & \frac{\sqrt{10}i}{28} & 0 & \frac{\sqrt{210}i}{168} \\ -\frac{\sqrt{210}i}{168} & 0 & \frac{\sqrt{21}i}{56} & 0 & 0 & 0 & 0 & \frac{\sqrt{35}i}{28} & 0 & -\frac{\sqrt{7}i}{28} & 0 & 0 & 0 & 0 \\ 0 & \frac{5\sqrt{6}i}{168} & 0 & \frac{3\sqrt{3}i}{56} & 0 & 0 & -\frac{\sqrt{35}i}{28} & 0 & \frac{\sqrt{15}i}{84} & 0 & -\frac{i}{7} & 0 & 0 & 0 \\ -\frac{\sqrt{10}i}{28} & 0 & \frac{5i}{56} & 0 & \frac{3\sqrt{2}i}{56} & 0 & 0 & -\frac{\sqrt{15}i}{84} & 0 & -\frac{5\sqrt{3}i}{84} & 0 & -\frac{\sqrt{5}i}{14} & 0 & 0 \\ 0 & -\frac{\sqrt{30}i}{84} & 0 & \frac{\sqrt{15}i}{168} & 0 & \frac{\sqrt{6}i}{56} & \frac{\sqrt{7}i}{28} & 0 & \frac{5\sqrt{3}i}{84} & 0 & -\frac{\sqrt{5}i}{14} & 0 & -\frac{i}{7} & 0 \\ \frac{\sqrt{6}i}{56} & 0 & \frac{\sqrt{15}i}{168} & 0 & -\frac{\sqrt{30}i}{84} & 0 & 0 & \frac{i}{7} & 0 & \frac{\sqrt{5}i}{14} & 0 & -\frac{5\sqrt{3}i}{84} & 0 & -\frac{\sqrt{7}i}{28} \\ 0 & \frac{3\sqrt{2}i}{56} & 0 & \frac{5i}{56} & 0 & -\frac{\sqrt{10}i}{28} & 0 & 0 & \frac{\sqrt{5}i}{14} & 0 & \frac{5\sqrt{3}i}{84} & 0 & \frac{\sqrt{15}i}{84} & 0 \\ 0 & 0 & \frac{3\sqrt{3}i}{56} & 0 & \frac{5\sqrt{6}i}{168} & 0 & 0 & 0 & 0 & \frac{i}{7} & 0 & -\frac{\sqrt{15}i}{84} & 0 & \frac{\sqrt{35}i}{28} \\ 0 & 0 & 0 & \frac{\sqrt{21}i}{56} & 0 & -\frac{\sqrt{210}i}{168} & 0 & 0 & 0 & 0 & \frac{\sqrt{7}i}{28} & 0 & -\frac{\sqrt{35}i}{28} & 0 \end{bmatrix}$$

$$\boxed{x487} \quad \mathbb{M}_{5,1}^{(a)}(E_g, 1) = \begin{bmatrix} 0 & \frac{\sqrt{210}}{784} & 0 & -\frac{\sqrt{105}}{168} & 0 & \frac{3\sqrt{42}}{112} & -\frac{5}{224} & 0 & \frac{25\sqrt{21}}{1568} & 0 & -\frac{5\sqrt{35}}{224} & 0 & \frac{15\sqrt{7}}{224} & 0 \\ \frac{\sqrt{210}}{784} & 0 & -\frac{5\sqrt{21}}{392} & 0 & \frac{5\sqrt{42}}{336} & 0 & 0 & \frac{23\sqrt{35}}{1568} & 0 & -\frac{65\sqrt{7}}{1568} & 0 & \frac{\sqrt{105}}{224} & 0 & \frac{3\sqrt{5}}{32} \\ 0 & -\frac{5\sqrt{21}}{392} & 0 & \frac{5\sqrt{42}}{392} & 0 & -\frac{\sqrt{105}}{168} & \frac{\sqrt{10}}{32} & 0 & -\frac{11\sqrt{210}}{1568} & 0 & \frac{5\sqrt{14}}{1568} & 0 & \frac{3\sqrt{70}}{224} & 0 \\ -\frac{\sqrt{105}}{168} & 0 & \frac{5\sqrt{42}}{392} & 0 & -\frac{5\sqrt{21}}{392} & 0 & 0 & -\frac{3\sqrt{70}}{224} & 0 & -\frac{5\sqrt{14}}{1568} & 0 & \frac{11\sqrt{210}}{1568} & 0 & -\frac{\sqrt{10}}{32} \\ 0 & \frac{5\sqrt{42}}{336} & 0 & -\frac{5\sqrt{21}}{392} & 0 & \frac{\sqrt{210}}{784} & -\frac{3\sqrt{5}}{32} & 0 & -\frac{\sqrt{105}}{224} & 0 & \frac{65\sqrt{7}}{1568} & 0 & -\frac{23\sqrt{35}}{1568} & 0 \\ \frac{3\sqrt{42}}{112} & 0 & -\frac{\sqrt{105}}{168} & 0 & \frac{\sqrt{210}}{784} & 0 & 0 & -\frac{15\sqrt{7}}{224} & 0 & \frac{5\sqrt{35}}{224} & 0 & -\frac{25\sqrt{21}}{1568} & 0 & \frac{5}{224} \\ -\frac{5}{224} & 0 & \frac{\sqrt{10}}{32} & 0 & -\frac{3\sqrt{5}}{32} & 0 & 0 & \frac{5\sqrt{6}}{224} & 0 & -\frac{\sqrt{30}}{48} & 0 & \frac{3\sqrt{2}}{32} & 0 & 0 \\ 0 & \frac{23\sqrt{35}}{1568} & 0 & -\frac{3\sqrt{70}}{224} & 0 & -\frac{15\sqrt{7}}{224} & \frac{5\sqrt{6}}{224} & 0 & -\frac{5\sqrt{14}}{196} & 0 & \frac{\sqrt{210}}{672} & 0 & \frac{3\sqrt{42}}{112} & 0 \\ \frac{25\sqrt{21}}{1568} & 0 & -\frac{11\sqrt{210}}{1568} & 0 & -\frac{\sqrt{105}}{224} & 0 & 0 & -\frac{5\sqrt{14}}{196} & 0 & \frac{\sqrt{70}}{1568} & 0 & \frac{5\sqrt{42}}{336} & 0 & \frac{3\sqrt{2}}{32} \\ 0 & -\frac{65\sqrt{7}}{1568} & 0 & -\frac{5\sqrt{14}}{1568} & 0 & \frac{5\sqrt{35}}{224} & -\frac{\sqrt{30}}{48} & 0 & \frac{\sqrt{70}}{1568} & 0 & \frac{5\sqrt{42}}{392} & 0 & \frac{\sqrt{210}}{672} & 0 \\ -\frac{5\sqrt{35}}{224} & 0 & \frac{5\sqrt{14}}{1568} & 0 & \frac{65\sqrt{7}}{1568} & 0 & 0 & \frac{\sqrt{210}}{672} & 0 & \frac{5\sqrt{42}}{392} & 0 & \frac{\sqrt{70}}{1568} & 0 & -\frac{\sqrt{30}}{48} \\ 0 & \frac{\sqrt{105}}{224} & 0 & \frac{11\sqrt{210}}{1568} & 0 & -\frac{25\sqrt{21}}{1568} & \frac{3\sqrt{2}}{32} & 0 & \frac{5\sqrt{42}}{336} & 0 & \frac{\sqrt{70}}{1568} & 0 & -\frac{5\sqrt{14}}{196} & 0 \\ \frac{15\sqrt{7}}{224} & 0 & \frac{3\sqrt{70}}{224} & 0 & -\frac{23\sqrt{35}}{1568} & 0 & 0 & \frac{3\sqrt{42}}{112} & 0 & \frac{\sqrt{210}}{672} & 0 & -\frac{5\sqrt{14}}{196} & 0 & \frac{5\sqrt{6}}{224} \\ 0 & \frac{3\sqrt{5}}{32} & 0 & -\frac{\sqrt{10}}{32} & 0 & \frac{5}{224} & 0 & 0 & \frac{3\sqrt{2}}{32} & 0 & -\frac{\sqrt{30}}{48} & 0 & \frac{5\sqrt{6}}{224} & 0 \end{bmatrix}$$

$$\boxed{x488} \quad \mathbb{M}_{5,2}^{(a)}(E_g, 1) = \begin{bmatrix} 0 & \frac{\sqrt{210}i}{784} & 0 & \frac{\sqrt{105}i}{168} & 0 & \frac{3\sqrt{42}i}{112} & \frac{5i}{224} & 0 & \frac{25\sqrt{21}i}{1568} & 0 & \frac{5\sqrt{35}i}{224} & 0 & \frac{15\sqrt{7}i}{224} & 0 \\ -\frac{\sqrt{210}i}{784} & 0 & -\frac{5\sqrt{21}i}{392} & 0 & -\frac{5\sqrt{42}i}{336} & 0 & 0 & -\frac{23\sqrt{35}i}{1568} & 0 & -\frac{65\sqrt{7}i}{1568} & 0 & -\frac{\sqrt{105}i}{224} & 0 & \frac{3\sqrt{5}i}{32} \\ 0 & \frac{5\sqrt{21}i}{392} & 0 & \frac{5\sqrt{42}i}{392} & 0 & \frac{\sqrt{105}i}{168} & \frac{\sqrt{10}i}{32} & 0 & \frac{11\sqrt{210}i}{1568} & 0 & \frac{5\sqrt{14}i}{1568} & 0 & -\frac{3\sqrt{70}i}{224} & 0 \\ -\frac{\sqrt{105}i}{168} & 0 & -\frac{5\sqrt{42}i}{392} & 0 & -\frac{5\sqrt{21}i}{392} & 0 & 0 & -\frac{3\sqrt{70}i}{224} & 0 & \frac{5\sqrt{14}i}{1568} & 0 & \frac{11\sqrt{210}i}{1568} & 0 & \frac{\sqrt{10}i}{32} \\ 0 & \frac{5\sqrt{42}i}{336} & 0 & \frac{5\sqrt{21}i}{392} & 0 & \frac{\sqrt{210}i}{784} & \frac{3\sqrt{5}i}{32} & 0 & -\frac{\sqrt{105}i}{224} & 0 & -\frac{65\sqrt{7}i}{1568} & 0 & -\frac{23\sqrt{35}i}{1568} & 0 \\ -\frac{3\sqrt{42}i}{112} & 0 & -\frac{\sqrt{105}i}{168} & 0 & -\frac{\sqrt{210}i}{784} & 0 & 0 & \frac{15\sqrt{7}i}{224} & 0 & \frac{5\sqrt{35}i}{224} & 0 & \frac{25\sqrt{21}i}{1568} & 0 & \frac{5i}{224} \\ -\frac{5i}{224} & 0 & -\frac{\sqrt{10}i}{32} & 0 & -\frac{3\sqrt{5}i}{32} & 0 & 0 & \frac{5\sqrt{6}i}{224} & 0 & \frac{\sqrt{30}i}{48} & 0 & \frac{3\sqrt{2}i}{32} & 0 & 0 \\ 0 & \frac{23\sqrt{35}i}{1568} & 0 & \frac{3\sqrt{70}i}{224} & 0 & -\frac{15\sqrt{7}i}{224} & -\frac{5\sqrt{6}i}{224} & 0 & -\frac{5\sqrt{14}i}{196} & 0 & -\frac{\sqrt{210}i}{672} & 0 & \frac{3\sqrt{42}i}{112} & 0 \\ -\frac{25\sqrt{21}i}{1568} & 0 & -\frac{11\sqrt{210}i}{1568} & 0 & \frac{\sqrt{105}i}{224} & 0 & 0 & \frac{5\sqrt{14}i}{196} & 0 & \frac{\sqrt{70}i}{1568} & 0 & -\frac{5\sqrt{42}i}{336} & 0 & \frac{3\sqrt{2}i}{32} \\ 0 & \frac{65\sqrt{7}i}{1568} & 0 & -\frac{5\sqrt{14}i}{1568} & 0 & -\frac{5\sqrt{35}i}{224} & -\frac{\sqrt{30}i}{48} & 0 & -\frac{\sqrt{70}i}{1568} & 0 & \frac{5\sqrt{42}i}{392} & 0 & -\frac{\sqrt{210}i}{672} & 0 \\ -\frac{5\sqrt{35}i}{224} & 0 & -\frac{5\sqrt{14}i}{1568} & 0 & \frac{65\sqrt{7}i}{1568} & 0 & 0 & \frac{\sqrt{210}i}{672} & 0 & -\frac{5\sqrt{42}i}{392} & 0 & \frac{\sqrt{70}i}{1568} & 0 & \frac{\sqrt{30}i}{48} \\ 0 & \frac{\sqrt{105}i}{224} & 0 & -\frac{11\sqrt{210}i}{1568} & 0 & -\frac{25\sqrt{21}i}{1568} & -\frac{3\sqrt{2}i}{32} & 0 & \frac{5\sqrt{42}i}{336} & 0 & -\frac{\sqrt{70}i}{1568} & 0 & -\frac{5\sqrt{14}i}{196} & 0 \\ -\frac{15\sqrt{7}i}{224} & 0 & \frac{3\sqrt{70}i}{224} & 0 & \frac{23\sqrt{35}i}{1568} & 0 & 0 & -\frac{3\sqrt{42}i}{112} & 0 & \frac{\sqrt{210}i}{672} & 0 & \frac{5\sqrt{14}i}{196} & 0 & \frac{5\sqrt{6}i}{224} \\ 0 & -\frac{3\sqrt{5}i}{32} & 0 & -\frac{\sqrt{10}i}{32} & 0 & -\frac{5i}{224} & 0 & 0 & -\frac{3\sqrt{2}i}{32} & 0 & -\frac{\sqrt{30}i}{48} & 0 & -\frac{5\sqrt{6}i}{224} & 0 \end{bmatrix}$$

$$\boxed{x489} \quad \mathbb{M}_{5,1}^{(a)}(E_g, 2) = \begin{bmatrix} 0 & \frac{\sqrt{6}}{112} & 0 & \frac{3\sqrt{3}}{56} & 0 & \frac{\sqrt{30}}{112} & -\frac{\sqrt{35}}{224} & 0 & \frac{5\sqrt{15}}{224} & 0 & \frac{45}{224} & 0 & \frac{5\sqrt{5}}{224} & 0 \\ \frac{\sqrt{6}}{112} & 0 & -\frac{\sqrt{15}}{56} & 0 & -\frac{3\sqrt{30}}{112} & 0 & 0 & \frac{23}{224} & 0 & -\frac{13\sqrt{5}}{224} & 0 & -\frac{9\sqrt{3}}{224} & 0 & \frac{5\sqrt{7}}{224} \\ 0 & -\frac{\sqrt{15}}{56} & 0 & \frac{\sqrt{30}}{56} & 0 & \frac{3\sqrt{3}}{56} & -\frac{9\sqrt{14}}{224} & 0 & -\frac{11\sqrt{6}}{224} & 0 & \frac{\sqrt{10}}{224} & 0 & -\frac{27\sqrt{2}}{224} & 0 \\ \frac{3\sqrt{3}}{56} & 0 & \frac{\sqrt{30}}{56} & 0 & -\frac{\sqrt{15}}{56} & 0 & 0 & \frac{27\sqrt{2}}{224} & 0 & -\frac{\sqrt{10}}{224} & 0 & \frac{11\sqrt{6}}{224} & 0 & \frac{9\sqrt{14}}{224} \\ 0 & -\frac{3\sqrt{30}}{112} & 0 & -\frac{\sqrt{15}}{56} & 0 & \frac{\sqrt{6}}{112} & -\frac{5\sqrt{7}}{224} & 0 & \frac{9\sqrt{3}}{224} & 0 & \frac{13\sqrt{5}}{224} & 0 & -\frac{23}{224} & 0 \\ \frac{\sqrt{30}}{112} & 0 & \frac{3\sqrt{3}}{56} & 0 & \frac{\sqrt{6}}{112} & 0 & 0 & -\frac{5\sqrt{5}}{224} & 0 & -\frac{45}{224} & 0 & -\frac{5\sqrt{15}}{224} & 0 & \frac{\sqrt{35}}{224} \\ -\frac{\sqrt{35}}{224} & 0 & -\frac{9\sqrt{14}}{224} & 0 & -\frac{5\sqrt{7}}{224} & 0 & 0 & \frac{\sqrt{210}}{224} & 0 & \frac{3\sqrt{42}}{112} & 0 & \frac{\sqrt{70}}{224} & 0 & 0 \\ 0 & \frac{23}{224} & 0 & \frac{27\sqrt{2}}{224} & 0 & -\frac{5\sqrt{5}}{224} & \frac{\sqrt{210}}{224} & 0 & -\frac{\sqrt{10}}{28} & 0 & -\frac{3\sqrt{6}}{224} & 0 & \frac{\sqrt{30}}{112} & 0 \\ \frac{5\sqrt{15}}{224} & 0 & -\frac{11\sqrt{6}}{224} & 0 & \frac{9\sqrt{3}}{224} & 0 & 0 & -\frac{\sqrt{10}}{28} & 0 & \frac{\sqrt{2}}{224} & 0 & -\frac{3\sqrt{30}}{112} & 0 & \frac{\sqrt{70}}{224} \\ 0 & -\frac{13\sqrt{5}}{224} & 0 & -\frac{\sqrt{10}}{224} & 0 & -\frac{45}{224} & \frac{3\sqrt{42}}{112} & 0 & \frac{\sqrt{2}}{224} & 0 & \frac{\sqrt{30}}{56} & 0 & -\frac{3\sqrt{6}}{224} & 0 \\ \frac{45}{224} & 0 & \frac{\sqrt{10}}{224} & 0 & \frac{13\sqrt{5}}{224} & 0 & 0 & -\frac{3\sqrt{6}}{224} & 0 & \frac{\sqrt{30}}{56} & 0 & \frac{\sqrt{2}}{224} & 0 & \frac{3\sqrt{42}}{112} \\ 0 & -\frac{9\sqrt{3}}{224} & 0 & \frac{11\sqrt{6}}{224} & 0 & -\frac{5\sqrt{15}}{224} & \frac{\sqrt{70}}{224} & 0 & -\frac{3\sqrt{30}}{112} & 0 & \frac{\sqrt{2}}{224} & 0 & -\frac{\sqrt{10}}{28} & 0 \\ \frac{5\sqrt{5}}{224} & 0 & -\frac{27\sqrt{2}}{224} & 0 & -\frac{23}{224} & 0 & 0 & \frac{\sqrt{30}}{112} & 0 & -\frac{3\sqrt{6}}{224} & 0 & -\frac{\sqrt{10}}{28} & 0 & \frac{\sqrt{210}}{224} \\ 0 & \frac{5\sqrt{7}}{224} & 0 & \frac{9\sqrt{14}}{224} & 0 & \frac{\sqrt{35}}{224} & 0 & 0 & \frac{\sqrt{70}}{224} & 0 & \frac{3\sqrt{42}}{112} & 0 & \frac{\sqrt{210}}{224} & 0 \end{bmatrix}$$

$$\boxed{x490} \quad \mathbb{M}_{5,2}^{(a)}(E_g, 2) = \begin{bmatrix} 0 & \frac{\sqrt{6}i}{112} & 0 & -\frac{3\sqrt{3}i}{56} & 0 & \frac{\sqrt{30}i}{112} & \frac{\sqrt{35}i}{224} & 0 & \frac{5\sqrt{15}i}{224} & 0 & -\frac{45i}{224} & 0 & \frac{5\sqrt{5}i}{224} & 0 \\ -\frac{\sqrt{6}i}{112} & 0 & -\frac{\sqrt{15}i}{56} & 0 & \frac{3\sqrt{30}i}{112} & 0 & 0 & -\frac{23i}{224} & 0 & -\frac{13\sqrt{5}i}{224} & 0 & \frac{9\sqrt{3}i}{224} & 0 & \frac{5\sqrt{7}i}{224} \\ 0 & \frac{\sqrt{15}i}{56} & 0 & \frac{\sqrt{30}i}{56} & 0 & -\frac{3\sqrt{3}i}{56} & -\frac{9\sqrt{14}i}{224} & 0 & \frac{11\sqrt{6}i}{224} & 0 & \frac{\sqrt{10}i}{224} & 0 & \frac{27\sqrt{2}i}{224} & 0 \\ \frac{3\sqrt{3}i}{56} & 0 & -\frac{\sqrt{30}i}{56} & 0 & -\frac{\sqrt{15}i}{56} & 0 & 0 & \frac{27\sqrt{2}i}{224} & 0 & \frac{\sqrt{10}i}{224} & 0 & \frac{11\sqrt{6}i}{224} & 0 & -\frac{9\sqrt{14}i}{224} \\ 0 & -\frac{3\sqrt{30}i}{112} & 0 & \frac{\sqrt{15}i}{56} & 0 & \frac{\sqrt{6}i}{112} & \frac{5\sqrt{7}i}{224} & 0 & \frac{9\sqrt{3}i}{224} & 0 & -\frac{13\sqrt{5}i}{224} & 0 & -\frac{23i}{224} & 0 \\ -\frac{\sqrt{30}i}{112} & 0 & \frac{3\sqrt{3}i}{56} & 0 & -\frac{\sqrt{6}i}{112} & 0 & 0 & \frac{5\sqrt{5}i}{224} & 0 & -\frac{45i}{224} & 0 & \frac{5\sqrt{15}i}{224} & 0 & \frac{\sqrt{35}i}{224} \\ -\frac{\sqrt{35}i}{224} & 0 & \frac{9\sqrt{14}i}{224} & 0 & -\frac{5\sqrt{7}i}{224} & 0 & 0 & \frac{\sqrt{210}i}{224} & 0 & -\frac{3\sqrt{42}i}{112} & 0 & \frac{\sqrt{70}i}{224} & 0 & 0 \\ 0 & \frac{23i}{224} & 0 & -\frac{27\sqrt{2}i}{224} & 0 & -\frac{5\sqrt{5}i}{224} & -\frac{\sqrt{210}i}{224} & 0 & -\frac{\sqrt{10}i}{28} & 0 & \frac{3\sqrt{6}i}{224} & 0 & \frac{\sqrt{30}i}{112} & 0 \\ -\frac{5\sqrt{15}i}{224} & 0 & -\frac{11\sqrt{6}i}{224} & 0 & -\frac{9\sqrt{3}i}{224} & 0 & 0 & \frac{\sqrt{10}i}{28} & 0 & \frac{\sqrt{2}i}{224} & 0 & \frac{3\sqrt{30}i}{112} & 0 & \frac{\sqrt{70}i}{224} \\ 0 & \frac{13\sqrt{5}i}{224} & 0 & -\frac{\sqrt{10}i}{224} & 0 & \frac{45i}{224} & \frac{3\sqrt{42}i}{112} & 0 & -\frac{\sqrt{2}i}{224} & 0 & \frac{\sqrt{30}i}{56} & 0 & \frac{3\sqrt{6}i}{224} & 0 \\ \frac{45i}{224} & 0 & -\frac{\sqrt{10}i}{224} & 0 & \frac{13\sqrt{5}i}{224} & 0 & 0 & -\frac{3\sqrt{6}i}{224} & 0 & -\frac{\sqrt{30}i}{56} & 0 & \frac{\sqrt{2}i}{224} & 0 & -\frac{3\sqrt{42}i}{112} \\ 0 & -\frac{9\sqrt{3}i}{224} & 0 & -\frac{11\sqrt{6}i}{224} & 0 & -\frac{5\sqrt{15}i}{224} & -\frac{\sqrt{70}i}{224} & 0 & -\frac{3\sqrt{30}i}{112} & 0 & -\frac{\sqrt{2}i}{224} & 0 & -\frac{\sqrt{10}i}{28} & 0 \\ -\frac{5\sqrt{5}i}{224} & 0 & -\frac{27\sqrt{2}i}{224} & 0 & \frac{23i}{224} & 0 & 0 & -\frac{\sqrt{30}i}{112} & 0 & -\frac{3\sqrt{6}i}{224} & 0 & \frac{\sqrt{10}i}{28} & 0 & \frac{\sqrt{210}i}{224} \\ 0 & -\frac{5\sqrt{7}i}{224} & 0 & \frac{9\sqrt{14}i}{224} & 0 & -\frac{\sqrt{35}i}{224} & 0 & 0 & -\frac{\sqrt{70}i}{224} & 0 & \frac{3\sqrt{42}i}{112} & 0 & -\frac{\sqrt{210}i}{224} & 0 \end{bmatrix}$$

$$\boxed{\text{x491}} \quad \mathbb{M}_{5,1}^{(a)}(E_g, 3) = \begin{bmatrix} 0 & \frac{\sqrt{2}}{56} & 0 & -\frac{1}{28} & 0 & -\frac{3\sqrt{10}}{56} & -\frac{\sqrt{105}}{336} & 0 & \frac{5\sqrt{5}}{112} & 0 & -\frac{5\sqrt{3}}{112} & 0 & -\frac{5\sqrt{15}}{112} & 0 \\ \frac{\sqrt{2}}{56} & 0 & -\frac{\sqrt{5}}{28} & 0 & \frac{\sqrt{10}}{56} & 0 & 0 & \frac{23\sqrt{3}}{336} & 0 & -\frac{13\sqrt{15}}{336} & 0 & \frac{3}{112} & 0 & -\frac{5\sqrt{21}}{112} \\ 0 & -\frac{\sqrt{5}}{28} & 0 & \frac{\sqrt{10}}{28} & 0 & -\frac{1}{28} & \frac{\sqrt{42}}{112} & 0 & -\frac{11\sqrt{2}}{112} & 0 & \frac{\sqrt{30}}{336} & 0 & \frac{3\sqrt{6}}{112} & 0 \\ -\frac{1}{28} & 0 & \frac{\sqrt{10}}{28} & 0 & -\frac{\sqrt{5}}{28} & 0 & 0 & -\frac{3\sqrt{6}}{112} & 0 & -\frac{\sqrt{30}}{336} & 0 & \frac{11\sqrt{2}}{112} & 0 & -\frac{\sqrt{42}}{112} \\ 0 & \frac{\sqrt{10}}{56} & 0 & -\frac{\sqrt{5}}{28} & 0 & \frac{\sqrt{2}}{56} & \frac{5\sqrt{21}}{112} & 0 & -\frac{3}{112} & 0 & \frac{13\sqrt{15}}{336} & 0 & -\frac{23\sqrt{3}}{336} & 0 \\ -\frac{3\sqrt{10}}{56} & 0 & -\frac{1}{28} & 0 & \frac{\sqrt{2}}{56} & 0 & 0 & \frac{5\sqrt{15}}{112} & 0 & \frac{5\sqrt{3}}{112} & 0 & -\frac{5\sqrt{5}}{112} & 0 & \frac{\sqrt{105}}{336} \\ -\frac{\sqrt{105}}{336} & 0 & \frac{\sqrt{42}}{112} & 0 & \frac{5\sqrt{21}}{112} & 0 & 0 & \frac{\sqrt{70}}{112} & 0 & -\frac{\sqrt{14}}{56} & 0 & -\frac{\sqrt{210}}{112} & 0 & 0 \\ 0 & \frac{23\sqrt{3}}{336} & 0 & -\frac{3\sqrt{6}}{112} & 0 & \frac{5\sqrt{15}}{112} & \frac{\sqrt{70}}{112} & 0 & -\frac{\sqrt{30}}{42} & 0 & \frac{\sqrt{2}}{112} & 0 & -\frac{3\sqrt{10}}{56} & 0 \\ \frac{5\sqrt{5}}{112} & 0 & -\frac{11\sqrt{2}}{112} & 0 & -\frac{3}{112} & 0 & 0 & -\frac{\sqrt{30}}{42} & 0 & \frac{\sqrt{6}}{336} & 0 & \frac{\sqrt{10}}{56} & 0 & -\frac{\sqrt{210}}{112} \\ 0 & -\frac{13\sqrt{15}}{336} & 0 & -\frac{\sqrt{30}}{336} & 0 & \frac{5\sqrt{3}}{112} & -\frac{\sqrt{14}}{56} & 0 & \frac{\sqrt{6}}{336} & 0 & \frac{\sqrt{10}}{28} & 0 & \frac{\sqrt{2}}{112} & 0 \\ -\frac{5\sqrt{3}}{112} & 0 & \frac{\sqrt{30}}{336} & 0 & \frac{13\sqrt{15}}{336} & 0 & 0 & \frac{\sqrt{2}}{112} & 0 & \frac{\sqrt{10}}{28} & 0 & \frac{\sqrt{6}}{336} & 0 & -\frac{\sqrt{14}}{56} \\ 0 & \frac{3}{112} & 0 & \frac{11\sqrt{2}}{112} & 0 & -\frac{5\sqrt{5}}{112} & -\frac{\sqrt{210}}{112} & 0 & \frac{\sqrt{10}}{56} & 0 & \frac{\sqrt{6}}{336} & 0 & -\frac{\sqrt{30}}{42} & 0 \\ -\frac{5\sqrt{15}}{112} & 0 & \frac{3\sqrt{6}}{112} & 0 & -\frac{23\sqrt{3}}{336} & 0 & 0 & -\frac{3\sqrt{10}}{56} & 0 & \frac{\sqrt{2}}{112} & 0 & -\frac{\sqrt{30}}{42} & 0 & \frac{\sqrt{70}}{112} \\ 0 & -\frac{5\sqrt{21}}{112} & 0 & -\frac{\sqrt{42}}{112} & 0 & \frac{\sqrt{105}}{336} & 0 & 0 & -\frac{\sqrt{210}}{112} & 0 & -\frac{\sqrt{14}}{56} & 0 & \frac{\sqrt{70}}{112} & 0 \end{bmatrix}$$

$$\boxed{\text{x492}} \quad \mathbb{M}_{5,2}^{(a)}(E_g, 3) = \begin{bmatrix} 0 & \frac{\sqrt{2}i}{56} & 0 & \frac{i}{28} & 0 & -\frac{3\sqrt{10}i}{56} & \frac{\sqrt{105}i}{336} & 0 & \frac{5\sqrt{5}i}{112} & 0 & \frac{5\sqrt{3}i}{112} & 0 & -\frac{5\sqrt{15}i}{112} & 0 \\ -\frac{\sqrt{2}i}{56} & 0 & -\frac{\sqrt{5}i}{28} & 0 & -\frac{\sqrt{10}i}{56} & 0 & 0 & -\frac{23\sqrt{3}i}{336} & 0 & -\frac{13\sqrt{15}i}{336} & 0 & -\frac{3i}{112} & 0 & -\frac{5\sqrt{21}i}{112} \\ 0 & \frac{\sqrt{5}i}{28} & 0 & \frac{\sqrt{10}i}{28} & 0 & \frac{i}{28} & \frac{\sqrt{42}i}{112} & 0 & \frac{11\sqrt{2}i}{112} & 0 & \frac{\sqrt{30}i}{336} & 0 & -\frac{3\sqrt{6}i}{112} & 0 \\ -\frac{i}{28} & 0 & -\frac{\sqrt{10}i}{28} & 0 & -\frac{\sqrt{5}i}{28} & 0 & 0 & -\frac{3\sqrt{6}i}{112} & 0 & \frac{\sqrt{30}i}{336} & 0 & \frac{11\sqrt{2}i}{112} & 0 & \frac{\sqrt{42}i}{112} \\ 0 & \frac{\sqrt{10}i}{56} & 0 & \frac{\sqrt{5}i}{28} & 0 & \frac{\sqrt{2}i}{56} & -\frac{5\sqrt{21}i}{112} & 0 & -\frac{3i}{112} & 0 & -\frac{13\sqrt{15}i}{336} & 0 & -\frac{23\sqrt{3}i}{336} & 0 \\ \frac{3\sqrt{10}i}{56} & 0 & -\frac{i}{28} & 0 & -\frac{\sqrt{2}i}{56} & 0 & 0 & -\frac{5\sqrt{15}i}{112} & 0 & \frac{5\sqrt{3}i}{112} & 0 & \frac{5\sqrt{5}i}{112} & 0 & \frac{\sqrt{105}i}{336} \\ -\frac{\sqrt{105}i}{336} & 0 & -\frac{\sqrt{42}i}{112} & 0 & \frac{5\sqrt{21}i}{112} & 0 & 0 & \frac{\sqrt{70}i}{112} & 0 & \frac{\sqrt{14}i}{56} & 0 & -\frac{\sqrt{210}i}{112} & 0 & 0 \\ 0 & \frac{23\sqrt{3}i}{336} & 0 & \frac{3\sqrt{6}i}{112} & 0 & \frac{5\sqrt{15}i}{112} & -\frac{\sqrt{70}i}{112} & 0 & -\frac{\sqrt{30}i}{42} & 0 & -\frac{\sqrt{2}i}{112} & 0 & -\frac{3\sqrt{10}i}{56} & 0 \\ -\frac{5\sqrt{5}i}{112} & 0 & -\frac{11\sqrt{2}i}{112} & 0 & \frac{3i}{112} & 0 & 0 & \frac{\sqrt{30}i}{42} & 0 & \frac{\sqrt{6}i}{336} & 0 & -\frac{\sqrt{10}i}{56} & 0 & -\frac{\sqrt{210}i}{112} \\ 0 & \frac{13\sqrt{15}i}{336} & 0 & -\frac{\sqrt{30}i}{336} & 0 & -\frac{5\sqrt{3}i}{112} & -\frac{\sqrt{14}i}{56} & 0 & -\frac{\sqrt{6}i}{336} & 0 & \frac{\sqrt{10}i}{28} & 0 & -\frac{\sqrt{2}i}{112} & 0 \\ -\frac{5\sqrt{3}i}{112} & 0 & -\frac{\sqrt{30}i}{336} & 0 & \frac{13\sqrt{15}i}{336} & 0 & 0 & \frac{\sqrt{2}i}{112} & 0 & -\frac{\sqrt{10}i}{28} & 0 & \frac{\sqrt{6}i}{336} & 0 & \frac{\sqrt{14}i}{56} \\ 0 & \frac{3i}{112} & 0 & -\frac{11\sqrt{2}i}{112} & 0 & -\frac{5\sqrt{5}i}{112} & \frac{\sqrt{210}i}{112} & 0 & \frac{\sqrt{10}i}{56} & 0 & -\frac{\sqrt{6}i}{336} & 0 & -\frac{\sqrt{30}i}{42} & 0 \\ \frac{5\sqrt{15}i}{112} & 0 & \frac{3\sqrt{6}i}{112} & 0 & \frac{23\sqrt{3}i}{336} & 0 & 0 & \frac{3\sqrt{10}i}{56} & 0 & \frac{\sqrt{2}i}{112} & 0 & \frac{\sqrt{30}i}{42} & 0 & \frac{\sqrt{70}i}{112} \\ 0 & \frac{5\sqrt{21}i}{112} & 0 & -\frac{\sqrt{42}i}{112} & 0 & -\frac{\sqrt{105}i}{336} & 0 & 0 & \frac{\sqrt{210}i}{112} & 0 & -\frac{\sqrt{14}i}{56} & 0 & -\frac{\sqrt{70}i}{112} & 0 \end{bmatrix}$$

$$\begin{aligned}
\boxed{\text{x493}} \quad \mathbb{M}_5^{(1,-1;a)}(A_{1g}) &= \begin{bmatrix} 0 & 0 & 0 & 0 & \frac{\sqrt{55i}}{154} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{22i}}{77} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{55i}}{154} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{330i}}{385} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{2\sqrt{1155i}}{385} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{2\sqrt{1155i}}{385} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{55i}}{154} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{330i}}{385} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{55i}}{154} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{22i}}{77} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{2\sqrt{1155i}}{385} & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{385i}}{154} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{330i}}{385} & 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{33i}}{154} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{22i}}{77} & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{33i}}{154} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{385i}}{154} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{385i}}{154} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{3\sqrt{22i}}{77} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{33i}}{154} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{330i}}{385} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{33i}}{154} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{2\sqrt{1155i}}{385} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{385i}}{154} & 0 & 0 & 0 & 0 \end{bmatrix} \\
\boxed{\text{x494}} \quad \mathbb{M}_7^{(1,-1;a)}(A_{1g}) &= \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{130i}}{52} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{546i}}{52} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{546i}}{52} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{130i}}{52} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{130i}}{52} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{546i}}{52} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{546i}}{52} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{130i}}{52} & 0 & 0 & 0 & 0 & 0 \end{bmatrix}
\end{aligned}$$

x494

$$\begin{aligned}
\boxed{\text{x495}} \quad \mathbb{M}_1^{(1,-1;a)}(A_{2g}) = & \begin{bmatrix} -\frac{5\sqrt{14}}{98} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{2\sqrt{21}}{49} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{3\sqrt{14}}{98} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{2\sqrt{35}}{49} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{14}}{98} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{2\sqrt{42}}{49} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{14}}{98} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{2\sqrt{42}}{49} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{3\sqrt{14}}{98} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{2\sqrt{35}}{49} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{14}}{98} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{2\sqrt{21}}{49} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}}{14} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{2\sqrt{21}}{49} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{14}}{98} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{2\sqrt{35}}{49} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{14}}{98} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{2\sqrt{42}}{49} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}}{98} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{2\sqrt{42}}{49} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}}{98} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{2\sqrt{35}}{49} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{14}}{98} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{2\sqrt{21}}{49} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{14}}{98} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}}{14} \end{bmatrix} \\
\boxed{\text{x496}} \quad \mathbb{M}_3^{(1,-1;a)}(A_{2g}) = & \begin{bmatrix} \frac{\sqrt{70}}{98} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{4\sqrt{105}}{147} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{70}}{70} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{2\sqrt{70}}{245} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{2\sqrt{210}}{147} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{2\sqrt{70}}{245} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{2\sqrt{210}}{147} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{70}}{70} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}}{98} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{4\sqrt{105}}{147} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{4\sqrt{105}}{147} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{70}}{196} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{70}}{28} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{2\sqrt{210}}{147} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{70}}{196} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{2\sqrt{210}}{147} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{70}}{196} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}}{28} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{4\sqrt{105}}{147} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{70}}{196} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{70}}{28} \end{bmatrix}
\end{aligned}$$

$$\boxed{\text{x497}} \quad \mathbb{M}_5^{(1,-1;a)}(A_{2g}, 1) = \begin{bmatrix} -\frac{\sqrt{385}}{3234} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2310}}{539} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{5\sqrt{385}}{3234} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{9\sqrt{154}}{539} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{5\sqrt{385}}{1617} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{2\sqrt{1155}}{539} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{5\sqrt{385}}{1617} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{2\sqrt{1155}}{539} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{5\sqrt{385}}{3234} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{9\sqrt{154}}{539} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{385}}{3234} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2310}}{539} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{385}}{154} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{2310}}{539} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{23\sqrt{385}}{1078} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{9\sqrt{154}}{539} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{17\sqrt{385}}{1078} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{2\sqrt{1155}}{539} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{15\sqrt{385}}{1078} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{2\sqrt{1155}}{539} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{15\sqrt{385}}{1078} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{9\sqrt{154}}{539} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{17\sqrt{385}}{1078} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2310}}{539} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{23\sqrt{385}}{1078} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{385}}{154} \end{bmatrix}$$

$$\boxed{\text{x498}} \quad \mathbb{M}_5^{(1,-1;a)}(A_{2g}, 2) = \begin{bmatrix} 0 & 0 & 0 & 0 & -\frac{\sqrt{55}}{154} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{22}}{77} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{55}}{154} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{330}}{385} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{2\sqrt{1155}}{385} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{2\sqrt{1155}}{385} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{55}}{154} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{330}}{385} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{55}}{154} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{22}}{77} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{2\sqrt{1155}}{385} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{385}}{154} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{330}}{385} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{33}}{154} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{22}}{77} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{33}}{154} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{385}}{154} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{385}}{154} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{3\sqrt{22}}{77} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{33}}{154} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{330}}{385} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{33}}{154} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{2\sqrt{1155}}{385} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{385}}{154} & 0 & 0 & 0 & 0 \end{bmatrix}$$

x499

x500



$$\boxed{\text{x501}} \quad \mathbb{M}_3^{(1,-1;a)}(B_{1g}) = \begin{bmatrix} 0 & 0 & -\frac{\sqrt{105}i}{98} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{4\sqrt{35}i}{147} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{21}i}{98} & 0 & 0 & -\frac{2\sqrt{5}i}{21} & 0 & 0 & 0 & -\frac{10\sqrt{7}i}{147} & 0 & 0 & 0 \\ \frac{\sqrt{105}i}{98} & 0 & 0 & 0 & \frac{\sqrt{21}i}{98} & 0 & 0 & -\frac{\sqrt{70}i}{147} & 0 & 0 & 0 & -\frac{\sqrt{210}i}{147} & 0 & 0 \\ 0 & \frac{\sqrt{21}i}{98} & 0 & 0 & 0 & \frac{\sqrt{105}i}{98} & 0 & 0 & \frac{\sqrt{210}i}{147} & 0 & 0 & 0 & \frac{\sqrt{70}i}{147} & 0 \\ 0 & 0 & -\frac{\sqrt{21}i}{98} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{10\sqrt{7}i}{147} & 0 & 0 & 0 & \frac{2\sqrt{5}i}{21} \\ 0 & 0 & 0 & -\frac{\sqrt{105}i}{98} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{4\sqrt{35}i}{147} & 0 & 0 & 0 \\ 0 & \frac{2\sqrt{5}i}{21} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{2}i}{28} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{70}i}{147} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{210}i}{196} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{210}i}{147} & 0 & 0 & -\frac{5\sqrt{2}i}{28} & 0 & 0 & 0 & \frac{\sqrt{70}i}{98} & 0 & 0 & 0 \\ \frac{4\sqrt{35}i}{147} & 0 & 0 & 0 & -\frac{10\sqrt{7}i}{147} & 0 & 0 & -\frac{3\sqrt{210}i}{196} & 0 & 0 & 0 & -\frac{\sqrt{70}i}{98} & 0 & 0 \\ 0 & \frac{10\sqrt{7}i}{147} & 0 & 0 & 0 & -\frac{4\sqrt{35}i}{147} & 0 & 0 & -\frac{\sqrt{70}i}{98} & 0 & 0 & 0 & -\frac{3\sqrt{210}i}{196} & 0 \\ 0 & 0 & \frac{\sqrt{210}i}{147} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{70}i}{98} & 0 & 0 & 0 & -\frac{5\sqrt{2}i}{28} \\ 0 & 0 & 0 & -\frac{\sqrt{70}i}{147} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{210}i}{196} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{2\sqrt{5}i}{21} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{2}i}{28} & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x502}} \quad \mathbb{M}_5^{(1,-1;a)}(B_{1g}) = \begin{bmatrix} 0 & 0 & -\frac{\sqrt{330}i}{924} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{110}i}{77} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{5\sqrt{66}i}{924} & 0 & 0 & -\frac{\sqrt{770}i}{385} & 0 & 0 & 0 & \frac{2\sqrt{22}i}{77} & 0 & 0 & 0 \\ \frac{\sqrt{330}i}{924} & 0 & 0 & 0 & -\frac{5\sqrt{66}i}{924} & 0 & 0 & \frac{8\sqrt{55}i}{385} & 0 & 0 & 0 & \frac{2\sqrt{165}i}{385} & 0 & 0 \\ 0 & -\frac{5\sqrt{66}i}{924} & 0 & 0 & 0 & \frac{\sqrt{330}i}{924} & 0 & 0 & -\frac{2\sqrt{165}i}{385} & 0 & 0 & 0 & -\frac{8\sqrt{55}i}{385} & 0 \\ 0 & 0 & \frac{5\sqrt{66}i}{924} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{2\sqrt{22}i}{77} & 0 & 0 & 0 & \frac{\sqrt{770}i}{385} \\ 0 & 0 & 0 & -\frac{\sqrt{330}i}{924} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{110}i}{77} & 0 & 0 & 0 \\ 0 & \frac{\sqrt{770}i}{385} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{77}i}{154} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{8\sqrt{55}i}{385} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{165}i}{154} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{2\sqrt{165}i}{385} & 0 & 0 & -\frac{5\sqrt{77}i}{154} & 0 & 0 & 0 & -\frac{2\sqrt{55}i}{77} & 0 & 0 & 0 \\ \frac{\sqrt{110}i}{77} & 0 & 0 & 0 & \frac{2\sqrt{22}i}{77} & 0 & 0 & \frac{3\sqrt{165}i}{154} & 0 & 0 & 0 & \frac{2\sqrt{55}i}{77} & 0 & 0 \\ 0 & -\frac{2\sqrt{22}i}{77} & 0 & 0 & 0 & -\frac{\sqrt{110}i}{77} & 0 & 0 & \frac{2\sqrt{55}i}{77} & 0 & 0 & 0 & \frac{3\sqrt{165}i}{154} & 0 \\ 0 & 0 & -\frac{2\sqrt{165}i}{385} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{2\sqrt{55}i}{77} & 0 & 0 & 0 & -\frac{5\sqrt{77}i}{154} \\ 0 & 0 & 0 & \frac{8\sqrt{55}i}{385} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{165}i}{154} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{770}i}{385} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{77}i}{154} & 0 & 0 \end{bmatrix}$$

x503

x504

$$\boxed{\text{x505}} \quad \mathbb{M}_3^{(1,-1;a)}(B_{2g}) = \begin{bmatrix} 0 & 0 & \frac{\sqrt{105}}{98} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{4\sqrt{35}}{147} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{21}}{98} & 0 & 0 & -\frac{2\sqrt{5}}{21} & 0 & 0 & 0 & \frac{10\sqrt{7}}{147} & 0 & 0 & 0 \\ \frac{\sqrt{105}}{98} & 0 & 0 & 0 & -\frac{\sqrt{21}}{98} & 0 & 0 & -\frac{\sqrt{70}}{147} & 0 & 0 & 0 & \frac{\sqrt{210}}{147} & 0 & 0 \\ 0 & \frac{\sqrt{21}}{98} & 0 & 0 & 0 & -\frac{\sqrt{105}}{98} & 0 & 0 & \frac{\sqrt{210}}{147} & 0 & 0 & 0 & -\frac{\sqrt{70}}{147} & 0 \\ 0 & 0 & -\frac{\sqrt{21}}{98} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{10\sqrt{7}}{147} & 0 & 0 & 0 & -\frac{2\sqrt{5}}{21} \\ 0 & 0 & 0 & -\frac{\sqrt{105}}{98} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{4\sqrt{35}}{147} & 0 & 0 & 0 \\ 0 & -\frac{2\sqrt{5}}{21} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{2}}{28} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{70}}{147} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{210}}{196} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{210}}{147} & 0 & 0 & -\frac{5\sqrt{2}}{28} & 0 & 0 & 0 & -\frac{\sqrt{70}}{98} & 0 & 0 & 0 \\ \frac{4\sqrt{35}}{147} & 0 & 0 & 0 & \frac{10\sqrt{7}}{147} & 0 & 0 & -\frac{3\sqrt{210}}{196} & 0 & 0 & 0 & \frac{\sqrt{70}}{98} & 0 & 0 \\ 0 & \frac{10\sqrt{7}}{147} & 0 & 0 & 0 & \frac{4\sqrt{35}}{147} & 0 & 0 & -\frac{\sqrt{70}}{98} & 0 & 0 & 0 & \frac{3\sqrt{210}}{196} & 0 \\ 0 & 0 & \frac{\sqrt{210}}{147} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{70}}{98} & 0 & 0 & 0 & \frac{5\sqrt{2}}{28} \\ 0 & 0 & 0 & -\frac{\sqrt{70}}{147} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{210}}{196} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{2\sqrt{5}}{21} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{2}}{28} & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x506}} \quad \mathbb{M}_5^{(1,-1;a)}(B_{2g}) = \begin{bmatrix} 0 & 0 & -\frac{\sqrt{330}}{924} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{110}}{77} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{5\sqrt{66}}{924} & 0 & 0 & \frac{\sqrt{770}}{385} & 0 & 0 & 0 & \frac{2\sqrt{22}}{77} & 0 & 0 & 0 \\ -\frac{\sqrt{330}}{924} & 0 & 0 & 0 & -\frac{5\sqrt{66}}{924} & 0 & 0 & -\frac{8\sqrt{55}}{385} & 0 & 0 & 0 & \frac{2\sqrt{165}}{385} & 0 & 0 \\ 0 & \frac{5\sqrt{66}}{924} & 0 & 0 & 0 & \frac{\sqrt{330}}{924} & 0 & 0 & \frac{2\sqrt{165}}{385} & 0 & 0 & 0 & -\frac{8\sqrt{55}}{385} & 0 \\ 0 & 0 & -\frac{5\sqrt{66}}{924} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{2\sqrt{22}}{77} & 0 & 0 & 0 & \frac{\sqrt{770}}{385} \\ 0 & 0 & 0 & \frac{\sqrt{330}}{924} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{110}}{77} & 0 & 0 & 0 \\ 0 & \frac{\sqrt{770}}{385} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{77}}{154} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{8\sqrt{55}}{385} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{165}}{154} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{2\sqrt{165}}{385} & 0 & 0 & \frac{5\sqrt{77}}{154} & 0 & 0 & 0 & -\frac{2\sqrt{55}}{77} & 0 & 0 & 0 \\ -\frac{\sqrt{110}}{77} & 0 & 0 & 0 & \frac{2\sqrt{22}}{77} & 0 & 0 & -\frac{3\sqrt{165}}{154} & 0 & 0 & 0 & \frac{2\sqrt{55}}{77} & 0 & 0 \\ 0 & \frac{2\sqrt{22}}{77} & 0 & 0 & 0 & -\frac{\sqrt{110}}{77} & 0 & 0 & -\frac{2\sqrt{55}}{77} & 0 & 0 & 0 & \frac{3\sqrt{165}}{154} & 0 \\ 0 & 0 & \frac{2\sqrt{165}}{385} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{2\sqrt{55}}{77} & 0 & 0 & 0 & -\frac{5\sqrt{77}}{154} \\ 0 & 0 & 0 & -\frac{8\sqrt{55}}{385} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{165}}{154} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{770}}{385} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{77}}{154} & 0 & 0 \end{bmatrix}$$

x507

x508

$$\boxed{\text{x509}} \quad \mathbb{M}_{1,1}^{(1,-1;a)}(E_g) = \begin{bmatrix} 0 & -\frac{\sqrt{70}}{98} & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{7} & 0 & -\frac{\sqrt{7}}{49} & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{70}}{98} & 0 & -\frac{2\sqrt{7}}{49} & 0 & 0 & 0 & 0 & \frac{\sqrt{105}}{49} & 0 & -\frac{\sqrt{21}}{49} & 0 & 0 & 0 & 0 \\ 0 & -\frac{2\sqrt{7}}{49} & 0 & -\frac{3\sqrt{14}}{98} & 0 & 0 & 0 & 0 & \frac{\sqrt{70}}{49} & 0 & -\frac{\sqrt{42}}{49} & 0 & 0 & 0 \\ 0 & 0 & -\frac{3\sqrt{14}}{98} & 0 & -\frac{2\sqrt{7}}{49} & 0 & 0 & 0 & 0 & \frac{\sqrt{42}}{49} & 0 & -\frac{\sqrt{70}}{49} & 0 & 0 \\ 0 & 0 & 0 & -\frac{2\sqrt{7}}{49} & 0 & -\frac{\sqrt{70}}{98} & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{49} & 0 & -\frac{\sqrt{105}}{49} & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{70}}{98} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{49} & 0 & -\frac{\sqrt{3}}{7} \\ \frac{\sqrt{3}}{7} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{14} & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{105}}{49} & 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{14} & 0 & \frac{\sqrt{42}}{49} & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{7}}{49} & 0 & \frac{\sqrt{70}}{49} & 0 & 0 & 0 & 0 & \frac{\sqrt{42}}{49} & 0 & \frac{\sqrt{210}}{98} & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{21}}{49} & 0 & \frac{\sqrt{42}}{49} & 0 & 0 & 0 & 0 & \frac{\sqrt{210}}{98} & 0 & \frac{2\sqrt{14}}{49} & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{42}}{49} & 0 & \frac{\sqrt{21}}{49} & 0 & 0 & 0 & 0 & \frac{2\sqrt{14}}{49} & 0 & \frac{\sqrt{210}}{98} & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{70}}{49} & 0 & \frac{\sqrt{7}}{49} & 0 & 0 & 0 & 0 & \frac{\sqrt{210}}{98} & 0 & \frac{\sqrt{42}}{49} & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{49} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{42}}{49} & 0 & \frac{\sqrt{2}}{14} \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{7} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{14} & 0 \end{bmatrix}$$

$$\boxed{\text{x510}} \quad \mathbb{M}_{1,2}^{(1,-1;a)}(E_g) = \begin{bmatrix} 0 & -\frac{\sqrt{70}i}{98} & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{7} & 0 & -\frac{\sqrt{7}i}{49} & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{70}i}{98} & 0 & -\frac{2\sqrt{7}i}{49} & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}i}{49} & 0 & -\frac{\sqrt{21}i}{49} & 0 & 0 & 0 & 0 \\ 0 & \frac{2\sqrt{7}i}{49} & 0 & -\frac{3\sqrt{14}i}{98} & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}i}{49} & 0 & -\frac{\sqrt{42}i}{49} & 0 & 0 & 0 \\ 0 & 0 & \frac{3\sqrt{14}i}{98} & 0 & -\frac{2\sqrt{7}i}{49} & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}i}{49} & 0 & -\frac{\sqrt{70}i}{49} & 0 & 0 \\ 0 & 0 & 0 & \frac{2\sqrt{7}i}{49} & 0 & -\frac{\sqrt{70}i}{98} & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}i}{49} & 0 & -\frac{\sqrt{105}i}{49} & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{70}i}{98} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}i}{49} & 0 & -\frac{\sqrt{3}i}{7} \\ \frac{\sqrt{3}i}{7} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{14} & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{105}i}{49} & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{14} & 0 & \frac{\sqrt{42}i}{49} & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{7}i}{49} & 0 & \frac{\sqrt{70}i}{49} & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}i}{49} & 0 & \frac{\sqrt{210}i}{98} & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{21}i}{49} & 0 & \frac{\sqrt{42}i}{49} & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}i}{98} & 0 & \frac{2\sqrt{14}i}{49} & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{42}i}{49} & 0 & \frac{\sqrt{21}i}{49} & 0 & 0 & 0 & 0 & -\frac{2\sqrt{14}i}{49} & 0 & \frac{\sqrt{210}i}{98} & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{70}i}{49} & 0 & \frac{\sqrt{7}i}{49} & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}i}{98} & 0 & \frac{\sqrt{42}i}{49} & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{49} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}i}{49} & 0 & \frac{\sqrt{2}i}{14} \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{7} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{14} & 0 \end{bmatrix}$$

$$\begin{aligned}
\boxed{\text{x511}} \quad \mathbb{M}_{3,1}^{(1,-1;a)}(E_g, 1) = & \begin{bmatrix} 0 & -\frac{3\sqrt{14}}{196} & 0 & \frac{5\sqrt{7}}{196} & 0 & 0 & \frac{\sqrt{15}}{42} & 0 & -\frac{\sqrt{35}}{49} & 0 & \frac{5\sqrt{21}}{294} & 0 & 0 & 0 \\ -\frac{3\sqrt{14}}{196} & 0 & \frac{3\sqrt{35}}{980} & 0 & \frac{\sqrt{70}}{98} & 0 & 0 & -\frac{5\sqrt{21}}{294} & 0 & -\frac{\sqrt{105}}{147} & 0 & \frac{5\sqrt{7}}{98} & 0 & 0 \\ 0 & \frac{3\sqrt{35}}{980} & 0 & \frac{3\sqrt{70}}{490} & 0 & \frac{5\sqrt{7}}{196} & -\frac{5\sqrt{6}}{84} & 0 & -\frac{5\sqrt{14}}{196} & 0 & \frac{\sqrt{210}}{588} & 0 & \frac{5\sqrt{42}}{196} & 0 \\ \frac{5\sqrt{7}}{196} & 0 & \frac{3\sqrt{70}}{490} & 0 & \frac{3\sqrt{35}}{980} & 0 & 0 & -\frac{5\sqrt{42}}{196} & 0 & -\frac{\sqrt{210}}{588} & 0 & \frac{5\sqrt{14}}{196} & 0 & \frac{5\sqrt{6}}{84} \\ 0 & \frac{\sqrt{70}}{98} & 0 & \frac{3\sqrt{35}}{980} & 0 & -\frac{3\sqrt{14}}{196} & 0 & 0 & -\frac{5\sqrt{7}}{98} & 0 & \frac{\sqrt{105}}{147} & 0 & \frac{5\sqrt{21}}{294} & 0 \\ 0 & 0 & \frac{5\sqrt{7}}{196} & 0 & -\frac{3\sqrt{14}}{196} & 0 & 0 & 0 & 0 & -\frac{5\sqrt{21}}{294} & 0 & \frac{\sqrt{35}}{49} & 0 & -\frac{\sqrt{15}}{42} \\ \frac{\sqrt{15}}{42} & 0 & -\frac{5\sqrt{6}}{84} & 0 & 0 & 0 & 0 & \frac{3\sqrt{10}}{56} & 0 & -\frac{5\sqrt{2}}{56} & 0 & 0 & 0 & 0 \\ 0 & -\frac{5\sqrt{21}}{294} & 0 & -\frac{5\sqrt{42}}{196} & 0 & 0 & \frac{3\sqrt{10}}{56} & 0 & \frac{\sqrt{210}}{392} & 0 & -\frac{5\sqrt{14}}{98} & 0 & 0 & 0 \\ -\frac{\sqrt{35}}{49} & 0 & -\frac{5\sqrt{14}}{196} & 0 & -\frac{5\sqrt{7}}{98} & 0 & 0 & \frac{\sqrt{210}}{392} & 0 & -\frac{5\sqrt{42}}{392} & 0 & -\frac{5\sqrt{70}}{196} & 0 & 0 \\ 0 & -\frac{\sqrt{105}}{147} & 0 & -\frac{\sqrt{210}}{588} & 0 & -\frac{5\sqrt{21}}{294} & -\frac{5\sqrt{2}}{56} & 0 & -\frac{5\sqrt{42}}{392} & 0 & -\frac{3\sqrt{70}}{196} & 0 & -\frac{5\sqrt{14}}{98} & 0 \\ \frac{5\sqrt{21}}{294} & 0 & \frac{\sqrt{210}}{588} & 0 & \frac{\sqrt{105}}{147} & 0 & 0 & -\frac{5\sqrt{14}}{98} & 0 & -\frac{3\sqrt{70}}{196} & 0 & -\frac{5\sqrt{42}}{392} & 0 & -\frac{5\sqrt{2}}{56} \\ 0 & \frac{5\sqrt{7}}{98} & 0 & \frac{5\sqrt{14}}{196} & 0 & \frac{\sqrt{35}}{49} & 0 & 0 & -\frac{5\sqrt{70}}{196} & 0 & -\frac{5\sqrt{42}}{392} & 0 & \frac{\sqrt{210}}{392} & 0 \\ 0 & 0 & \frac{5\sqrt{42}}{196} & 0 & \frac{5\sqrt{21}}{294} & 0 & 0 & 0 & 0 & -\frac{5\sqrt{14}}{98} & 0 & \frac{\sqrt{210}}{392} & 0 & \frac{3\sqrt{10}}{56} \\ 0 & 0 & 0 & \frac{5\sqrt{6}}{84} & 0 & -\frac{\sqrt{15}}{42} & 0 & 0 & 0 & 0 & -\frac{5\sqrt{2}}{56} & 0 & \frac{3\sqrt{10}}{56} & 0 \end{bmatrix} \\
\boxed{\text{x512}} \quad \mathbb{M}_{3,2}^{(1,-1;a)}(E_g, 1) = & \begin{bmatrix} 0 & -\frac{3\sqrt{14}i}{196} & 0 & -\frac{5\sqrt{7}i}{196} & 0 & 0 & -\frac{\sqrt{15}i}{42} & 0 & -\frac{\sqrt{35}i}{49} & 0 & -\frac{5\sqrt{21}i}{294} & 0 & 0 & 0 \\ \frac{3\sqrt{14}i}{196} & 0 & \frac{3\sqrt{35}i}{980} & 0 & -\frac{\sqrt{70}i}{98} & 0 & 0 & \frac{5\sqrt{21}i}{294} & 0 & -\frac{\sqrt{105}i}{147} & 0 & -\frac{5\sqrt{7}i}{98} & 0 & 0 \\ 0 & -\frac{3\sqrt{35}i}{980} & 0 & \frac{3\sqrt{70}i}{490} & 0 & -\frac{5\sqrt{7}i}{196} & -\frac{5\sqrt{6}i}{84} & 0 & \frac{5\sqrt{14}i}{196} & 0 & \frac{\sqrt{210}i}{588} & 0 & -\frac{5\sqrt{42}i}{196} & 0 \\ \frac{5\sqrt{7}i}{196} & 0 & -\frac{3\sqrt{70}i}{490} & 0 & \frac{3\sqrt{35}i}{980} & 0 & 0 & -\frac{5\sqrt{42}i}{196} & 0 & \frac{\sqrt{210}i}{588} & 0 & \frac{5\sqrt{14}i}{196} & 0 & -\frac{5\sqrt{6}i}{84} \\ 0 & \frac{\sqrt{70}i}{98} & 0 & -\frac{3\sqrt{35}i}{980} & 0 & -\frac{3\sqrt{14}i}{196} & 0 & 0 & -\frac{5\sqrt{7}i}{98} & 0 & -\frac{\sqrt{105}i}{147} & 0 & \frac{5\sqrt{21}i}{294} & 0 \\ 0 & 0 & \frac{5\sqrt{7}i}{196} & 0 & \frac{3\sqrt{14}i}{196} & 0 & 0 & 0 & 0 & -\frac{5\sqrt{21}i}{294} & 0 & -\frac{\sqrt{35}i}{49} & 0 & -\frac{\sqrt{15}i}{42} \\ \frac{\sqrt{15}i}{42} & 0 & \frac{5\sqrt{6}i}{84} & 0 & 0 & 0 & 0 & \frac{3\sqrt{10}i}{56} & 0 & \frac{5\sqrt{2}i}{56} & 0 & 0 & 0 & 0 \\ 0 & -\frac{5\sqrt{21}i}{294} & 0 & \frac{5\sqrt{42}i}{196} & 0 & 0 & -\frac{3\sqrt{10}i}{56} & 0 & \frac{\sqrt{210}i}{392} & 0 & \frac{5\sqrt{14}i}{98} & 0 & 0 & 0 \\ \frac{\sqrt{35}i}{49} & 0 & -\frac{5\sqrt{14}i}{196} & 0 & \frac{5\sqrt{7}i}{98} & 0 & 0 & -\frac{\sqrt{210}i}{392} & 0 & -\frac{5\sqrt{42}i}{392} & 0 & \frac{5\sqrt{70}i}{196} & 0 & 0 \\ 0 & \frac{\sqrt{105}i}{147} & 0 & -\frac{\sqrt{210}i}{588} & 0 & \frac{5\sqrt{21}i}{294} & -\frac{5\sqrt{2}i}{56} & 0 & \frac{5\sqrt{42}i}{392} & 0 & -\frac{3\sqrt{70}i}{196} & 0 & \frac{5\sqrt{14}i}{98} & 0 \\ \frac{5\sqrt{21}i}{294} & 0 & -\frac{\sqrt{210}i}{588} & 0 & \frac{\sqrt{105}i}{147} & 0 & 0 & -\frac{5\sqrt{14}i}{98} & 0 & \frac{3\sqrt{70}i}{196} & 0 & -\frac{5\sqrt{42}i}{392} & 0 & \frac{5\sqrt{2}i}{56} \\ 0 & \frac{5\sqrt{7}i}{98} & 0 & -\frac{5\sqrt{14}i}{196} & 0 & \frac{\sqrt{35}i}{49} & 0 & 0 & -\frac{5\sqrt{70}i}{196} & 0 & \frac{5\sqrt{42}i}{392} & 0 & \frac{\sqrt{210}i}{392} & 0 \\ 0 & 0 & \frac{5\sqrt{42}i}{196} & 0 & -\frac{5\sqrt{21}i}{294} & 0 & 0 & 0 & 0 & -\frac{5\sqrt{14}i}{98} & 0 & -\frac{\sqrt{210}i}{392} & 0 & \frac{3\sqrt{10}i}{56} \\ 0 & 0 & 0 & \frac{5\sqrt{6}i}{84} & 0 & \frac{\sqrt{15}i}{42} & 0 & 0 & 0 & 0 & -\frac{5\sqrt{2}i}{56} & 0 & -\frac{3\sqrt{10}i}{56} & 0 \end{bmatrix}
\end{aligned}$$

$$\begin{aligned}
\boxed{\text{x513}} \quad \mathbb{M}_{3,1}^{(1,-1;a)}(E_g, 2) = & \begin{bmatrix} 0 & -\frac{\sqrt{210}}{196} & 0 & -\frac{\sqrt{105}}{196} & 0 & 0 & \frac{5}{42} & 0 & -\frac{5\sqrt{21}}{147} & 0 & -\frac{\sqrt{35}}{98} & 0 & 0 & 0 \\ -\frac{\sqrt{210}}{196} & 0 & \frac{\sqrt{21}}{196} & 0 & -\frac{\sqrt{42}}{98} & 0 & 0 & -\frac{5\sqrt{35}}{294} & 0 & -\frac{5\sqrt{7}}{147} & 0 & -\frac{\sqrt{105}}{98} & 0 & 0 \\ 0 & \frac{\sqrt{21}}{196} & 0 & \frac{\sqrt{42}}{98} & 0 & -\frac{\sqrt{105}}{196} & \frac{\sqrt{10}}{28} & 0 & -\frac{5\sqrt{210}}{588} & 0 & \frac{5\sqrt{14}}{588} & 0 & -\frac{3\sqrt{70}}{196} & 0 \\ -\frac{\sqrt{105}}{196} & 0 & \frac{\sqrt{42}}{98} & 0 & \frac{\sqrt{21}}{196} & 0 & 0 & \frac{3\sqrt{70}}{196} & 0 & -\frac{5\sqrt{14}}{588} & 0 & \frac{5\sqrt{210}}{588} & 0 & -\frac{\sqrt{10}}{28} \\ 0 & -\frac{\sqrt{42}}{98} & 0 & \frac{\sqrt{21}}{196} & 0 & -\frac{\sqrt{210}}{196} & 0 & 0 & \frac{\sqrt{105}}{98} & 0 & \frac{5\sqrt{7}}{147} & 0 & \frac{5\sqrt{35}}{294} & 0 \\ 0 & 0 & -\frac{\sqrt{105}}{196} & 0 & -\frac{\sqrt{210}}{196} & 0 & 0 & 0 & 0 & \frac{\sqrt{35}}{98} & 0 & \frac{5\sqrt{21}}{147} & 0 & -\frac{5}{42} \\ \frac{5}{42} & 0 & \frac{\sqrt{10}}{28} & 0 & 0 & 0 & 0 & \frac{5\sqrt{6}}{56} & 0 & \frac{\sqrt{30}}{56} & 0 & 0 & 0 & 0 \\ 0 & -\frac{5\sqrt{35}}{294} & 0 & \frac{3\sqrt{70}}{196} & 0 & 0 & \frac{5\sqrt{6}}{56} & 0 & \frac{5\sqrt{14}}{392} & 0 & \frac{\sqrt{210}}{98} & 0 & 0 & 0 \\ -\frac{5\sqrt{21}}{147} & 0 & -\frac{5\sqrt{210}}{588} & 0 & \frac{\sqrt{105}}{98} & 0 & 0 & \frac{5\sqrt{14}}{392} & 0 & -\frac{5\sqrt{70}}{392} & 0 & \frac{5\sqrt{42}}{196} & 0 & 0 \\ 0 & -\frac{5\sqrt{7}}{147} & 0 & -\frac{5\sqrt{14}}{588} & 0 & \frac{\sqrt{35}}{98} & \frac{\sqrt{30}}{56} & 0 & -\frac{5\sqrt{70}}{392} & 0 & -\frac{5\sqrt{42}}{196} & 0 & \frac{\sqrt{210}}{98} & 0 \\ -\frac{\sqrt{35}}{98} & 0 & \frac{5\sqrt{14}}{588} & 0 & \frac{5\sqrt{7}}{147} & 0 & 0 & \frac{\sqrt{210}}{98} & 0 & -\frac{5\sqrt{42}}{196} & 0 & -\frac{5\sqrt{70}}{392} & 0 & \frac{\sqrt{30}}{56} \\ 0 & -\frac{\sqrt{105}}{98} & 0 & \frac{5\sqrt{210}}{588} & 0 & \frac{5\sqrt{21}}{147} & 0 & 0 & \frac{5\sqrt{42}}{196} & 0 & -\frac{5\sqrt{70}}{392} & 0 & \frac{5\sqrt{14}}{392} & 0 \\ 0 & 0 & -\frac{3\sqrt{70}}{196} & 0 & \frac{5\sqrt{35}}{294} & 0 & 0 & 0 & 0 & \frac{\sqrt{210}}{98} & 0 & \frac{5\sqrt{14}}{392} & 0 & \frac{5\sqrt{6}}{56} \\ 0 & 0 & 0 & -\frac{\sqrt{10}}{28} & 0 & -\frac{5}{42} & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{56} & 0 & \frac{5\sqrt{6}}{56} & 0 \end{bmatrix} \\
\boxed{\text{x514}} \quad \mathbb{M}_{3,2}^{(1,-1;a)}(E_g, 2) = & \begin{bmatrix} 0 & -\frac{\sqrt{210}i}{196} & 0 & \frac{\sqrt{105}i}{196} & 0 & 0 & -\frac{5i}{42} & 0 & -\frac{5\sqrt{21}i}{147} & 0 & \frac{\sqrt{35}i}{98} & 0 & 0 & 0 \\ \frac{\sqrt{210}i}{196} & 0 & \frac{\sqrt{21}i}{196} & 0 & \frac{\sqrt{42}i}{98} & 0 & 0 & \frac{5\sqrt{35}i}{294} & 0 & -\frac{5\sqrt{7}i}{147} & 0 & \frac{\sqrt{105}i}{98} & 0 & 0 \\ 0 & -\frac{\sqrt{21}i}{196} & 0 & \frac{\sqrt{42}i}{98} & 0 & \frac{\sqrt{105}i}{196} & \frac{\sqrt{10}i}{28} & 0 & \frac{5\sqrt{210}i}{588} & 0 & \frac{5\sqrt{14}i}{588} & 0 & \frac{3\sqrt{70}i}{196} & 0 \\ -\frac{\sqrt{105}i}{196} & 0 & -\frac{\sqrt{42}i}{98} & 0 & \frac{\sqrt{21}i}{196} & 0 & 0 & \frac{3\sqrt{70}i}{196} & 0 & \frac{5\sqrt{14}i}{588} & 0 & \frac{5\sqrt{210}i}{588} & 0 & \frac{\sqrt{10}i}{28} \\ 0 & -\frac{\sqrt{42}i}{98} & 0 & -\frac{\sqrt{21}i}{196} & 0 & -\frac{\sqrt{210}i}{196} & 0 & 0 & \frac{\sqrt{105}i}{98} & 0 & -\frac{5\sqrt{7}i}{147} & 0 & \frac{5\sqrt{35}i}{294} & 0 \\ 0 & 0 & -\frac{\sqrt{105}i}{196} & 0 & \frac{\sqrt{210}i}{196} & 0 & 0 & 0 & 0 & \frac{\sqrt{35}i}{98} & 0 & -\frac{5\sqrt{21}i}{147} & 0 & -\frac{5i}{42} \\ \frac{5i}{42} & 0 & -\frac{\sqrt{10}i}{28} & 0 & 0 & 0 & 0 & \frac{5\sqrt{6}i}{56} & 0 & -\frac{\sqrt{30}i}{56} & 0 & 0 & 0 & 0 \\ 0 & -\frac{5\sqrt{35}i}{294} & 0 & -\frac{3\sqrt{70}i}{196} & 0 & 0 & -\frac{5\sqrt{6}i}{56} & 0 & \frac{5\sqrt{14}i}{392} & 0 & -\frac{\sqrt{210}i}{98} & 0 & 0 & 0 \\ \frac{5\sqrt{21}i}{147} & 0 & -\frac{5\sqrt{210}i}{588} & 0 & -\frac{\sqrt{105}i}{98} & 0 & 0 & -\frac{5\sqrt{14}i}{392} & 0 & -\frac{5\sqrt{70}i}{392} & 0 & -\frac{5\sqrt{42}i}{196} & 0 & 0 \\ 0 & \frac{5\sqrt{7}i}{147} & 0 & -\frac{5\sqrt{14}i}{588} & 0 & -\frac{\sqrt{35}i}{98} & \frac{\sqrt{30}i}{56} & 0 & \frac{5\sqrt{70}i}{392} & 0 & -\frac{5\sqrt{42}i}{196} & 0 & -\frac{\sqrt{210}i}{98} & 0 \\ -\frac{\sqrt{35}i}{98} & 0 & -\frac{5\sqrt{14}i}{588} & 0 & \frac{5\sqrt{7}i}{147} & 0 & 0 & \frac{\sqrt{210}i}{98} & 0 & \frac{5\sqrt{42}i}{196} & 0 & -\frac{5\sqrt{70}i}{392} & 0 & -\frac{\sqrt{30}i}{56} \\ 0 & -\frac{\sqrt{105}i}{98} & 0 & -\frac{5\sqrt{210}i}{588} & 0 & \frac{5\sqrt{21}i}{147} & 0 & 0 & \frac{5\sqrt{42}i}{196} & 0 & \frac{5\sqrt{70}i}{392} & 0 & \frac{5\sqrt{14}i}{392} & 0 \\ 0 & 0 & -\frac{3\sqrt{70}i}{196} & 0 & -\frac{5\sqrt{35}i}{294} & 0 & 0 & 0 & 0 & \frac{\sqrt{210}i}{98} & 0 & -\frac{5\sqrt{14}i}{392} & 0 & \frac{5\sqrt{6}i}{56} \\ 0 & 0 & 0 & -\frac{\sqrt{10}i}{28} & 0 & \frac{5i}{42} & 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{56} & 0 & -\frac{5\sqrt{6}i}{56} & 0 \end{bmatrix}
\end{aligned}$$

$$\boxed{\text{x515}} \quad \mathbb{M}_{5,1}^{(1,-1;a)}(E_g, 1) = \begin{bmatrix} 0 & -\frac{5\sqrt{77}}{8624} & 0 & \frac{5\sqrt{154}}{3696} & 0 & -\frac{3\sqrt{385}}{1232} & \frac{\sqrt{330}}{1232} & 0 & -\frac{15\sqrt{770}}{8624} & 0 & \frac{5\sqrt{462}}{1232} & 0 & -\frac{3\sqrt{2310}}{1232} & 0 \\ -\frac{5\sqrt{77}}{8624} & 0 & \frac{5\sqrt{770}}{8624} & 0 & -\frac{5\sqrt{385}}{3696} & 0 & 0 & -\frac{23\sqrt{462}}{8624} & 0 & \frac{13\sqrt{2310}}{8624} & 0 & -\frac{3\sqrt{154}}{1232} & 0 & -\frac{3\sqrt{66}}{176} \\ 0 & \frac{5\sqrt{770}}{8624} & 0 & -\frac{5\sqrt{385}}{4312} & 0 & \frac{5\sqrt{154}}{3696} & -\frac{\sqrt{33}}{88} & 0 & \frac{3\sqrt{77}}{392} & 0 & -\frac{\sqrt{1155}}{4312} & 0 & -\frac{3\sqrt{231}}{616} & 0 \\ \frac{5\sqrt{154}}{3696} & 0 & -\frac{5\sqrt{385}}{4312} & 0 & \frac{5\sqrt{770}}{8624} & 0 & 0 & \frac{3\sqrt{231}}{616} & 0 & \frac{\sqrt{1155}}{4312} & 0 & -\frac{3\sqrt{77}}{392} & 0 & \frac{\sqrt{33}}{88} \\ 0 & -\frac{5\sqrt{385}}{3696} & 0 & \frac{5\sqrt{770}}{8624} & 0 & -\frac{5\sqrt{77}}{8624} & \frac{3\sqrt{66}}{176} & 0 & \frac{3\sqrt{154}}{1232} & 0 & -\frac{13\sqrt{2310}}{8624} & 0 & \frac{23\sqrt{462}}{8624} & 0 \\ -\frac{3\sqrt{385}}{1232} & 0 & \frac{5\sqrt{154}}{3696} & 0 & -\frac{5\sqrt{77}}{8624} & 0 & 0 & \frac{3\sqrt{2310}}{1232} & 0 & -\frac{5\sqrt{462}}{1232} & 0 & \frac{15\sqrt{770}}{8624} & 0 & -\frac{\sqrt{330}}{1232} \\ \frac{\sqrt{330}}{1232} & 0 & -\frac{\sqrt{33}}{88} & 0 & \frac{3\sqrt{66}}{176} & 0 & 0 & \frac{15\sqrt{55}}{1232} & 0 & -\frac{5\sqrt{11}}{88} & 0 & \frac{3\sqrt{165}}{176} & 0 & 0 \\ 0 & -\frac{23\sqrt{462}}{8624} & 0 & \frac{3\sqrt{231}}{616} & 0 & \frac{3\sqrt{2310}}{1232} & \frac{15\sqrt{55}}{1232} & 0 & -\frac{5\sqrt{1155}}{1078} & 0 & \frac{5\sqrt{77}}{1232} & 0 & \frac{9\sqrt{385}}{616} & 0 \\ -\frac{15\sqrt{770}}{8624} & 0 & \frac{3\sqrt{77}}{392} & \frac{3\sqrt{154}}{1232} & 0 & 0 & 0 & -\frac{5\sqrt{1155}}{1078} & 0 & \frac{5\sqrt{231}}{8624} & 0 & \frac{5\sqrt{385}}{616} & 0 & \frac{3\sqrt{165}}{176} \\ 0 & \frac{13\sqrt{2310}}{8624} & 0 & \frac{\sqrt{1155}}{4312} & 0 & -\frac{5\sqrt{462}}{1232} & -\frac{5\sqrt{11}}{88} & 0 & \frac{5\sqrt{231}}{8624} & 0 & \frac{15\sqrt{385}}{2156} & 0 & \frac{5\sqrt{77}}{1232} & 0 \\ \frac{5\sqrt{462}}{1232} & 0 & -\frac{\sqrt{1155}}{4312} & 0 & -\frac{13\sqrt{2310}}{8624} & 0 & 0 & \frac{5\sqrt{77}}{1232} & 0 & \frac{15\sqrt{385}}{2156} & 0 & \frac{5\sqrt{231}}{8624} & 0 & -\frac{5\sqrt{11}}{88} \\ 0 & -\frac{3\sqrt{154}}{1232} & 0 & -\frac{3\sqrt{77}}{392} & 0 & \frac{15\sqrt{770}}{8624} & \frac{3\sqrt{165}}{176} & 0 & \frac{5\sqrt{385}}{616} & 0 & \frac{5\sqrt{231}}{8624} & 0 & -\frac{5\sqrt{1155}}{1078} & 0 \\ -\frac{3\sqrt{2310}}{1232} & 0 & -\frac{3\sqrt{231}}{616} & 0 & \frac{23\sqrt{462}}{8624} & 0 & 0 & \frac{9\sqrt{385}}{616} & 0 & \frac{5\sqrt{77}}{1232} & 0 & -\frac{5\sqrt{1155}}{1078} & 0 & \frac{15\sqrt{55}}{1232} \\ 0 & -\frac{3\sqrt{66}}{176} & 0 & \frac{\sqrt{33}}{88} & 0 & -\frac{\sqrt{330}}{1232} & 0 & 0 & \frac{3\sqrt{165}}{176} & 0 & -\frac{5\sqrt{11}}{88} & 0 & \frac{15\sqrt{55}}{1232} & 0 \end{bmatrix}$$

$$\boxed{\text{x516}} \quad \mathbb{M}_{5,2}^{(1,-1;a)}(E_g, 1) = \begin{bmatrix} 0 & -\frac{5\sqrt{77}i}{8624} & 0 & -\frac{5\sqrt{154}i}{3696} & 0 & -\frac{3\sqrt{385}i}{1232} & \frac{\sqrt{330}i}{1232} & 0 & -\frac{15\sqrt{770}i}{8624} & 0 & -\frac{5\sqrt{462}i}{1232} & 0 & -\frac{3\sqrt{2310}i}{1232} & 0 \\ \frac{5\sqrt{77}i}{8624} & 0 & \frac{5\sqrt{770}i}{8624} & 0 & \frac{5\sqrt{385}i}{3696} & 0 & 0 & \frac{23\sqrt{462}i}{8624} & 0 & \frac{13\sqrt{2310}i}{8624} & 0 & \frac{3\sqrt{154}i}{1232} & 0 & -\frac{3\sqrt{66}i}{176} \\ 0 & -\frac{5\sqrt{770}i}{8624} & 0 & -\frac{5\sqrt{385}i}{4312} & 0 & -\frac{5\sqrt{154}i}{3696} & -\frac{\sqrt{33}i}{88} & 0 & -\frac{3\sqrt{77}i}{392} & 0 & -\frac{\sqrt{1155}i}{4312} & 0 & \frac{3\sqrt{231}i}{616} & 0 \\ \frac{5\sqrt{154}i}{3696} & 0 & \frac{5\sqrt{385}i}{4312} & 0 & \frac{5\sqrt{770}i}{8624} & 0 & 0 & \frac{3\sqrt{231}i}{616} & 0 & -\frac{\sqrt{1155}i}{4312} & 0 & -\frac{3\sqrt{77}i}{392} & 0 & -\frac{\sqrt{33}i}{88} \\ 0 & -\frac{5\sqrt{385}i}{3696} & 0 & -\frac{5\sqrt{770}i}{8624} & 0 & -\frac{5\sqrt{77}i}{8624} & -\frac{3\sqrt{66}i}{176} & 0 & \frac{3\sqrt{154}i}{1232} & 0 & \frac{13\sqrt{2310}i}{8624} & 0 & \frac{23\sqrt{462}i}{8624} & 0 \\ \frac{3\sqrt{385}i}{1232} & 0 & \frac{5\sqrt{154}i}{3696} & 0 & \frac{5\sqrt{77}i}{8624} & 0 & 0 & -\frac{3\sqrt{2310}i}{1232} & 0 & -\frac{5\sqrt{462}i}{1232} & 0 & -\frac{15\sqrt{770}i}{8624} & 0 & -\frac{\sqrt{330}i}{1232} \\ \frac{\sqrt{330}i}{1232} & 0 & \frac{\sqrt{33}i}{88} & 0 & \frac{3\sqrt{66}i}{176} & 0 & 0 & \frac{15\sqrt{55}i}{1232} & 0 & \frac{5\sqrt{11}i}{88} & 0 & \frac{3\sqrt{165}i}{176} & 0 & 0 \\ 0 & -\frac{23\sqrt{462}i}{8624} & 0 & -\frac{3\sqrt{231}i}{616} & 0 & \frac{3\sqrt{2310}i}{1232} & -\frac{15\sqrt{55}i}{1232} & 0 & -\frac{5\sqrt{1155}i}{1078} & 0 & -\frac{5\sqrt{77}i}{1232} & 0 & \frac{9\sqrt{385}i}{616} & 0 \\ \frac{15\sqrt{770}i}{8624} & 0 & \frac{3\sqrt{77}i}{392} & 0 & -\frac{3\sqrt{154}i}{1232} & 0 & 0 & \frac{5\sqrt{1155}i}{1078} & 0 & \frac{5\sqrt{231}i}{8624} & 0 & -\frac{5\sqrt{385}i}{616} & 0 & \frac{3\sqrt{165}i}{176} \\ 0 & -\frac{13\sqrt{2310}i}{8624} & 0 & \frac{\sqrt{1155}i}{4312} & 0 & \frac{5\sqrt{462}i}{1232} & -\frac{5\sqrt{11}i}{88} & 0 & -\frac{5\sqrt{231}i}{8624} & 0 & \frac{15\sqrt{385}i}{2156} & 0 & -\frac{5\sqrt{77}i}{1232} & 0 \\ \frac{5\sqrt{462}i}{1232} & 0 & \frac{\sqrt{1155}i}{4312} & 0 & -\frac{13\sqrt{2310}i}{8624} & 0 & 0 & \frac{5\sqrt{77}i}{1232} & 0 & -\frac{15\sqrt{385}i}{2156} & 0 & \frac{5\sqrt{231}i}{8624} & 0 & \frac{5\sqrt{11}i}{88} \\ 0 & -\frac{3\sqrt{154}i}{1232} & 0 & \frac{3\sqrt{77}i}{392} & 0 & \frac{15\sqrt{770}i}{8624} & -\frac{3\sqrt{165}i}{176} & 0 & \frac{5\sqrt{385}i}{616} & 0 & -\frac{5\sqrt{231}i}{8624} & 0 & -\frac{5\sqrt{1155}i}{1078} & 0 \\ \frac{3\sqrt{2310}i}{1232} & 0 & -\frac{3\sqrt{231}i}{616} & 0 & -\frac{23\sqrt{462}i}{8624} & 0 & 0 & -\frac{9\sqrt{385}i}{616} & 0 & \frac{5\sqrt{77}i}{1232} & 0 & \frac{5\sqrt{1155}i}{1078} & 0 & \frac{15\sqrt{55}i}{1232} \\ 0 & \frac{3\sqrt{66}i}{176} & 0 & \frac{\sqrt{33}i}{88} & 0 & \frac{\sqrt{330}i}{1232} & 0 & 0 & -\frac{3\sqrt{165}i}{176} & 0 & -\frac{5\sqrt{11}i}{88} & 0 & -\frac{15\sqrt{55}i}{1232} & 0 \end{bmatrix}$$



$$\boxed{\text{x517}} \quad \mathbb{M}_{5,1}^{(1,-1;a)}(E_g, 2) = \begin{bmatrix} 0 & -\frac{\sqrt{55}}{1232} & 0 & -\frac{3\sqrt{110}}{1232} & 0 & -\frac{5\sqrt{11}}{1232} & \frac{\sqrt{462}}{1232} & 0 & -\frac{15\sqrt{22}}{1232} & 0 & -\frac{9\sqrt{330}}{1232} & 0 & -\frac{5\sqrt{66}}{1232} & 0 \\ -\frac{\sqrt{55}}{1232} & 0 & \frac{5\sqrt{22}}{1232} & 0 & \frac{15\sqrt{11}}{1232} & 0 & 0 & -\frac{23\sqrt{330}}{6160} & 0 & \frac{13\sqrt{66}}{1232} & 0 & \frac{27\sqrt{110}}{6160} & 0 & -\frac{\sqrt{2310}}{1232} \\ 0 & \frac{5\sqrt{22}}{1232} & 0 & -\frac{5\sqrt{11}}{616} & 0 & -\frac{3\sqrt{110}}{1232} & \frac{9\sqrt{1155}}{3080} & 0 & \frac{3\sqrt{55}}{280} & 0 & -\frac{\sqrt{33}}{616} & 0 & \frac{27\sqrt{165}}{3080} & 0 \\ -\frac{3\sqrt{110}}{1232} & 0 & -\frac{5\sqrt{11}}{616} & 0 & \frac{5\sqrt{22}}{1232} & 0 & 0 & -\frac{27\sqrt{165}}{3080} & 0 & \frac{\sqrt{33}}{616} & 0 & -\frac{3\sqrt{55}}{280} & 0 & -\frac{9\sqrt{1155}}{3080} \\ 0 & \frac{15\sqrt{11}}{1232} & 0 & \frac{5\sqrt{22}}{1232} & 0 & -\frac{\sqrt{55}}{1232} & \frac{\sqrt{2310}}{1232} & 0 & -\frac{27\sqrt{110}}{6160} & 0 & -\frac{13\sqrt{66}}{1232} & 0 & \frac{23\sqrt{330}}{6160} & 0 \\ -\frac{5\sqrt{11}}{1232} & 0 & -\frac{3\sqrt{110}}{1232} & 0 & -\frac{\sqrt{55}}{1232} & 0 & 0 & \frac{5\sqrt{66}}{1232} & 0 & \frac{9\sqrt{330}}{1232} & 0 & \frac{15\sqrt{22}}{1232} & 0 & -\frac{\sqrt{462}}{1232} \\ \frac{\sqrt{462}}{1232} & 0 & \frac{9\sqrt{1155}}{3080} & 0 & \frac{\sqrt{2310}}{1232} & 0 & 0 & \frac{15\sqrt{77}}{1232} & 0 & \frac{9\sqrt{385}}{616} & 0 & \frac{5\sqrt{231}}{1232} & 0 & 0 \\ 0 & -\frac{23\sqrt{330}}{6160} & 0 & -\frac{27\sqrt{165}}{3080} & 0 & \frac{5\sqrt{66}}{1232} & \frac{15\sqrt{77}}{1232} & 0 & -\frac{5\sqrt{33}}{154} & 0 & -\frac{9\sqrt{55}}{1232} & 0 & \frac{15\sqrt{11}}{616} & 0 \\ -\frac{15\sqrt{22}}{1232} & 0 & \frac{3\sqrt{55}}{280} & 0 & -\frac{27\sqrt{110}}{6160} & 0 & 0 & -\frac{5\sqrt{33}}{154} & 0 & \frac{\sqrt{165}}{1232} & 0 & -\frac{45\sqrt{11}}{616} & 0 & \frac{5\sqrt{231}}{1232} \\ 0 & \frac{13\sqrt{66}}{1232} & 0 & \frac{\sqrt{33}}{616} & 0 & \frac{9\sqrt{330}}{1232} & \frac{9\sqrt{385}}{616} & 0 & \frac{\sqrt{165}}{1232} & 0 & \frac{15\sqrt{11}}{308} & 0 & -\frac{9\sqrt{55}}{1232} & 0 \\ -\frac{9\sqrt{330}}{1232} & 0 & -\frac{\sqrt{33}}{616} & 0 & -\frac{13\sqrt{66}}{1232} & 0 & 0 & -\frac{9\sqrt{55}}{1232} & 0 & \frac{15\sqrt{11}}{308} & 0 & \frac{\sqrt{165}}{1232} & 0 & \frac{9\sqrt{385}}{616} \\ 0 & \frac{27\sqrt{110}}{6160} & 0 & -\frac{3\sqrt{55}}{280} & 0 & \frac{15\sqrt{22}}{1232} & \frac{5\sqrt{231}}{1232} & 0 & -\frac{45\sqrt{11}}{616} & 0 & \frac{\sqrt{165}}{1232} & 0 & -\frac{5\sqrt{33}}{154} & 0 \\ -\frac{5\sqrt{66}}{1232} & 0 & \frac{27\sqrt{165}}{3080} & 0 & \frac{23\sqrt{330}}{6160} & 0 & 0 & \frac{15\sqrt{11}}{616} & 0 & -\frac{9\sqrt{55}}{1232} & 0 & -\frac{5\sqrt{33}}{154} & 0 & \frac{15\sqrt{77}}{1232} \\ 0 & -\frac{\sqrt{2310}}{1232} & 0 & -\frac{9\sqrt{1155}}{3080} & 0 & -\frac{\sqrt{462}}{1232} & 0 & 0 & \frac{5\sqrt{231}}{1232} & 0 & \frac{9\sqrt{385}}{616} & 0 & \frac{15\sqrt{77}}{1232} & 0 \end{bmatrix}$$

$$\boxed{\text{x518}} \quad \mathbb{M}_{5,2}^{(1,-1;a)}(E_g, 2) = \begin{bmatrix} 0 & -\frac{\sqrt{55}i}{1232} & 0 & \frac{3\sqrt{110}i}{1232} & 0 & -\frac{5\sqrt{11}i}{1232} & -\frac{\sqrt{462}i}{1232} & 0 & -\frac{15\sqrt{22}i}{1232} & 0 & \frac{9\sqrt{330}i}{1232} & 0 & -\frac{5\sqrt{66}i}{1232} & 0 \\ \frac{\sqrt{55}i}{1232} & 0 & \frac{5\sqrt{22}i}{1232} & 0 & -\frac{15\sqrt{11}i}{1232} & 0 & 0 & \frac{23\sqrt{330}i}{6160} & 0 & \frac{13\sqrt{66}i}{1232} & 0 & -\frac{27\sqrt{110}i}{6160} & 0 & -\frac{\sqrt{2310}i}{1232} \\ 0 & -\frac{5\sqrt{22}i}{1232} & 0 & -\frac{5\sqrt{11}i}{616} & 0 & \frac{3\sqrt{110}i}{1232} & \frac{9\sqrt{1155}i}{3080} & 0 & -\frac{3\sqrt{55}i}{280} & 0 & -\frac{\sqrt{33}i}{616} & 0 & -\frac{27\sqrt{165}i}{3080} & 0 \\ -\frac{3\sqrt{110}i}{1232} & 0 & \frac{5\sqrt{11}i}{616} & 0 & \frac{5\sqrt{22}i}{1232} & 0 & 0 & -\frac{27\sqrt{165}i}{3080} & 0 & -\frac{\sqrt{33}i}{616} & 0 & -\frac{3\sqrt{55}i}{280} & 0 & \frac{9\sqrt{1155}i}{3080} \\ 0 & \frac{15\sqrt{11}i}{1232} & 0 & -\frac{5\sqrt{22}i}{1232} & 0 & -\frac{\sqrt{55}i}{1232} & -\frac{\sqrt{2310}i}{1232} & 0 & -\frac{27\sqrt{110}i}{6160} & 0 & \frac{13\sqrt{66}i}{1232} & 0 & \frac{23\sqrt{330}i}{6160} & 0 \\ \frac{5\sqrt{11}i}{1232} & 0 & -\frac{3\sqrt{110}i}{1232} & 0 & \frac{\sqrt{55}i}{1232} & 0 & 0 & -\frac{5\sqrt{66}i}{1232} & 0 & \frac{9\sqrt{330}i}{1232} & 0 & -\frac{15\sqrt{22}i}{1232} & 0 & -\frac{\sqrt{462}i}{1232} \\ \frac{\sqrt{462}i}{1232} & 0 & -\frac{9\sqrt{1155}i}{3080} & 0 & \frac{\sqrt{2310}i}{1232} & 0 & 0 & \frac{15\sqrt{77}i}{1232} & 0 & -\frac{9\sqrt{385}i}{616} & 0 & \frac{5\sqrt{231}i}{1232} & 0 & 0 \\ 0 & -\frac{23\sqrt{330}i}{6160} & 0 & \frac{27\sqrt{165}i}{3080} & 0 & \frac{5\sqrt{66}i}{1232} & -\frac{15\sqrt{77}i}{1232} & 0 & -\frac{5\sqrt{33}i}{154} & 0 & \frac{9\sqrt{55}i}{1232} & 0 & \frac{15\sqrt{11}i}{616} & 0 \\ \frac{15\sqrt{22}i}{1232} & 0 & \frac{3\sqrt{55}i}{280} & 0 & \frac{27\sqrt{110}i}{6160} & 0 & 0 & \frac{5\sqrt{33}i}{154} & 0 & \frac{\sqrt{165}i}{1232} & 0 & \frac{45\sqrt{11}i}{616} & 0 & \frac{5\sqrt{231}i}{1232} \\ 0 & -\frac{13\sqrt{66}i}{1232} & 0 & \frac{\sqrt{33}i}{616} & 0 & -\frac{9\sqrt{330}i}{1232} & \frac{9\sqrt{385}i}{616} & 0 & -\frac{\sqrt{165}i}{1232} & 0 & \frac{15\sqrt{11}i}{308} & 0 & \frac{9\sqrt{55}i}{1232} & 0 \\ -\frac{9\sqrt{330}i}{1232} & 0 & \frac{\sqrt{33}i}{616} & 0 & -\frac{13\sqrt{66}i}{1232} & 0 & 0 & -\frac{9\sqrt{55}i}{1232} & 0 & -\frac{15\sqrt{11}i}{308} & 0 & \frac{\sqrt{165}i}{1232} & 0 & -\frac{9\sqrt{385}i}{616} \\ 0 & \frac{27\sqrt{110}i}{6160} & 0 & \frac{3\sqrt{55}i}{280} & 0 & \frac{15\sqrt{22}i}{1232} & -\frac{5\sqrt{231}i}{1232} & 0 & -\frac{45\sqrt{11}i}{616} & 0 & -\frac{\sqrt{165}i}{1232} & 0 & -\frac{5\sqrt{33}i}{154} & 0 \\ \frac{5\sqrt{66}i}{1232} & 0 & \frac{27\sqrt{165}i}{3080} & 0 & -\frac{23\sqrt{330}i}{6160} & 0 & 0 & -\frac{15\sqrt{11}i}{616} & 0 & -\frac{9\sqrt{55}i}{1232} & 0 & \frac{5\sqrt{33}i}{154} & 0 & \frac{15\sqrt{77}i}{1232} \\ 0 & \frac{\sqrt{2310}i}{1232} & 0 & -\frac{9\sqrt{1155}i}{3080} & 0 & \frac{\sqrt{462}i}{1232} & 0 & 0 & -\frac{5\sqrt{231}i}{1232} & 0 & \frac{9\sqrt{385}i}{616} & 0 & -\frac{15\sqrt{77}i}{1232} & 0 \end{bmatrix}$$

$$\boxed{\text{x519}} \quad \mathbb{M}_{5,1}^{(1,-1;a)}(E_g, 3) = \begin{bmatrix} 0 & -\frac{\sqrt{165}}{1848} & 0 & \frac{\sqrt{330}}{1848} & 0 & \frac{5\sqrt{33}}{616} & \frac{\sqrt{154}}{616} & 0 & -\frac{5\sqrt{66}}{616} & 0 & \frac{3\sqrt{110}}{616} & 0 & \frac{15\sqrt{22}}{616} & 0 \\ -\frac{\sqrt{165}}{1848} & 0 & \frac{5\sqrt{66}}{1848} & 0 & -\frac{5\sqrt{33}}{1848} & 0 & 0 & -\frac{23\sqrt{110}}{3080} & 0 & \frac{13\sqrt{22}}{616} & 0 & -\frac{3\sqrt{330}}{3080} & 0 & \frac{3\sqrt{770}}{616} \\ 0 & \frac{5\sqrt{66}}{1848} & 0 & -\frac{5\sqrt{33}}{924} & 0 & \frac{\sqrt{330}}{1848} & -\frac{3\sqrt{385}}{1540} & 0 & \frac{\sqrt{165}}{140} & 0 & -\frac{\sqrt{11}}{308} & 0 & -\frac{9\sqrt{55}}{1540} & 0 \\ \frac{\sqrt{330}}{1848} & 0 & -\frac{5\sqrt{33}}{924} & 0 & \frac{5\sqrt{66}}{1848} & 0 & 0 & \frac{9\sqrt{55}}{1540} & 0 & \frac{\sqrt{11}}{308} & 0 & -\frac{\sqrt{165}}{140} & 0 & \frac{3\sqrt{385}}{1540} \\ 0 & -\frac{5\sqrt{33}}{1848} & 0 & \frac{5\sqrt{66}}{1848} & 0 & -\frac{\sqrt{165}}{1848} & -\frac{3\sqrt{770}}{616} & 0 & \frac{3\sqrt{330}}{3080} & 0 & -\frac{13\sqrt{22}}{616} & 0 & \frac{23\sqrt{110}}{3080} & 0 \\ \frac{5\sqrt{33}}{616} & 0 & \frac{\sqrt{330}}{1848} & 0 & -\frac{\sqrt{165}}{1848} & 0 & 0 & -\frac{15\sqrt{22}}{616} & \frac{5\sqrt{231}}{616} & 0 & -\frac{3\sqrt{110}}{616} & 0 & \frac{5\sqrt{66}}{616} & -\frac{\sqrt{154}}{616} \\ \frac{\sqrt{154}}{616} & 0 & -\frac{3\sqrt{385}}{1540} & 0 & -\frac{3\sqrt{770}}{616} & 0 & 0 & \frac{5\sqrt{231}}{616} & 0 & -\frac{\sqrt{1155}}{308} & 0 & -\frac{15\sqrt{77}}{616} & 0 & 0 \\ 0 & -\frac{23\sqrt{110}}{3080} & 0 & \frac{9\sqrt{55}}{1540} & 0 & -\frac{15\sqrt{22}}{616} & \frac{5\sqrt{231}}{616} & 0 & -\frac{5\sqrt{11}}{77} & 0 & \frac{\sqrt{165}}{616} & 0 & -\frac{15\sqrt{33}}{308} & 0 \\ -\frac{5\sqrt{66}}{616} & 0 & \frac{\sqrt{165}}{140} & 0 & \frac{3\sqrt{330}}{3080} & 0 & 0 & -\frac{5\sqrt{11}}{77} & 0 & \frac{\sqrt{55}}{616} & 0 & \frac{5\sqrt{33}}{308} & 0 & -\frac{15\sqrt{77}}{616} \\ 0 & \frac{13\sqrt{22}}{616} & 0 & \frac{\sqrt{11}}{308} & 0 & -\frac{3\sqrt{110}}{616} & -\frac{\sqrt{1155}}{308} & 0 & \frac{\sqrt{55}}{616} & 0 & \frac{5\sqrt{33}}{154} & 0 & \frac{\sqrt{165}}{616} & 0 \\ \frac{3\sqrt{110}}{616} & 0 & -\frac{\sqrt{11}}{308} & 0 & -\frac{13\sqrt{22}}{616} & 0 & 0 & \frac{\sqrt{165}}{616} & 0 & \frac{5\sqrt{33}}{154} & 0 & \frac{\sqrt{55}}{616} & 0 & -\frac{\sqrt{1155}}{308} \\ 0 & -\frac{3\sqrt{330}}{3080} & 0 & -\frac{\sqrt{165}}{140} & 0 & \frac{5\sqrt{66}}{616} & -\frac{15\sqrt{77}}{616} & 0 & \frac{5\sqrt{33}}{308} & 0 & \frac{\sqrt{55}}{616} & 0 & -\frac{5\sqrt{11}}{77} & 0 \\ \frac{15\sqrt{22}}{616} & 0 & -\frac{9\sqrt{55}}{1540} & 0 & \frac{23\sqrt{110}}{3080} & 0 & 0 & -\frac{15\sqrt{33}}{308} & 0 & \frac{\sqrt{165}}{616} & 0 & -\frac{5\sqrt{11}}{77} & 0 & \frac{5\sqrt{231}}{616} \\ 0 & \frac{3\sqrt{770}}{616} & 0 & \frac{3\sqrt{385}}{1540} & 0 & -\frac{\sqrt{154}}{616} & 0 & 0 & -\frac{15\sqrt{77}}{616} & 0 & -\frac{\sqrt{1155}}{308} & 0 & \frac{5\sqrt{231}}{616} & 0 \end{bmatrix}$$

$$\boxed{\text{x520}} \quad \mathbb{M}_{5,2}^{(1,-1;a)}(E_g, 3) = \begin{bmatrix} 0 & -\frac{\sqrt{165}i}{1848} & 0 & -\frac{\sqrt{330}i}{1848} & 0 & \frac{5\sqrt{33}i}{616} & -\frac{\sqrt{154}i}{616} & 0 & -\frac{5\sqrt{66}i}{616} & 0 & -\frac{3\sqrt{110}i}{616} & 0 & \frac{15\sqrt{22}i}{616} & 0 \\ \frac{\sqrt{165}i}{1848} & 0 & \frac{5\sqrt{66}i}{1848} & 0 & \frac{5\sqrt{33}i}{1848} & 0 & 0 & \frac{23\sqrt{110}i}{3080} & 0 & \frac{13\sqrt{22}i}{616} & 0 & \frac{3\sqrt{330}i}{3080} & 0 & \frac{3\sqrt{770}i}{616} \\ 0 & -\frac{5\sqrt{66}i}{1848} & 0 & -\frac{5\sqrt{33}i}{924} & 0 & -\frac{\sqrt{330}i}{1848} & -\frac{3\sqrt{385}i}{1540} & 0 & -\frac{\sqrt{165}i}{140} & 0 & -\frac{\sqrt{11}i}{308} & 0 & \frac{9\sqrt{55}i}{1540} & 0 \\ \frac{\sqrt{330}i}{1848} & 0 & \frac{5\sqrt{33}i}{924} & 0 & \frac{5\sqrt{66}i}{1848} & 0 & 0 & \frac{9\sqrt{55}i}{1540} & 0 & -\frac{\sqrt{11}i}{308} & 0 & -\frac{\sqrt{165}i}{140} & 0 & -\frac{3\sqrt{385}i}{1540} \\ 0 & -\frac{5\sqrt{33}i}{1848} & 0 & -\frac{5\sqrt{66}i}{1848} & 0 & -\frac{\sqrt{165}i}{1848} & \frac{3\sqrt{770}i}{616} & 0 & \frac{3\sqrt{330}i}{3080} & 0 & \frac{13\sqrt{22}i}{616} & 0 & \frac{23\sqrt{110}i}{3080} & 0 \\ -\frac{5\sqrt{33}i}{616} & 0 & \frac{\sqrt{330}i}{1848} & 0 & \frac{\sqrt{165}i}{1848} & 0 & 0 & \frac{15\sqrt{22}i}{616} & 0 & -\frac{3\sqrt{110}i}{616} & 0 & -\frac{5\sqrt{66}i}{616} & 0 & -\frac{\sqrt{154}i}{616} \\ \frac{\sqrt{154}i}{616} & 0 & \frac{3\sqrt{385}i}{1540} & 0 & -\frac{3\sqrt{770}i}{616} & 0 & 0 & \frac{5\sqrt{231}i}{616} & 0 & \frac{\sqrt{1155}i}{308} & 0 & -\frac{15\sqrt{77}i}{616} & 0 & 0 \\ 0 & -\frac{23\sqrt{110}i}{3080} & 0 & -\frac{9\sqrt{55}i}{1540} & 0 & -\frac{15\sqrt{22}i}{616} & -\frac{5\sqrt{231}i}{616} & 0 & -\frac{5\sqrt{11}i}{77} & 0 & -\frac{\sqrt{165}i}{616} & 0 & -\frac{15\sqrt{33}i}{308} & 0 \\ \frac{5\sqrt{66}i}{616} & 0 & \frac{\sqrt{165}i}{140} & 0 & -\frac{3\sqrt{330}i}{3080} & 0 & 0 & \frac{5\sqrt{11}i}{77} & 0 & \frac{\sqrt{55}i}{616} & 0 & -\frac{5\sqrt{33}i}{308} & 0 & -\frac{15\sqrt{77}i}{616} \\ 0 & -\frac{13\sqrt{22}i}{616} & 0 & \frac{\sqrt{11}i}{308} & 0 & \frac{3\sqrt{110}i}{616} & -\frac{\sqrt{1155}i}{308} & 0 & -\frac{\sqrt{55}i}{616} & 0 & \frac{5\sqrt{33}i}{154} & 0 & -\frac{\sqrt{165}i}{616} & 0 \\ \frac{3\sqrt{110}i}{616} & 0 & \frac{\sqrt{11}i}{308} & 0 & -\frac{13\sqrt{22}i}{616} & 0 & 0 & \frac{\sqrt{165}i}{616} & 0 & -\frac{5\sqrt{33}i}{154} & 0 & \frac{\sqrt{55}i}{616} & 0 & \frac{\sqrt{1155}i}{308} \\ 0 & -\frac{3\sqrt{330}i}{3080} & 0 & \frac{\sqrt{165}i}{140} & 0 & \frac{5\sqrt{66}i}{616} & \frac{15\sqrt{77}i}{616} & 0 & \frac{5\sqrt{33}i}{308} & 0 & -\frac{\sqrt{55}i}{616} & 0 & -\frac{5\sqrt{11}i}{77} & 0 \\ -\frac{15\sqrt{22}i}{616} & 0 & -\frac{9\sqrt{55}i}{1540} & 0 & -\frac{23\sqrt{110}i}{3080} & 0 & 0 & \frac{15\sqrt{33}i}{308} & 0 & \frac{\sqrt{165}i}{616} & 0 & \frac{5\sqrt{11}i}{77} & 0 & \frac{5\sqrt{231}i}{616} \\ 0 & -\frac{3\sqrt{770}i}{616} & 0 & \frac{3\sqrt{385}i}{1540} & 0 & \frac{\sqrt{154}i}{616} & 0 & 0 & \frac{15\sqrt{77}i}{616} & 0 & -\frac{\sqrt{1155}i}{308} & 0 & -\frac{5\sqrt{231}i}{616} & 0 \end{bmatrix}$$

$$\boxed{\text{x521}} \quad \mathbb{M}_{7,1}^{(1,-1;a)}(E_g, 1) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{6006}}{27456} & 0 & -\frac{3\sqrt{30030}}{9152} & 0 & \frac{3\sqrt{2002}}{832} & 0 & -\frac{\sqrt{858}}{64} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{6006}}{27456} & 0 & -\frac{35\sqrt{286}}{9152} & 0 & \frac{21\sqrt{4290}}{9152} & 0 & -\frac{7\sqrt{858}}{832} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{35\sqrt{286}}{9152} & 0 & \frac{35\sqrt{1430}}{9152} & 0 & -\frac{63\sqrt{858}}{9152} & 0 & \frac{3\sqrt{2002}}{832} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{30030}}{9152} & 0 & \frac{35\sqrt{1430}}{9152} & 0 & -\frac{175\sqrt{858}}{27456} & 0 & \frac{21\sqrt{4290}}{9152} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{21\sqrt{4290}}{9152} & 0 & -\frac{175\sqrt{858}}{27456} & 0 & \frac{35\sqrt{1430}}{9152} & 0 & -\frac{3\sqrt{30030}}{9152} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{2002}}{832} & 0 & -\frac{63\sqrt{858}}{9152} & 0 & \frac{35\sqrt{1430}}{9152} & 0 & -\frac{35\sqrt{286}}{9152} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{7\sqrt{858}}{832} & 0 & \frac{21\sqrt{4290}}{9152} & 0 & -\frac{35\sqrt{286}}{9152} & 0 & \frac{5\sqrt{6006}}{27456} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{858}}{64} & 0 & \frac{3\sqrt{2002}}{832} & 0 & -\frac{3\sqrt{30030}}{9152} & 0 & \frac{5\sqrt{6006}}{27456} & 0 \end{bmatrix}$$

$$\boxed{\text{x522}} \quad \mathbb{M}_{7,2}^{(1,-1;a)}(E_g, 1) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{6006i}}{27456} & 0 & \frac{3\sqrt{30030i}}{9152} & 0 & \frac{3\sqrt{2002i}}{832} & \frac{\sqrt{858i}}{64} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{6006i}}{27456} & 0 & -\frac{35\sqrt{286i}}{9152} & 0 & -\frac{21\sqrt{4290i}}{9152} & 0 & -\frac{7\sqrt{858i}}{832} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{35\sqrt{286i}}{9152} & 0 & \frac{35\sqrt{1430i}}{9152} & 0 & \frac{63\sqrt{858i}}{9152} & \frac{3\sqrt{2002i}}{832} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{30030i}}{9152} & 0 & -\frac{35\sqrt{1430i}}{9152} & 0 & -\frac{175\sqrt{858i}}{27456} & 0 & -\frac{21\sqrt{4290i}}{9152} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{21\sqrt{4290i}}{9152} & 0 & \frac{175\sqrt{858i}}{27456} & 0 & \frac{35\sqrt{1430i}}{9152} & \frac{3\sqrt{30030i}}{9152} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{2002i}}{832} & 0 & -\frac{63\sqrt{858i}}{9152} & 0 & -\frac{35\sqrt{1430i}}{9152} & 0 & -\frac{35\sqrt{286i}}{9152} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{7\sqrt{858i}}{832} & 0 & \frac{21\sqrt{4290i}}{9152} & 0 & \frac{35\sqrt{286i}}{9152} & \frac{5\sqrt{6006i}}{27456} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{858i}}{64} & 0 & -\frac{3\sqrt{2002i}}{832} & 0 & -\frac{3\sqrt{30030i}}{9152} & 0 & -\frac{5\sqrt{6006i}}{27456} \end{bmatrix}$$



x525

x526



$$\boxed{\text{x529}} \quad \mathbb{M}_5^{(1,1;a)}(A_{1g}) = \begin{bmatrix} 0 & 0 & 0 & 0 & -\frac{3\sqrt{143}i}{77} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{1430}i}{308} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{143}i}{77} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{858}i}{924} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3003}i}{462} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3003}i}{462} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{3\sqrt{143}i}{77} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{858}i}{924} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{3\sqrt{143}i}{77} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{1430}i}{308} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{3003}i}{462} & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{1001}i}{2002} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{858}i}{924} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2145}i}{2002} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{1430}i}{308} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2145}i}{2002} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{1001}i}{2002} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{1001}i}{2002} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{1430}i}{308} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2145}i}{2002} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{858}i}{924} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2145}i}{2002} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{3003}i}{462} & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{1001}i}{2002} & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x530}} \quad \mathbb{M}_1^{(1,1;a)}(A_{2g}) = \begin{bmatrix} \frac{2\sqrt{105}}{49} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{70}}{196} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{6\sqrt{105}}{245} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{42}}{196} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{2\sqrt{105}}{245} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{35}}{98} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{2\sqrt{105}}{245} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{35}}{98} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{6\sqrt{105}}{245} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{42}}{196} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{2\sqrt{105}}{49} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{70}}{196} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{42} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{3\sqrt{70}}{196} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{105}}{294} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{5\sqrt{42}}{196} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{98} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{3\sqrt{35}}{98} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{294} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{3\sqrt{35}}{98} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}}{294} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{5\sqrt{42}}{196} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}}{98} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{70}}{196} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{105}}{294} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}}{42} \end{bmatrix}$$

$$\boxed{\text{x531}} \quad \mathbb{M}_3^{(1,1;a)}(A_{2g}) = \begin{bmatrix} -\frac{5\sqrt{77}}{147} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{462}}{98} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{77}}{21} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{4\sqrt{77}}{147} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{231}}{98} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{4\sqrt{77}}{147} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{231}}{98} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{77}}{21} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{77}}{147} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{462}}{98} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{77}}{77} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{462}}{98} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{77}}{539} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{77}}{77} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{231}}{98} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{77}}{539} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{231}}{98} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{77}}{539} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{77}}{77} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{462}}{98} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{77}}{539} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{77}}{77} \end{bmatrix}$$

$$\boxed{\text{x532}} \quad \mathbb{M}_5^{(1,1;a)}(A_{2g}, 1) = \begin{bmatrix} \frac{\sqrt{1001}}{539} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{6006}}{6468} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{5\sqrt{1001}}{539} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{10010}}{2156} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{10\sqrt{1001}}{539} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{3003}}{3234} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{10\sqrt{1001}}{539} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{3003}}{3234} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{5\sqrt{1001}}{539} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{10010}}{2156} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{1001}}{539} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{6006}}{6468} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{1001}}{2002} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{5\sqrt{6006}}{6468} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{23\sqrt{1001}}{14014} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{3\sqrt{10010}}{2156} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{17\sqrt{1001}}{14014} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{5\sqrt{3003}}{3234} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{15\sqrt{1001}}{14014} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{5\sqrt{3003}}{3234} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{15\sqrt{1001}}{14014} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{3\sqrt{10010}}{2156} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{17\sqrt{1001}}{14014} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{6006}}{6468} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{23\sqrt{1001}}{14014} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{1001}}{2002} & 0 \end{bmatrix}$$



$$\boxed{\text{x533}} \quad \mathbb{M}_5^{(1,1;a)}(A_{2g}, 2) = \begin{bmatrix} 0 & 0 & 0 & 0 & \frac{3\sqrt{143}}{77} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{1430}}{308} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{143}}{77} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{858}}{924} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3003}}{462} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3003}}{462} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{3\sqrt{143}}{77} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{858}}{924} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{3\sqrt{143}}{77} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{1430}}{308} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{3003}}{462} & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{1001}}{2002} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{858}}{924} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2145}}{2002} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{1430}}{308} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2145}}{2002} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{1001}}{2002} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{1001}}{2002} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{1430}}{308} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2145}}{2002} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{858}}{924} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2145}}{2002} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{3003}}{462} & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{1001}}{2002} & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x534}} \quad \mathbb{M}_3^{(1,1;a)}(B_{1g}) = \begin{bmatrix} 0 & 0 & \frac{5\sqrt{462}i}{294} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{154}i}{98} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{2310}i}{294} & 0 & 0 & -\frac{\sqrt{22}i}{28} & 0 & 0 & -\frac{\sqrt{770}i}{196} & 0 & 0 & 0 & 0 \\ -\frac{5\sqrt{462}i}{294} & 0 & 0 & 0 & -\frac{\sqrt{2310}i}{294} & 0 & 0 & -\frac{\sqrt{77}i}{196} & 0 & 0 & -\frac{\sqrt{231}i}{196} & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{2310}i}{294} & 0 & 0 & 0 & -\frac{5\sqrt{462}i}{294} & 0 & 0 & \frac{\sqrt{231}i}{196} & 0 & 0 & \frac{\sqrt{77}i}{196} & 0 & 0 \\ 0 & 0 & \frac{\sqrt{2310}i}{294} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{770}i}{196} & 0 & 0 & 0 & \frac{\sqrt{22}i}{28} & 0 \\ 0 & 0 & 0 & \frac{5\sqrt{462}i}{294} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{154}i}{98} & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{22}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{55}i}{77} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{77}i}{196} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{231}i}{539} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{231}i}{196} & 0 & 0 & \frac{\sqrt{55}i}{77} & 0 & 0 & 0 & -\frac{2\sqrt{77}i}{539} & 0 & 0 & 0 \\ \frac{\sqrt{154}i}{98} & 0 & 0 & 0 & -\frac{\sqrt{770}i}{196} & 0 & 0 & \frac{3\sqrt{231}i}{539} & 0 & 0 & 0 & \frac{2\sqrt{77}i}{539} & 0 & 0 \\ 0 & \frac{\sqrt{770}i}{196} & 0 & 0 & 0 & -\frac{\sqrt{154}i}{98} & 0 & 0 & \frac{2\sqrt{77}i}{539} & 0 & 0 & 0 & \frac{3\sqrt{231}i}{539} & 0 \\ 0 & 0 & \frac{\sqrt{231}i}{196} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{2\sqrt{77}i}{539} & 0 & 0 & 0 & \frac{\sqrt{55}i}{77} \\ 0 & 0 & 0 & -\frac{\sqrt{77}i}{196} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{231}i}{539} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{22}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{55}i}{77} & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x535}} \quad \mathbb{M}_5^{(1,1;a)}(B_{1g}) = \begin{bmatrix} 0 & 0 & \frac{\sqrt{858}i}{154} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{286}i}{924} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{4290}i}{154} & 0 & 0 & -\frac{\sqrt{2002}i}{924} & 0 & 0 & 0 & \frac{\sqrt{1430}i}{462} & 0 & 0 & 0 \\ -\frac{\sqrt{858}i}{154} & 0 & 0 & 0 & \frac{\sqrt{4290}i}{154} & 0 & 0 & \frac{2\sqrt{143}i}{231} & 0 & 0 & 0 & \frac{\sqrt{429}i}{462} & 0 & 0 \\ 0 & \frac{\sqrt{4290}i}{154} & 0 & 0 & 0 & -\frac{\sqrt{858}i}{154} & 0 & 0 & -\frac{\sqrt{429}i}{462} & 0 & 0 & 0 & -\frac{2\sqrt{143}i}{231} & 0 \\ 0 & 0 & -\frac{\sqrt{4290}i}{154} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{1430}i}{462} & 0 & 0 & 0 & \frac{\sqrt{2002}i}{924} \\ 0 & 0 & 0 & \frac{\sqrt{858}i}{154} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{286}i}{924} & 0 & 0 & 0 \\ 0 & \frac{\sqrt{2002}i}{924} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5005}i}{2002} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{2\sqrt{143}i}{231} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{429}i}{2002} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{429}i}{462} & 0 & 0 & \frac{\sqrt{5005}i}{2002} & 0 & 0 & 0 & \frac{2\sqrt{143}i}{1001} & 0 & 0 & 0 \\ \frac{5\sqrt{286}i}{924} & 0 & 0 & 0 & \frac{\sqrt{1430}i}{462} & 0 & 0 & -\frac{3\sqrt{429}i}{2002} & 0 & 0 & 0 & -\frac{2\sqrt{143}i}{1001} & 0 & 0 \\ 0 & -\frac{\sqrt{1430}i}{462} & 0 & 0 & 0 & -\frac{5\sqrt{286}i}{924} & 0 & 0 & -\frac{2\sqrt{143}i}{1001} & 0 & 0 & 0 & -\frac{3\sqrt{429}i}{2002} & 0 \\ 0 & 0 & -\frac{\sqrt{429}i}{462} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{2\sqrt{143}i}{1001} & 0 & 0 & 0 & \frac{\sqrt{5005}i}{2002} \\ 0 & 0 & 0 & \frac{2\sqrt{143}i}{231} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{429}i}{2002} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{2002}i}{924} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5005}i}{2002} & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x536}} \quad \mathbb{M}_3^{(1,1;a)}(B_{2g}) = \begin{bmatrix} 0 & 0 & -\frac{5\sqrt{462}}{294} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{154}}{98} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{2310}}{294} & 0 & 0 & -\frac{\sqrt{22}}{28} & 0 & 0 & 0 & \frac{\sqrt{770}}{196} & 0 & 0 & 0 \\ -\frac{5\sqrt{462}}{294} & 0 & 0 & 0 & \frac{\sqrt{2310}}{294} & 0 & 0 & -\frac{\sqrt{77}}{196} & 0 & 0 & 0 & \frac{\sqrt{231}}{196} & 0 & 0 \\ 0 & -\frac{\sqrt{2310}}{294} & 0 & 0 & 0 & \frac{5\sqrt{462}}{294} & 0 & 0 & \frac{\sqrt{231}}{196} & 0 & 0 & 0 & -\frac{\sqrt{77}}{196} & 0 \\ 0 & 0 & \frac{\sqrt{2310}}{294} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{770}}{196} & 0 & 0 & 0 & -\frac{\sqrt{22}}{28} \\ 0 & 0 & 0 & \frac{5\sqrt{462}}{294} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{154}}{98} & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{22}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{55}}{77} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{77}}{196} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{231}}{539} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{231}}{196} & 0 & 0 & \frac{\sqrt{55}}{77} & 0 & 0 & 0 & \frac{2\sqrt{77}}{539} & 0 & 0 & 0 \\ \frac{\sqrt{154}}{98} & 0 & 0 & 0 & \frac{\sqrt{770}}{196} & 0 & 0 & \frac{3\sqrt{231}}{539} & 0 & 0 & 0 & -\frac{2\sqrt{77}}{539} & 0 & 0 \\ 0 & \frac{\sqrt{770}}{196} & 0 & 0 & 0 & \frac{\sqrt{154}}{98} & 0 & 0 & \frac{2\sqrt{77}}{539} & 0 & 0 & 0 & -\frac{3\sqrt{231}}{539} & 0 \\ 0 & 0 & \frac{\sqrt{231}}{196} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{2\sqrt{77}}{539} & 0 & 0 & 0 & -\frac{\sqrt{55}}{77} \\ 0 & 0 & 0 & -\frac{\sqrt{77}}{196} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{231}}{539} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{22}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{55}}{77} & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x537}} \quad \mathbb{M}_5^{(1,1;a)}(B_{2g}) = \begin{bmatrix} 0 & 0 & \frac{\sqrt{858}}{154} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{286}}{924} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{4290}}{154} & 0 & 0 & \frac{\sqrt{2002}}{924} & 0 & 0 & 0 & \frac{\sqrt{1430}}{462} & 0 & 0 & 0 \\ \frac{\sqrt{858}}{154} & 0 & 0 & 0 & \frac{\sqrt{4290}}{154} & 0 & 0 & -\frac{2\sqrt{143}}{231} & 0 & 0 & 0 & \frac{\sqrt{429}}{462} & 0 & 0 \\ 0 & -\frac{\sqrt{4290}}{154} & 0 & 0 & 0 & -\frac{\sqrt{858}}{154} & 0 & 0 & \frac{\sqrt{429}}{462} & 0 & 0 & 0 & -\frac{2\sqrt{143}}{231} & 0 \\ 0 & 0 & \frac{\sqrt{4290}}{154} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{1430}}{462} & 0 & 0 & 0 & \frac{\sqrt{2002}}{924} \\ 0 & 0 & 0 & -\frac{\sqrt{858}}{154} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{286}}{924} & 0 & 0 & 0 \\ 0 & \frac{\sqrt{2002}}{924} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5005}}{2002} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{2\sqrt{143}}{231} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{429}}{2002} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{429}}{462} & 0 & 0 & -\frac{\sqrt{5005}}{2002} & 0 & 0 & 0 & \frac{2\sqrt{143}}{1001} & 0 & 0 & 0 \\ -\frac{5\sqrt{286}}{924} & 0 & 0 & 0 & \frac{\sqrt{1430}}{462} & 0 & 0 & \frac{3\sqrt{429}}{2002} & 0 & 0 & 0 & -\frac{2\sqrt{143}}{1001} & 0 & 0 \\ 0 & \frac{\sqrt{1430}}{462} & 0 & 0 & 0 & -\frac{5\sqrt{286}}{924} & 0 & 0 & \frac{2\sqrt{143}}{1001} & 0 & 0 & 0 & -\frac{3\sqrt{429}}{2002} & 0 \\ 0 & 0 & \frac{\sqrt{429}}{462} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{2\sqrt{143}}{1001} & 0 & 0 & 0 & \frac{\sqrt{5005}}{2002} \\ 0 & 0 & 0 & -\frac{2\sqrt{143}}{231} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{429}}{2002} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{2002}}{924} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5005}}{2002} & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x538}} \quad \mathbb{M}_{1,1}^{(1,1;a)}(E_g) = \begin{bmatrix} 0 & \frac{2\sqrt{21}}{49} & 0 & 0 & 0 & 0 & \frac{3\sqrt{10}}{56} & 0 & -\frac{\sqrt{210}}{392} & 0 & 0 & 0 & 0 & 0 \\ \frac{2\sqrt{21}}{49} & 0 & \frac{4\sqrt{210}}{245} & 0 & 0 & 0 & 0 & \frac{15\sqrt{14}}{392} & 0 & -\frac{3\sqrt{70}}{392} & 0 & 0 & 0 & 0 \\ 0 & \frac{4\sqrt{210}}{245} & 0 & \frac{6\sqrt{105}}{245} & 0 & 0 & 0 & 0 & \frac{5\sqrt{21}}{196} & 0 & -\frac{3\sqrt{35}}{196} & 0 & 0 & 0 \\ 0 & 0 & \frac{6\sqrt{105}}{245} & 0 & \frac{4\sqrt{210}}{245} & 0 & 0 & 0 & 0 & \frac{3\sqrt{35}}{196} & 0 & -\frac{5\sqrt{21}}{196} & 0 & 0 \\ 0 & 0 & 0 & \frac{4\sqrt{210}}{245} & 0 & \frac{2\sqrt{21}}{49} & 0 & 0 & 0 & 0 & \frac{3\sqrt{70}}{392} & 0 & -\frac{15\sqrt{14}}{392} & 0 \\ 0 & 0 & 0 & 0 & \frac{2\sqrt{21}}{49} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{210}}{392} & 0 & -\frac{3\sqrt{10}}{56} \\ \frac{3\sqrt{10}}{56} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{42} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{15\sqrt{14}}{392} & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{42} & 0 & -\frac{\sqrt{35}}{49} & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{210}}{392} & 0 & \frac{5\sqrt{21}}{196} & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}}{49} & 0 & -\frac{5\sqrt{7}}{98} & 0 & 0 & 0 & 0 \\ 0 & -\frac{3\sqrt{70}}{392} & 0 & \frac{3\sqrt{35}}{196} & 0 & 0 & 0 & 0 & -\frac{5\sqrt{7}}{98} & 0 & -\frac{2\sqrt{105}}{147} & 0 & 0 & 0 \\ 0 & 0 & -\frac{3\sqrt{35}}{196} & 0 & \frac{3\sqrt{70}}{392} & 0 & 0 & 0 & 0 & -\frac{2\sqrt{105}}{147} & 0 & -\frac{5\sqrt{7}}{98} & 0 & 0 \\ 0 & 0 & 0 & -\frac{5\sqrt{21}}{196} & 0 & \frac{\sqrt{210}}{392} & 0 & 0 & 0 & 0 & -\frac{5\sqrt{7}}{98} & 0 & -\frac{\sqrt{35}}{49} & 0 \\ 0 & 0 & 0 & 0 & -\frac{15\sqrt{14}}{392} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}}{49} & 0 & -\frac{\sqrt{15}}{42} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{10}}{56} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{42} & 0 \end{bmatrix}$$

$$\boxed{\text{x539}} \quad \mathbb{M}_{1,2}^{(1,1;a)}(E_g) = \begin{bmatrix} 0 & \frac{2\sqrt{21}i}{49} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{10}i}{56} & 0 & -\frac{\sqrt{210}i}{392} & 0 & 0 & 0 & 0 & 0 \\ -\frac{2\sqrt{21}i}{49} & 0 & \frac{4\sqrt{210}i}{245} & 0 & 0 & 0 & 0 & -\frac{15\sqrt{14}i}{392} & 0 & -\frac{3\sqrt{70}i}{392} & 0 & 0 & 0 & 0 \\ 0 & -\frac{4\sqrt{210}i}{245} & 0 & \frac{6\sqrt{105}i}{245} & 0 & 0 & 0 & 0 & -\frac{5\sqrt{21}i}{196} & 0 & -\frac{3\sqrt{35}i}{196} & 0 & 0 & 0 \\ 0 & 0 & -\frac{6\sqrt{105}i}{245} & 0 & \frac{4\sqrt{210}i}{245} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{35}i}{196} & 0 & -\frac{5\sqrt{21}i}{196} & 0 & 0 \\ 0 & 0 & 0 & -\frac{4\sqrt{210}i}{245} & 0 & \frac{2\sqrt{21}i}{49} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{70}i}{392} & 0 & -\frac{15\sqrt{14}i}{392} & 0 \\ 0 & 0 & 0 & 0 & -\frac{2\sqrt{21}i}{49} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}i}{392} & 0 & -\frac{3\sqrt{10}i}{56} \\ \frac{3\sqrt{10}i}{56} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{42} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{15\sqrt{14}i}{392} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{42} & 0 & -\frac{\sqrt{35}i}{49} & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{210}i}{392} & 0 & \frac{5\sqrt{21}i}{196} & 0 & 0 & 0 & 0 & \frac{\sqrt{35}i}{49} & 0 & -\frac{5\sqrt{7}i}{98} & 0 & 0 & 0 & 0 \\ 0 & \frac{3\sqrt{70}i}{392} & 0 & \frac{3\sqrt{35}i}{196} & 0 & 0 & 0 & 0 & \frac{5\sqrt{7}i}{98} & 0 & -\frac{2\sqrt{105}i}{147} & 0 & 0 & 0 \\ 0 & 0 & \frac{3\sqrt{35}i}{196} & 0 & \frac{3\sqrt{70}i}{392} & 0 & 0 & 0 & 0 & \frac{2\sqrt{105}i}{147} & 0 & -\frac{5\sqrt{7}i}{98} & 0 & 0 \\ 0 & 0 & 0 & \frac{5\sqrt{21}i}{196} & 0 & \frac{\sqrt{210}i}{392} & 0 & 0 & 0 & 0 & \frac{5\sqrt{7}i}{98} & 0 & -\frac{\sqrt{35}i}{49} & 0 \\ 0 & 0 & 0 & 0 & \frac{15\sqrt{14}i}{392} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{35}i}{49} & 0 & -\frac{\sqrt{15}i}{42} \\ 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{10}i}{56} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{42} & 0 \end{bmatrix}$$

$$\boxed{\text{x540}} \quad \mathbb{M}_{3,1}^{(1,1;a)}(E_g, 1) = \begin{bmatrix} 0 & \frac{\sqrt{385}}{98} & 0 & -\frac{5\sqrt{770}}{588} & 0 & 0 & \frac{\sqrt{66}}{112} & 0 & -\frac{3\sqrt{154}}{392} & 0 & \frac{\sqrt{2310}}{784} & 0 & 0 & 0 \\ \frac{\sqrt{385}}{98} & 0 & -\frac{\sqrt{154}}{196} & 0 & -\frac{5\sqrt{77}}{147} & 0 & 0 & -\frac{\sqrt{2310}}{784} & 0 & -\frac{\sqrt{462}}{392} & 0 & \frac{3\sqrt{770}}{784} & 0 & 0 \\ 0 & -\frac{\sqrt{154}}{196} & 0 & -\frac{\sqrt{77}}{49} & 0 & -\frac{5\sqrt{770}}{588} & -\frac{\sqrt{165}}{112} & 0 & -\frac{3\sqrt{385}}{784} & 0 & \frac{\sqrt{231}}{784} & 0 & \frac{3\sqrt{1155}}{784} & 0 \\ -\frac{5\sqrt{770}}{588} & 0 & -\frac{\sqrt{77}}{49} & 0 & -\frac{\sqrt{154}}{196} & 0 & 0 & -\frac{3\sqrt{1155}}{784} & 0 & -\frac{\sqrt{231}}{784} & 0 & \frac{3\sqrt{385}}{784} & 0 & \frac{\sqrt{165}}{112} \\ 0 & -\frac{5\sqrt{77}}{147} & 0 & -\frac{\sqrt{154}}{196} & 0 & \frac{\sqrt{385}}{98} & 0 & 0 & -\frac{3\sqrt{770}}{784} & 0 & \frac{\sqrt{462}}{392} & 0 & \frac{\sqrt{2310}}{784} & 0 \\ 0 & 0 & -\frac{5\sqrt{770}}{588} & 0 & \frac{\sqrt{385}}{98} & 0 & 0 & 0 & 0 & -\frac{\sqrt{2310}}{784} & 0 & \frac{3\sqrt{154}}{392} & 0 & -\frac{\sqrt{66}}{112} \\ \frac{\sqrt{66}}{112} & 0 & -\frac{\sqrt{165}}{112} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{11}}{154} & 0 & \frac{\sqrt{55}}{154} & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{2310}}{784} & 0 & -\frac{3\sqrt{1155}}{784} & 0 & 0 & -\frac{3\sqrt{11}}{154} & 0 & -\frac{\sqrt{231}}{1078} & 0 & \frac{2\sqrt{385}}{539} & 0 & 0 & 0 \\ -\frac{3\sqrt{154}}{392} & 0 & -\frac{3\sqrt{385}}{784} & 0 & -\frac{3\sqrt{770}}{784} & 0 & 0 & -\frac{\sqrt{231}}{1078} & 0 & \frac{\sqrt{1155}}{1078} & 0 & \frac{5\sqrt{77}}{539} & 0 & 0 \\ 0 & -\frac{\sqrt{462}}{392} & 0 & -\frac{\sqrt{231}}{784} & 0 & -\frac{\sqrt{2310}}{784} & \frac{\sqrt{55}}{154} & 0 & \frac{\sqrt{1155}}{1078} & 0 & \frac{3\sqrt{77}}{539} & 0 & \frac{2\sqrt{385}}{539} & 0 \\ \frac{\sqrt{2310}}{784} & 0 & \frac{\sqrt{231}}{784} & 0 & \frac{\sqrt{462}}{392} & 0 & 0 & \frac{2\sqrt{385}}{539} & 0 & \frac{3\sqrt{77}}{539} & 0 & \frac{\sqrt{1155}}{1078} & 0 & \frac{\sqrt{55}}{154} \\ 0 & \frac{3\sqrt{770}}{784} & 0 & \frac{3\sqrt{385}}{784} & 0 & \frac{3\sqrt{154}}{392} & 0 & 0 & \frac{5\sqrt{77}}{539} & 0 & \frac{\sqrt{1155}}{1078} & 0 & -\frac{\sqrt{231}}{1078} & 0 \\ 0 & 0 & \frac{3\sqrt{1155}}{784} & 0 & \frac{\sqrt{2310}}{784} & 0 & 0 & 0 & 0 & \frac{2\sqrt{385}}{539} & 0 & -\frac{\sqrt{231}}{1078} & 0 & -\frac{3\sqrt{11}}{154} \\ 0 & 0 & 0 & \frac{\sqrt{165}}{112} & 0 & -\frac{\sqrt{66}}{112} & 0 & 0 & 0 & 0 & \frac{\sqrt{55}}{154} & 0 & -\frac{3\sqrt{11}}{154} & 0 \end{bmatrix}$$

$$\boxed{\text{x541}} \quad \mathbb{M}_{3,2}^{(1,1;a)}(E_g, 1) = \begin{bmatrix} 0 & \frac{\sqrt{385}i}{98} & 0 & \frac{5\sqrt{770}i}{588} & 0 & 0 & -\frac{\sqrt{66}i}{112} & 0 & -\frac{3\sqrt{154}i}{392} & 0 & -\frac{\sqrt{2310}i}{784} & 0 & 0 & 0 \\ -\frac{\sqrt{385}i}{98} & 0 & -\frac{\sqrt{154}i}{196} & 0 & \frac{5\sqrt{77}i}{147} & 0 & 0 & \frac{\sqrt{2310}i}{784} & 0 & -\frac{\sqrt{462}i}{392} & 0 & -\frac{3\sqrt{770}i}{784} & 0 & 0 \\ 0 & \frac{\sqrt{154}i}{196} & 0 & -\frac{\sqrt{77}i}{49} & 0 & \frac{5\sqrt{770}i}{588} & -\frac{\sqrt{165}i}{112} & 0 & \frac{3\sqrt{385}i}{784} & 0 & \frac{\sqrt{231}i}{784} & 0 & -\frac{3\sqrt{1155}i}{784} & 0 \\ -\frac{5\sqrt{770}i}{588} & 0 & \frac{\sqrt{77}i}{49} & 0 & -\frac{\sqrt{154}i}{196} & 0 & 0 & -\frac{3\sqrt{1155}i}{784} & 0 & \frac{\sqrt{231}i}{784} & 0 & \frac{3\sqrt{385}i}{784} & 0 & -\frac{\sqrt{165}i}{112} \\ 0 & -\frac{5\sqrt{77}i}{147} & 0 & \frac{\sqrt{154}i}{196} & 0 & \frac{\sqrt{385}i}{98} & 0 & 0 & -\frac{3\sqrt{770}i}{784} & 0 & -\frac{\sqrt{462}i}{392} & 0 & \frac{\sqrt{2310}i}{784} & 0 \\ 0 & 0 & -\frac{5\sqrt{770}i}{588} & 0 & -\frac{\sqrt{385}i}{98} & 0 & 0 & 0 & 0 & -\frac{\sqrt{2310}i}{784} & 0 & -\frac{3\sqrt{154}i}{392} & 0 & -\frac{\sqrt{66}i}{112} \\ \frac{\sqrt{66}i}{112} & 0 & \frac{\sqrt{165}i}{112} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{11}i}{154} & 0 & -\frac{\sqrt{55}i}{154} & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{2310}i}{784} & 0 & \frac{3\sqrt{1155}i}{784} & 0 & 0 & \frac{3\sqrt{11}i}{154} & 0 & -\frac{\sqrt{231}i}{1078} & 0 & -\frac{2\sqrt{385}i}{539} & 0 & 0 & 0 \\ \frac{3\sqrt{154}i}{392} & 0 & -\frac{3\sqrt{385}i}{784} & 0 & \frac{3\sqrt{770}i}{784} & 0 & 0 & \frac{\sqrt{231}i}{1078} & 0 & \frac{\sqrt{1155}i}{1078} & 0 & -\frac{5\sqrt{77}i}{539} & 0 & 0 \\ 0 & \frac{\sqrt{462}i}{392} & 0 & -\frac{\sqrt{231}i}{784} & 0 & \frac{\sqrt{2310}i}{784} & \frac{\sqrt{55}i}{154} & 0 & -\frac{\sqrt{1155}i}{1078} & 0 & \frac{3\sqrt{77}i}{539} & 0 & -\frac{2\sqrt{385}i}{539} & 0 \\ \frac{\sqrt{2310}i}{784} & 0 & -\frac{\sqrt{231}i}{784} & 0 & \frac{\sqrt{462}i}{392} & 0 & 0 & \frac{2\sqrt{385}i}{539} & 0 & -\frac{3\sqrt{77}i}{539} & 0 & \frac{\sqrt{1155}i}{1078} & 0 & -\frac{\sqrt{55}i}{154} \\ 0 & \frac{3\sqrt{770}i}{784} & 0 & -\frac{3\sqrt{385}i}{784} & 0 & \frac{3\sqrt{154}i}{392} & 0 & 0 & \frac{5\sqrt{77}i}{539} & 0 & -\frac{\sqrt{1155}i}{1078} & 0 & -\frac{\sqrt{231}i}{1078} & 0 \\ 0 & 0 & \frac{3\sqrt{1155}i}{784} & 0 & -\frac{\sqrt{2310}i}{784} & 0 & 0 & 0 & 0 & \frac{2\sqrt{385}i}{539} & 0 & \frac{\sqrt{231}i}{1078} & 0 & -\frac{3\sqrt{11}i}{154} \\ 0 & 0 & 0 & \frac{\sqrt{165}i}{112} & 0 & \frac{\sqrt{66}i}{112} & 0 & 0 & 0 & 0 & \frac{\sqrt{55}i}{154} & 0 & \frac{3\sqrt{11}i}{154} & 0 \end{bmatrix}$$

$$\boxed{\text{x542}} \quad \mathbb{M}_{3,1}^{(1,1;a)}(E_g, 2) = \begin{bmatrix} 0 & \frac{5\sqrt{231}}{294} & 0 & \frac{5\sqrt{462}}{588} & 0 & 0 & \frac{\sqrt{110}}{112} & 0 & -\frac{\sqrt{2310}}{392} & 0 & -\frac{3\sqrt{154}}{784} & 0 & 0 & 0 \\ \frac{5\sqrt{231}}{294} & 0 & -\frac{\sqrt{2310}}{588} & 0 & \frac{\sqrt{1155}}{147} & 0 & 0 & -\frac{5\sqrt{154}}{784} & 0 & -\frac{\sqrt{770}}{392} & 0 & -\frac{3\sqrt{462}}{784} & 0 & 0 \\ 0 & -\frac{\sqrt{2310}}{588} & 0 & -\frac{\sqrt{1155}}{147} & 0 & \frac{5\sqrt{462}}{588} & \frac{3\sqrt{11}}{112} & 0 & -\frac{5\sqrt{231}}{784} & 0 & \frac{\sqrt{385}}{784} & 0 & -\frac{9\sqrt{77}}{784} & 0 \\ \frac{5\sqrt{462}}{588} & 0 & -\frac{\sqrt{1155}}{147} & 0 & -\frac{\sqrt{2310}}{588} & 0 & 0 & \frac{9\sqrt{77}}{784} & 0 & -\frac{\sqrt{385}}{784} & 0 & \frac{5\sqrt{231}}{784} & 0 & -\frac{3\sqrt{11}}{112} \\ 0 & \frac{\sqrt{1155}}{147} & 0 & -\frac{\sqrt{2310}}{588} & 0 & \frac{5\sqrt{231}}{294} & 0 & 0 & \frac{3\sqrt{462}}{784} & 0 & \frac{\sqrt{770}}{392} & 0 & \frac{5\sqrt{154}}{784} & 0 \\ 0 & 0 & \frac{5\sqrt{462}}{588} & 0 & \frac{5\sqrt{231}}{294} & 0 & 0 & 0 & 0 & \frac{3\sqrt{154}}{784} & 0 & \frac{\sqrt{2310}}{392} & 0 & -\frac{\sqrt{110}}{112} \\ \frac{\sqrt{110}}{112} & 0 & \frac{3\sqrt{11}}{112} & 0 & 0 & 0 & 0 & -\frac{\sqrt{165}}{154} & 0 & -\frac{\sqrt{33}}{154} & 0 & 0 & 0 & 0 \\ 0 & -\frac{5\sqrt{154}}{784} & 0 & \frac{9\sqrt{77}}{784} & 0 & 0 & -\frac{\sqrt{165}}{154} & 0 & -\frac{\sqrt{385}}{1078} & 0 & -\frac{2\sqrt{231}}{539} & 0 & 0 & 0 \\ -\frac{\sqrt{2310}}{392} & 0 & -\frac{5\sqrt{231}}{784} & 0 & \frac{3\sqrt{462}}{784} & 0 & 0 & -\frac{\sqrt{385}}{1078} & 0 & \frac{5\sqrt{77}}{1078} & 0 & -\frac{\sqrt{1155}}{539} & 0 & 0 \\ 0 & -\frac{\sqrt{770}}{392} & 0 & -\frac{\sqrt{385}}{784} & 0 & \frac{3\sqrt{154}}{784} & -\frac{\sqrt{33}}{154} & 0 & \frac{5\sqrt{77}}{1078} & 0 & \frac{\sqrt{1155}}{539} & 0 & -\frac{2\sqrt{231}}{539} & 0 \\ -\frac{3\sqrt{154}}{784} & 0 & \frac{\sqrt{385}}{784} & 0 & \frac{\sqrt{770}}{392} & 0 & 0 & -\frac{2\sqrt{231}}{539} & 0 & \frac{\sqrt{1155}}{539} & 0 & \frac{5\sqrt{77}}{1078} & 0 & -\frac{\sqrt{33}}{154} \\ 0 & -\frac{3\sqrt{462}}{784} & 0 & \frac{5\sqrt{231}}{784} & 0 & \frac{\sqrt{2310}}{392} & 0 & 0 & -\frac{\sqrt{1155}}{539} & 0 & \frac{5\sqrt{77}}{1078} & 0 & -\frac{\sqrt{385}}{1078} & 0 \\ 0 & 0 & -\frac{9\sqrt{77}}{784} & 0 & \frac{5\sqrt{154}}{784} & 0 & 0 & 0 & 0 & -\frac{2\sqrt{231}}{539} & 0 & -\frac{\sqrt{385}}{1078} & 0 & -\frac{\sqrt{165}}{154} \\ 0 & 0 & 0 & -\frac{3\sqrt{11}}{112} & 0 & -\frac{\sqrt{110}}{112} & 0 & 0 & 0 & 0 & -\frac{\sqrt{33}}{154} & 0 & -\frac{\sqrt{165}}{154} & 0 \end{bmatrix}$$

$$\boxed{\text{x543}} \quad \mathbb{M}_{3,2}^{(1,1;a)}(E_g, 2) = \begin{bmatrix} 0 & \frac{5\sqrt{231}i}{294} & 0 & -\frac{5\sqrt{462}i}{588} & 0 & 0 & -\frac{\sqrt{110}i}{112} & 0 & -\frac{\sqrt{2310}i}{392} & 0 & \frac{3\sqrt{154}i}{784} & 0 & 0 & 0 \\ -\frac{5\sqrt{231}i}{294} & 0 & -\frac{\sqrt{2310}i}{588} & 0 & -\frac{\sqrt{1155}i}{147} & 0 & 0 & \frac{5\sqrt{154}i}{784} & 0 & -\frac{\sqrt{770}i}{392} & 0 & \frac{3\sqrt{462}i}{784} & 0 & 0 \\ 0 & \frac{\sqrt{2310}i}{588} & 0 & -\frac{\sqrt{1155}i}{147} & 0 & -\frac{5\sqrt{462}i}{588} & \frac{3\sqrt{11}i}{112} & 0 & \frac{5\sqrt{231}i}{784} & 0 & \frac{\sqrt{385}i}{784} & 0 & \frac{9\sqrt{77}i}{784} & 0 \\ \frac{5\sqrt{462}i}{588} & 0 & \frac{\sqrt{1155}i}{147} & 0 & -\frac{\sqrt{2310}i}{588} & 0 & 0 & \frac{9\sqrt{77}i}{784} & 0 & \frac{\sqrt{385}i}{784} & 0 & \frac{5\sqrt{231}i}{784} & 0 & \frac{3\sqrt{11}i}{112} \\ 0 & \frac{\sqrt{1155}i}{147} & 0 & \frac{\sqrt{2310}i}{588} & 0 & \frac{5\sqrt{231}i}{294} & 0 & 0 & \frac{3\sqrt{462}i}{784} & 0 & -\frac{\sqrt{770}i}{392} & 0 & \frac{5\sqrt{154}i}{784} & 0 \\ 0 & 0 & \frac{5\sqrt{462}i}{588} & 0 & -\frac{5\sqrt{231}i}{294} & 0 & 0 & 0 & 0 & \frac{3\sqrt{154}i}{784} & 0 & -\frac{\sqrt{2310}i}{392} & 0 & -\frac{\sqrt{110}i}{112} \\ \frac{\sqrt{110}i}{112} & 0 & -\frac{3\sqrt{11}i}{112} & 0 & 0 & 0 & 0 & -\frac{\sqrt{165}i}{154} & 0 & \frac{\sqrt{33}i}{154} & 0 & 0 & 0 & 0 \\ 0 & -\frac{5\sqrt{154}i}{784} & 0 & -\frac{9\sqrt{77}i}{784} & 0 & 0 & \frac{\sqrt{165}i}{154} & 0 & -\frac{\sqrt{385}i}{1078} & 0 & \frac{2\sqrt{231}i}{539} & 0 & 0 & 0 \\ \frac{\sqrt{2310}i}{392} & 0 & -\frac{5\sqrt{231}i}{784} & 0 & -\frac{3\sqrt{462}i}{784} & 0 & 0 & \frac{\sqrt{385}i}{1078} & 0 & \frac{5\sqrt{77}i}{1078} & 0 & \frac{\sqrt{1155}i}{539} & 0 & 0 \\ 0 & \frac{\sqrt{770}i}{392} & 0 & -\frac{\sqrt{385}i}{784} & 0 & -\frac{3\sqrt{154}i}{784} & -\frac{\sqrt{33}i}{154} & 0 & -\frac{5\sqrt{77}i}{1078} & 0 & \frac{\sqrt{1155}i}{539} & 0 & \frac{2\sqrt{231}i}{539} & 0 \\ -\frac{3\sqrt{154}i}{784} & 0 & -\frac{\sqrt{385}i}{784} & 0 & \frac{\sqrt{770}i}{392} & 0 & 0 & -\frac{2\sqrt{231}i}{539} & 0 & -\frac{\sqrt{1155}i}{539} & 0 & \frac{5\sqrt{77}i}{1078} & 0 & \frac{\sqrt{33}i}{154} \\ 0 & -\frac{3\sqrt{462}i}{784} & 0 & -\frac{5\sqrt{231}i}{784} & 0 & \frac{\sqrt{2310}i}{392} & 0 & 0 & -\frac{\sqrt{1155}i}{539} & 0 & -\frac{5\sqrt{77}i}{1078} & 0 & -\frac{\sqrt{385}i}{1078} & 0 \\ 0 & 0 & -\frac{9\sqrt{77}i}{784} & 0 & -\frac{5\sqrt{154}i}{784} & 0 & 0 & 0 & 0 & -\frac{2\sqrt{231}i}{539} & 0 & \frac{\sqrt{385}i}{1078} & 0 & -\frac{\sqrt{165}i}{154} \\ 0 & 0 & 0 & -\frac{3\sqrt{11}i}{112} & 0 & \frac{\sqrt{110}i}{112} & 0 & 0 & 0 & 0 & -\frac{\sqrt{33}i}{154} & 0 & \frac{\sqrt{165}i}{154} & 0 \end{bmatrix}$$

$$\boxed{\text{x544}} \quad \mathbb{M}_{5,1}^{(1,1;a)}(E_g, 1) = \begin{bmatrix} 0 & \frac{3\sqrt{5005}}{4312} & 0 & -\frac{\sqrt{10010}}{616} & 0 & \frac{9\sqrt{1001}}{616} & \frac{5\sqrt{858}}{14784} & 0 & -\frac{25\sqrt{2002}}{34496} & 0 & \frac{5\sqrt{30030}}{14784} & 0 & -\frac{5\sqrt{6006}}{4928} & 0 \\ \frac{3\sqrt{5005}}{4312} & 0 & -\frac{15\sqrt{2002}}{4312} & 0 & \frac{5\sqrt{1001}}{616} & 0 & 0 & -\frac{23\sqrt{30030}}{103488} & 0 & \frac{65\sqrt{6006}}{103488} & 0 & -\frac{\sqrt{10010}}{4928} & 0 & -\frac{\sqrt{4290}}{704} \\ 0 & -\frac{15\sqrt{2002}}{4312} & 0 & \frac{15\sqrt{1001}}{2156} & 0 & -\frac{\sqrt{10010}}{616} & -\frac{\sqrt{2145}}{1056} & 0 & \frac{\sqrt{5005}}{1568} & 0 & -\frac{5\sqrt{3003}}{51744} & 0 & -\frac{\sqrt{15015}}{2464} & 0 \\ -\frac{\sqrt{10010}}{616} & 0 & \frac{15\sqrt{1001}}{2156} & 0 & -\frac{15\sqrt{2002}}{4312} & 0 & 0 & \frac{\sqrt{15015}}{2464} & 0 & \frac{5\sqrt{3003}}{51744} & 0 & -\frac{\sqrt{5005}}{1568} & 0 & \frac{\sqrt{2145}}{1056} \\ 0 & \frac{5\sqrt{1001}}{616} & 0 & -\frac{15\sqrt{2002}}{4312} & 0 & \frac{3\sqrt{5005}}{4312} & \frac{\sqrt{4290}}{704} & 0 & \frac{\sqrt{10010}}{4928} & 0 & -\frac{65\sqrt{6006}}{103488} & 0 & \frac{23\sqrt{30030}}{103488} & 0 \\ \frac{9\sqrt{1001}}{616} & 0 & -\frac{\sqrt{10010}}{616} & 0 & \frac{3\sqrt{5005}}{4312} & 0 & 0 & \frac{5\sqrt{6006}}{4928} & 0 & -\frac{5\sqrt{30030}}{14784} & 0 & \frac{25\sqrt{2002}}{34496} & 0 & -\frac{5\sqrt{858}}{14784} \\ \frac{5\sqrt{858}}{14784} & 0 & -\frac{\sqrt{2145}}{1056} & 0 & \frac{\sqrt{4290}}{704} & 0 & 0 & -\frac{15\sqrt{143}}{16016} & 0 & 0 & 0 & -\frac{3\sqrt{429}}{2288} & 0 & 0 \\ 0 & -\frac{23\sqrt{30030}}{103488} & 0 & \frac{\sqrt{15015}}{2464} & 0 & \frac{5\sqrt{6006}}{4928} & -\frac{15\sqrt{143}}{16016} & 0 & \frac{5\sqrt{3003}}{14014} & 0 & -\frac{\sqrt{5005}}{16016} & 0 & -\frac{9\sqrt{1001}}{8008} & 0 \\ -\frac{25\sqrt{2002}}{34496} & 0 & \frac{\sqrt{5005}}{1568} & 0 & \frac{\sqrt{10010}}{4928} & 0 & 0 & \frac{5\sqrt{3003}}{14014} & 0 & -\frac{\sqrt{15015}}{112112} & 0 & -\frac{5\sqrt{1001}}{8008} & 0 & -\frac{3\sqrt{429}}{2288} \\ 0 & \frac{65\sqrt{6006}}{103488} & 0 & \frac{5\sqrt{3003}}{51744} & 0 & -\frac{5\sqrt{30030}}{14784} & \frac{\sqrt{715}}{1144} & 0 & -\frac{\sqrt{15015}}{112112} & 0 & -\frac{15\sqrt{1001}}{28028} & 0 & -\frac{\sqrt{5005}}{16016} & 0 \\ \frac{5\sqrt{30030}}{14784} & 0 & -\frac{5\sqrt{3003}}{51744} & 0 & -\frac{65\sqrt{6006}}{103488} & 0 & 0 & -\frac{\sqrt{5005}}{16016} & 0 & -\frac{15\sqrt{1001}}{28028} & 0 & -\frac{\sqrt{15015}}{112112} & 0 & \frac{\sqrt{715}}{1144} \\ 0 & -\frac{\sqrt{10010}}{4928} & 0 & -\frac{\sqrt{5005}}{1568} & 0 & \frac{25\sqrt{2002}}{34496} & -\frac{3\sqrt{429}}{2288} & 0 & -\frac{5\sqrt{1001}}{8008} & 0 & -\frac{\sqrt{15015}}{112112} & 0 & \frac{5\sqrt{3003}}{14014} & 0 \\ -\frac{5\sqrt{6006}}{4928} & 0 & -\frac{\sqrt{15015}}{2464} & 0 & \frac{23\sqrt{30030}}{103488} & 0 & 0 & -\frac{9\sqrt{1001}}{8008} & 0 & -\frac{\sqrt{5005}}{16016} & 0 & \frac{5\sqrt{3003}}{14014} & 0 & -\frac{15\sqrt{143}}{16016} \\ 0 & -\frac{\sqrt{4290}}{704} & 0 & \frac{\sqrt{2145}}{1056} & 0 & -\frac{5\sqrt{858}}{14784} & 0 & 0 & -\frac{3\sqrt{429}}{2288} & 0 & \frac{\sqrt{715}}{1144} & 0 & -\frac{15\sqrt{143}}{16016} & 0 \end{bmatrix}$$

$$\begin{array}{c}
\boxed{\text{x545}} \quad \mathbb{M}_{5,2}^{(1,1;a)}(E_g, 1) \\
= \left[ \begin{array}{cccccccccccccccc}
0 & \frac{3\sqrt{5005i}}{4312} & 0 & \frac{\sqrt{10010i}}{616} & 0 & \frac{9\sqrt{1001i}}{616} & -\frac{5\sqrt{858i}}{14784} & 0 & -\frac{25\sqrt{2002i}}{34496} & 0 & -\frac{5\sqrt{30030i}}{14784} & 0 & -\frac{5\sqrt{6006i}}{4928} & 0 \\
-\frac{3\sqrt{5005i}}{4312} & 0 & -\frac{15\sqrt{2002i}}{4312} & 0 & -\frac{5\sqrt{1001i}}{616} & 0 & 0 & \frac{23\sqrt{30030i}}{103488} & 0 & \frac{65\sqrt{6006i}}{103488} & 0 & \frac{\sqrt{10010i}}{4928} & 0 & -\frac{\sqrt{4290i}}{704} \\
0 & \frac{15\sqrt{2002i}}{4312} & 0 & \frac{15\sqrt{1001i}}{2156} & 0 & \frac{\sqrt{10010i}}{616} & -\frac{\sqrt{2145i}}{1056} & 0 & -\frac{\sqrt{5005i}}{1568} & 0 & -\frac{5\sqrt{3003i}}{51744} & 0 & \frac{\sqrt{15015i}}{2464} & 0 \\
-\frac{\sqrt{10010i}}{616} & 0 & -\frac{15\sqrt{1001i}}{2156} & 0 & -\frac{15\sqrt{2002i}}{4312} & 0 & 0 & \frac{\sqrt{15015i}}{2464} & 0 & -\frac{5\sqrt{3003i}}{51744} & 0 & -\frac{\sqrt{5005i}}{1568} & 0 & -\frac{\sqrt{2145i}}{1056} \\
0 & \frac{5\sqrt{1001i}}{616} & 0 & \frac{15\sqrt{2002i}}{4312} & 0 & \frac{3\sqrt{5005i}}{4312} & -\frac{\sqrt{4290i}}{704} & 0 & \frac{\sqrt{10010i}}{4928} & 0 & \frac{65\sqrt{6006i}}{103488} & 0 & \frac{23\sqrt{30030i}}{103488} & 0 \\
-\frac{9\sqrt{1001i}}{616} & 0 & -\frac{\sqrt{10010i}}{616} & 0 & -\frac{3\sqrt{5005i}}{4312} & 0 & 0 & -\frac{5\sqrt{6006i}}{4928} & 0 & -\frac{5\sqrt{30030i}}{14784} & 0 & -\frac{25\sqrt{2002i}}{34496} & 0 & -\frac{5\sqrt{858i}}{14784} \\
\frac{5\sqrt{858i}}{14784} & 0 & \frac{\sqrt{2145i}}{1056} & 0 & \frac{\sqrt{4290i}}{704} & 0 & 0 & -\frac{15\sqrt{143i}}{16016} & 0 & -\frac{\sqrt{715i}}{1144} & 0 & -\frac{3\sqrt{429i}}{2288} & 0 & 0 \\
0 & -\frac{23\sqrt{30030i}}{103488} & 0 & -\frac{\sqrt{15015i}}{2464} & 0 & \frac{5\sqrt{6006i}}{4928} & \frac{15\sqrt{143i}}{16016} & 0 & \frac{5\sqrt{3003i}}{14014} & 0 & \frac{\sqrt{5005i}}{16016} & 0 & -\frac{9\sqrt{1001i}}{8008} & 0 \\
\frac{25\sqrt{2002i}}{34496} & 0 & \frac{\sqrt{5005i}}{1568} & 0 & -\frac{\sqrt{10010i}}{4928} & 0 & 0 & -\frac{5\sqrt{3003i}}{14014} & 0 & -\frac{\sqrt{15015i}}{112112} & 0 & \frac{5\sqrt{1001i}}{8008} & 0 & -\frac{3\sqrt{429i}}{2288} \\
0 & -\frac{65\sqrt{6006i}}{103488} & 0 & \frac{5\sqrt{3003i}}{51744} & 0 & \frac{5\sqrt{30030i}}{14784} & \frac{\sqrt{715i}}{1144} & 0 & \frac{\sqrt{15015i}}{112112} & 0 & -\frac{15\sqrt{1001i}}{28028} & 0 & \frac{\sqrt{5005i}}{16016} & 0 \\
\frac{5\sqrt{30030i}}{14784} & 0 & \frac{5\sqrt{3003i}}{51744} & 0 & -\frac{65\sqrt{6006i}}{103488} & 0 & 0 & -\frac{\sqrt{5005i}}{16016} & 0 & \frac{15\sqrt{1001i}}{28028} & 0 & -\frac{\sqrt{15015i}}{112112} & 0 & -\frac{\sqrt{715i}}{1144} \\
0 & -\frac{\sqrt{10010i}}{4928} & 0 & \frac{\sqrt{5005i}}{1568} & 0 & \frac{25\sqrt{2002i}}{34496} & \frac{3\sqrt{429i}}{2288} & 0 & -\frac{5\sqrt{1001i}}{8008} & 0 & \frac{\sqrt{15015i}}{112112} & 0 & \frac{5\sqrt{3003i}}{14014} & 0 \\
\frac{5\sqrt{6006i}}{4928} & 0 & -\frac{\sqrt{15015i}}{2464} & 0 & -\frac{23\sqrt{30030i}}{103488} & 0 & 0 & \frac{9\sqrt{1001i}}{8008} & 0 & -\frac{\sqrt{5005i}}{16016} & 0 & -\frac{5\sqrt{3003i}}{14014} & 0 & -\frac{15\sqrt{143i}}{16016} \\
0 & \frac{\sqrt{4290i}}{704} & 0 & \frac{\sqrt{2145i}}{1056} & 0 & \frac{5\sqrt{858i}}{14784} & 0 & 0 & \frac{3\sqrt{429i}}{2288} & 0 & \frac{\sqrt{715i}}{1144} & 0 & \frac{15\sqrt{143i}}{16016} & 0
\end{array} \right]
\end{array}$$

$$\begin{array}{c}
\boxed{\text{x546}} \quad \mathbb{M}_{5,1}^{(1,1;a)}(E_g, 2) \\
= \left[ \begin{array}{cccccccccccccccc}
0 & \frac{3\sqrt{143}}{616} & 0 & \frac{9\sqrt{286}}{616} & 0 & \frac{3\sqrt{715}}{616} & \frac{\sqrt{30030}}{14784} & 0 & -\frac{5\sqrt{1430}}{4928} & 0 & -\frac{15\sqrt{858}}{4928} & 0 & -\frac{5\sqrt{4290}}{14784} & 0 \\
\frac{3\sqrt{143}}{616} & 0 & -\frac{3\sqrt{1430}}{616} & 0 & -\frac{9\sqrt{715}}{616} & 0 & 0 & -\frac{23\sqrt{858}}{14784} & 0 & \frac{13\sqrt{4290}}{14784} & 0 & \frac{9\sqrt{286}}{4928} & 0 & -\frac{5\sqrt{6006}}{14784} \\
0 & -\frac{3\sqrt{1430}}{616} & 0 & \frac{3\sqrt{715}}{308} & 0 & \frac{9\sqrt{286}}{616} & \frac{3\sqrt{3003}}{2464} & 0 & \frac{\sqrt{143}}{224} & 0 & -\frac{\sqrt{2145}}{7392} & 0 & \frac{9\sqrt{429}}{2464} & 0 \\
\frac{9\sqrt{286}}{616} & 0 & \frac{3\sqrt{715}}{308} & 0 & -\frac{3\sqrt{1430}}{616} & 0 & 0 & -\frac{9\sqrt{429}}{2464} & 0 & \frac{\sqrt{2145}}{7392} & 0 & -\frac{\sqrt{143}}{224} & 0 & -\frac{3\sqrt{3003}}{2464} \\
0 & -\frac{9\sqrt{715}}{616} & 0 & -\frac{3\sqrt{1430}}{616} & 0 & \frac{3\sqrt{143}}{616} & \frac{5\sqrt{6006}}{14784} & 0 & -\frac{9\sqrt{286}}{4928} & 0 & -\frac{13\sqrt{4290}}{14784} & 0 & \frac{23\sqrt{858}}{14784} & 0 \\
\frac{3\sqrt{715}}{616} & 0 & \frac{9\sqrt{286}}{616} & 0 & \frac{3\sqrt{143}}{616} & 0 & 0 & \frac{5\sqrt{4290}}{14784} & 0 & \frac{15\sqrt{858}}{4928} & 0 & \frac{5\sqrt{1430}}{4928} & 0 & -\frac{\sqrt{30030}}{14784} \\
\frac{\sqrt{30030}}{14784} & 0 & \frac{3\sqrt{3003}}{2464} & 0 & \frac{5\sqrt{6006}}{14784} & 0 & 0 & -\frac{3\sqrt{5005}}{16016} & 0 & -\frac{3\sqrt{5005}}{16016} & 0 & -\frac{\sqrt{15015}}{16016} & 0 & 0 \\
0 & -\frac{23\sqrt{858}}{14784} & 0 & -\frac{9\sqrt{429}}{2464} & 0 & \frac{5\sqrt{4290}}{14784} & -\frac{3\sqrt{5005}}{16016} & 0 & \frac{\sqrt{2145}}{2002} & 0 & \frac{9\sqrt{143}}{16016} & 0 & -\frac{3\sqrt{715}}{8008} & 0 \\
-\frac{5\sqrt{1430}}{4928} & 0 & \frac{\sqrt{143}}{224} & 0 & -\frac{9\sqrt{286}}{4928} & 0 & 0 & \frac{\sqrt{2145}}{2002} & 0 & -\frac{\sqrt{429}}{16016} & 0 & \frac{9\sqrt{715}}{8008} & 0 & -\frac{\sqrt{15015}}{16016} \\
0 & \frac{13\sqrt{4290}}{14784} & 0 & \frac{\sqrt{2145}}{7392} & 0 & \frac{15\sqrt{858}}{4928} & -\frac{9\sqrt{1001}}{8008} & 0 & -\frac{\sqrt{429}}{16016} & 0 & -\frac{3\sqrt{715}}{4004} & 0 & \frac{9\sqrt{143}}{16016} & 0 \\
-\frac{15\sqrt{858}}{4928} & 0 & -\frac{\sqrt{2145}}{7392} & 0 & -\frac{13\sqrt{4290}}{14784} & 0 & 0 & \frac{9\sqrt{143}}{16016} & 0 & -\frac{3\sqrt{715}}{4004} & 0 & -\frac{\sqrt{429}}{16016} & 0 & -\frac{9\sqrt{1001}}{8008} \\
0 & \frac{9\sqrt{286}}{4928} & 0 & -\frac{\sqrt{143}}{224} & 0 & \frac{5\sqrt{1430}}{4928} & -\frac{\sqrt{15015}}{16016} & 0 & \frac{9\sqrt{715}}{8008} & 0 & -\frac{\sqrt{429}}{16016} & 0 & \frac{\sqrt{2145}}{2002} & 0 \\
-\frac{5\sqrt{4290}}{14784} & 0 & \frac{9\sqrt{429}}{2464} & 0 & \frac{23\sqrt{858}}{14784} & 0 & 0 & -\frac{3\sqrt{715}}{8008} & 0 & \frac{9\sqrt{143}}{16016} & 0 & \frac{\sqrt{2145}}{2002} & 0 & -\frac{3\sqrt{5005}}{16016} \\
0 & -\frac{5\sqrt{6006}}{14784} & 0 & -\frac{3\sqrt{3003}}{2464} & 0 & -\frac{\sqrt{30030}}{14784} & 0 & 0 & -\frac{\sqrt{15015}}{16016} & 0 & -\frac{9\sqrt{1001}}{8008} & 0 & -\frac{3\sqrt{5005}}{16016} & 0
\end{array} \right]
\end{array}$$

$$\boxed{x547} \quad \mathbb{M}_{5,2}^{(1,1;a)}(E_g, 2) = \begin{bmatrix}
0 & \frac{3\sqrt{143}i}{616} & 0 & -\frac{9\sqrt{286}i}{616} & 0 & \frac{3\sqrt{715}i}{616} & -\frac{\sqrt{30030}i}{14784} & 0 & -\frac{5\sqrt{1430}i}{4928} & 0 & \frac{15\sqrt{858}i}{4928} & 0 & -\frac{5\sqrt{4290}i}{14784} & 0 \\
-\frac{3\sqrt{143}i}{616} & 0 & -\frac{3\sqrt{1430}i}{616} & 0 & \frac{9\sqrt{715}i}{616} & 0 & 0 & \frac{23\sqrt{858}i}{14784} & 0 & \frac{13\sqrt{4290}i}{14784} & 0 & -\frac{9\sqrt{286}i}{4928} & 0 & -\frac{5\sqrt{6006}i}{14784} \\
0 & \frac{3\sqrt{1430}i}{616} & 0 & \frac{3\sqrt{715}i}{308} & 0 & -\frac{9\sqrt{286}i}{616} & \frac{3\sqrt{3003}i}{2464} & 0 & -\frac{\sqrt{143}i}{224} & 0 & -\frac{\sqrt{2145}i}{7392} & 0 & -\frac{9\sqrt{429}i}{2464} & 0 \\
\frac{9\sqrt{286}i}{616} & 0 & -\frac{3\sqrt{715}i}{308} & 0 & -\frac{3\sqrt{1430}i}{616} & 0 & 0 & -\frac{9\sqrt{429}i}{2464} & 0 & -\frac{\sqrt{2145}i}{7392} & 0 & -\frac{\sqrt{143}i}{224} & 0 & \frac{3\sqrt{3003}i}{2464} \\
0 & -\frac{9\sqrt{715}i}{616} & 0 & \frac{3\sqrt{1430}i}{616} & 0 & \frac{3\sqrt{143}i}{616} & -\frac{5\sqrt{6006}i}{14784} & 0 & -\frac{9\sqrt{286}i}{4928} & 0 & \frac{13\sqrt{4290}i}{14784} & 0 & \frac{23\sqrt{858}i}{14784} & 0 \\
-\frac{3\sqrt{715}i}{616} & 0 & \frac{9\sqrt{286}i}{616} & 0 & -\frac{3\sqrt{143}i}{616} & 0 & 0 & -\frac{5\sqrt{4290}i}{14784} & 0 & \frac{15\sqrt{858}i}{4928} & 0 & -\frac{5\sqrt{1430}i}{4928} & 0 & -\frac{\sqrt{30030}i}{14784} \\
\frac{\sqrt{30030}i}{14784} & 0 & -\frac{3\sqrt{3003}i}{2464} & 0 & \frac{5\sqrt{6006}i}{14784} & 0 & 0 & -\frac{3\sqrt{5005}i}{16016} & 0 & \frac{9\sqrt{1001}i}{8008} & 0 & -\frac{\sqrt{15015}i}{16016} & 0 & 0 \\
0 & -\frac{23\sqrt{858}i}{14784} & 0 & \frac{9\sqrt{429}i}{2464} & 0 & \frac{5\sqrt{4290}i}{14784} & \frac{3\sqrt{5005}i}{16016} & 0 & \frac{\sqrt{2145}i}{2002} & 0 & -\frac{9\sqrt{143}i}{16016} & 0 & -\frac{3\sqrt{715}i}{8008} & 0 \\
\frac{5\sqrt{1430}i}{4928} & 0 & \frac{\sqrt{143}i}{224} & 0 & \frac{9\sqrt{286}i}{4928} & 0 & 0 & -\frac{\sqrt{2145}i}{2002} & 0 & -\frac{\sqrt{429}i}{16016} & 0 & -\frac{9\sqrt{715}i}{8008} & 0 & -\frac{\sqrt{15015}i}{16016} \\
0 & -\frac{13\sqrt{4290}i}{14784} & 0 & \frac{\sqrt{2145}i}{7392} & 0 & -\frac{15\sqrt{858}i}{4928} & -\frac{9\sqrt{1001}i}{8008} & 0 & \frac{\sqrt{429}i}{16016} & 0 & -\frac{3\sqrt{715}i}{4004} & 0 & -\frac{9\sqrt{143}i}{16016} & 0 \\
-\frac{15\sqrt{858}i}{4928} & 0 & \frac{\sqrt{2145}i}{7392} & 0 & -\frac{13\sqrt{4290}i}{14784} & 0 & 0 & \frac{9\sqrt{143}i}{16016} & 0 & \frac{3\sqrt{715}i}{4004} & 0 & -\frac{\sqrt{429}i}{16016} & 0 & \frac{9\sqrt{1001}i}{8008} \\
0 & \frac{9\sqrt{286}i}{4928} & 0 & \frac{\sqrt{143}i}{224} & 0 & \frac{5\sqrt{1430}i}{4928} & \frac{\sqrt{15015}i}{16016} & 0 & \frac{9\sqrt{715}i}{8008} & 0 & \frac{\sqrt{429}i}{16016} & 0 & \frac{\sqrt{2145}i}{2002} & 0 \\
\frac{5\sqrt{4290}i}{14784} & 0 & \frac{9\sqrt{429}i}{2464} & 0 & -\frac{23\sqrt{858}i}{14784} & 0 & 0 & \frac{3\sqrt{715}i}{8008} & 0 & \frac{9\sqrt{143}i}{16016} & 0 & -\frac{\sqrt{2145}i}{2002} & 0 & -\frac{3\sqrt{5005}i}{16016} \\
0 & \frac{5\sqrt{6006}i}{14784} & 0 & -\frac{3\sqrt{3003}i}{2464} & 0 & \frac{\sqrt{30030}i}{14784} & 0 & 0 & \frac{\sqrt{15015}i}{16016} & 0 & -\frac{9\sqrt{1001}i}{8008} & 0 & \frac{3\sqrt{5005}i}{16016} & 0
\end{bmatrix}$$

$$\boxed{x548} \quad \mathbb{M}_{5,1}^{(1,1;a)}(E_g, 3) = \begin{bmatrix}
0 & \frac{\sqrt{429}}{308} & 0 & -\frac{\sqrt{858}}{308} & 0 & -\frac{3\sqrt{2145}}{308} & \frac{\sqrt{10010}}{7392} & 0 & -\frac{5\sqrt{4290}}{7392} & 0 & \frac{5\sqrt{286}}{2464} & 0 & \frac{5\sqrt{1430}}{2464} & 0 \\
\frac{\sqrt{429}}{308} & 0 & -\frac{\sqrt{4290}}{308} & 0 & \frac{\sqrt{2145}}{308} & 0 & 0 & -\frac{23\sqrt{286}}{7392} & 0 & \frac{13\sqrt{1430}}{7392} & 0 & -\frac{\sqrt{858}}{2464} & \frac{5\sqrt{2002}}{2464} \\
0 & -\frac{\sqrt{4290}}{308} & 0 & \frac{\sqrt{2145}}{154} & 0 & -\frac{\sqrt{858}}{308} & -\frac{\sqrt{1001}}{1232} & 0 & \frac{\sqrt{429}}{336} & 0 & -\frac{\sqrt{715}}{3696} & 0 & -\frac{3\sqrt{143}}{1232} & 0 \\
-\frac{\sqrt{858}}{308} & 0 & \frac{\sqrt{2145}}{154} & 0 & -\frac{\sqrt{4290}}{308} & 0 & 0 & \frac{3\sqrt{143}}{1232} & 0 & \frac{\sqrt{715}}{3696} & 0 & -\frac{\sqrt{429}}{336} & \frac{\sqrt{1001}}{1232} \\
0 & \frac{\sqrt{2145}}{308} & 0 & -\frac{\sqrt{4290}}{308} & 0 & \frac{\sqrt{429}}{308} & -\frac{5\sqrt{2002}}{2464} & 0 & \frac{\sqrt{858}}{2464} & 0 & -\frac{13\sqrt{1430}}{7392} & 0 & \frac{23\sqrt{286}}{7392} & 0 \\
-\frac{3\sqrt{2145}}{308} & 0 & -\frac{\sqrt{858}}{308} & 0 & \frac{\sqrt{429}}{308} & 0 & 0 & -\frac{5\sqrt{1430}}{2464} & 0 & -\frac{5\sqrt{286}}{2464} & 0 & \frac{5\sqrt{4290}}{7392} & 0 & -\frac{\sqrt{10010}}{7392} \\
\frac{\sqrt{10010}}{7392} & 0 & -\frac{\sqrt{1001}}{1232} & 0 & -\frac{5\sqrt{2002}}{2464} & 0 & 0 & -\frac{\sqrt{15015}}{8008} & 0 & \frac{\sqrt{3003}}{4004} & 0 & \frac{3\sqrt{5005}}{8008} & 0 & 0 \\
0 & -\frac{23\sqrt{286}}{7392} & 0 & \frac{3\sqrt{143}}{1232} & 0 & -\frac{5\sqrt{1430}}{2464} & -\frac{\sqrt{15015}}{8008} & 0 & \frac{\sqrt{715}}{1001} & 0 & -\frac{\sqrt{429}}{8008} & 0 & \frac{3\sqrt{2145}}{4004} & 0 \\
-\frac{5\sqrt{4290}}{7392} & 0 & \frac{\sqrt{429}}{336} & 0 & \frac{\sqrt{858}}{2464} & 0 & 0 & \frac{\sqrt{715}}{1001} & 0 & -\frac{\sqrt{143}}{8008} & 0 & -\frac{\sqrt{2145}}{4004} & 0 & \frac{3\sqrt{5005}}{8008} \\
0 & \frac{13\sqrt{1430}}{7392} & 0 & \frac{\sqrt{715}}{3696} & 0 & -\frac{5\sqrt{286}}{2464} & \frac{\sqrt{3003}}{4004} & 0 & -\frac{\sqrt{143}}{8008} & 0 & -\frac{\sqrt{2145}}{2002} & 0 & -\frac{\sqrt{429}}{8008} & 0 \\
\frac{5\sqrt{286}}{2464} & 0 & -\frac{\sqrt{715}}{3696} & 0 & -\frac{13\sqrt{1430}}{7392} & 0 & 0 & -\frac{\sqrt{429}}{8008} & 0 & -\frac{\sqrt{2145}}{2002} & 0 & -\frac{\sqrt{143}}{8008} & 0 & \frac{\sqrt{3003}}{4004} \\
0 & -\frac{\sqrt{858}}{2464} & 0 & -\frac{\sqrt{429}}{336} & 0 & \frac{5\sqrt{4290}}{7392} & \frac{3\sqrt{5005}}{8008} & 0 & -\frac{\sqrt{2145}}{4004} & 0 & -\frac{\sqrt{143}}{8008} & 0 & \frac{\sqrt{715}}{1001} & 0 \\
\frac{5\sqrt{1430}}{2464} & 0 & -\frac{3\sqrt{143}}{1232} & 0 & \frac{23\sqrt{286}}{7392} & 0 & 0 & \frac{3\sqrt{2145}}{4004} & 0 & -\frac{\sqrt{429}}{8008} & 0 & \frac{\sqrt{715}}{1001} & 0 & -\frac{\sqrt{15015}}{8008} \\
0 & \frac{5\sqrt{2002}}{2464} & 0 & \frac{\sqrt{1001}}{1232} & 0 & -\frac{\sqrt{10010}}{7392} & 0 & 0 & \frac{3\sqrt{5005}}{8008} & 0 & \frac{\sqrt{3003}}{4004} & 0 & -\frac{\sqrt{15015}}{8008} & 0
\end{bmatrix}$$



$$\begin{array}{c}
\boxed{\text{x549}} \quad \mathbb{M}_{5,2}^{(1,1;a)}(E_g, 3) \\
= \left[ \begin{array}{cccccccccccccccc}
0 & \frac{\sqrt{429}i}{308} & 0 & \frac{\sqrt{858}i}{308} & 0 & -\frac{3\sqrt{2145}i}{308} & -\frac{\sqrt{10010}i}{7392} & 0 & -\frac{5\sqrt{4290}i}{7392} & 0 & -\frac{5\sqrt{286}i}{2464} & 0 & \frac{5\sqrt{1430}i}{2464} & 0 \\
-\frac{\sqrt{429}i}{308} & 0 & -\frac{\sqrt{4290}i}{308} & 0 & -\frac{\sqrt{2145}i}{308} & 0 & 0 & \frac{23\sqrt{286}i}{7392} & 0 & \frac{13\sqrt{1430}i}{7392} & 0 & \frac{\sqrt{858}i}{2464} & 0 & \frac{5\sqrt{2002}i}{2464} \\
0 & \frac{\sqrt{4290}i}{308} & 0 & \frac{\sqrt{2145}i}{154} & 0 & \frac{\sqrt{858}i}{308} & -\frac{\sqrt{1001}i}{1232} & 0 & -\frac{\sqrt{429}i}{336} & 0 & -\frac{\sqrt{715}i}{3696} & 0 & \frac{3\sqrt{143}i}{1232} & 0 \\
-\frac{\sqrt{858}i}{308} & 0 & -\frac{\sqrt{2145}i}{154} & 0 & -\frac{\sqrt{4290}i}{308} & 0 & 0 & \frac{3\sqrt{143}i}{1232} & 0 & -\frac{\sqrt{715}i}{3696} & 0 & -\frac{\sqrt{429}i}{336} & 0 & -\frac{\sqrt{1001}i}{1232} \\
0 & \frac{\sqrt{2145}i}{308} & 0 & \frac{\sqrt{4290}i}{308} & 0 & \frac{\sqrt{429}i}{308} & \frac{5\sqrt{2002}i}{2464} & 0 & \frac{\sqrt{858}i}{2464} & 0 & \frac{13\sqrt{1430}i}{7392} & 0 & \frac{23\sqrt{286}i}{7392} & 0 \\
\frac{3\sqrt{2145}i}{308} & 0 & -\frac{\sqrt{858}i}{308} & 0 & -\frac{\sqrt{429}i}{308} & 0 & 0 & \frac{5\sqrt{1430}i}{2464} & 0 & -\frac{5\sqrt{286}i}{2464} & 0 & -\frac{5\sqrt{4290}i}{7392} & 0 & -\frac{\sqrt{10010}i}{7392} \\
\frac{\sqrt{10010}i}{7392} & 0 & \frac{\sqrt{1001}i}{1232} & 0 & -\frac{5\sqrt{2002}i}{2464} & 0 & 0 & -\frac{\sqrt{15015}i}{8008} & 0 & -\frac{\sqrt{3003}i}{4004} & 0 & \frac{3\sqrt{5005}i}{8008} & 0 & 0 \\
0 & -\frac{23\sqrt{286}i}{7392} & 0 & -\frac{3\sqrt{143}i}{1232} & 0 & -\frac{5\sqrt{1430}i}{2464} & \frac{\sqrt{15015}i}{8008} & 0 & \frac{\sqrt{715}i}{1001} & 0 & \frac{\sqrt{429}i}{8008} & 0 & \frac{3\sqrt{2145}i}{4004} & 0 \\
\frac{5\sqrt{4290}i}{7392} & 0 & \frac{\sqrt{429}i}{336} & 0 & -\frac{\sqrt{858}i}{2464} & 0 & 0 & -\frac{\sqrt{715}i}{1001} & 0 & -\frac{\sqrt{143}i}{8008} & 0 & \frac{\sqrt{2145}i}{4004} & 0 & \frac{3\sqrt{5005}i}{8008} \\
0 & -\frac{13\sqrt{1430}i}{7392} & 0 & \frac{\sqrt{715}i}{3696} & 0 & \frac{5\sqrt{286}i}{2464} & \frac{\sqrt{3003}i}{4004} & 0 & \frac{\sqrt{143}i}{8008} & 0 & -\frac{\sqrt{2145}i}{2002} & 0 & \frac{\sqrt{429}i}{8008} & 0 \\
\frac{5\sqrt{286}i}{2464} & 0 & \frac{\sqrt{715}i}{3696} & 0 & -\frac{13\sqrt{1430}i}{7392} & 0 & 0 & -\frac{\sqrt{429}i}{8008} & 0 & \frac{\sqrt{2145}i}{2002} & 0 & -\frac{\sqrt{143}i}{8008} & 0 & -\frac{\sqrt{3003}i}{4004} \\
0 & -\frac{\sqrt{858}i}{2464} & 0 & \frac{\sqrt{429}i}{336} & 0 & \frac{5\sqrt{4290}i}{7392} & -\frac{3\sqrt{5005}i}{8008} & 0 & -\frac{\sqrt{2145}i}{4004} & 0 & \frac{\sqrt{143}i}{8008} & 0 & \frac{\sqrt{715}i}{1001} & 0 \\
-\frac{5\sqrt{1430}i}{2464} & 0 & -\frac{3\sqrt{143}i}{1232} & 0 & -\frac{23\sqrt{286}i}{7392} & 0 & 0 & -\frac{3\sqrt{2145}i}{4004} & 0 & -\frac{\sqrt{429}i}{8008} & 0 & -\frac{\sqrt{715}i}{1001} & 0 & -\frac{\sqrt{15015}i}{8008} \\
0 & -\frac{5\sqrt{2002}i}{2464} & 0 & \frac{\sqrt{1001}i}{1232} & 0 & \frac{\sqrt{10010}i}{7392} & 0 & 0 & -\frac{3\sqrt{5005}i}{8008} & 0 & \frac{\sqrt{3003}i}{4004} & 0 & \frac{\sqrt{15015}i}{8008} & 0
\end{array} \right]
\end{array}$$

$$\begin{array}{c}
\boxed{\text{x550}} \quad \mathbb{T}_2^{(1,0;a)}(A_{1g}) = \\
\left[ \begin{array}{cccccccccccccccc}
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{42}i}{84} & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{70}i}{28} & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}i}{42} & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}i}{42} & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}i}{28} & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{42}i}{84} & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
-\frac{5\sqrt{42}i}{84} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & -\frac{\sqrt{70}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & -\frac{\sqrt{21}i}{42} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & \frac{\sqrt{21}i}{42} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & \frac{\sqrt{70}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{42}i}{84} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0
\end{array} \right]
\end{array}$$

$$\boxed{\text{x551}} \quad \mathbb{T}_4^{(1,0;a)}(A_{1g}, 1) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{110}i}{44} & 0 & 0 & 0 & -\frac{\sqrt{330}i}{132} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{66}i}{33} & 0 & 0 & 0 & -\frac{\sqrt{22}i}{22} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{55}i}{44} & 0 & 0 & 0 & -\frac{\sqrt{77}i}{44} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{77}i}{44} & 0 & 0 & 0 & -\frac{\sqrt{55}i}{44} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{22}i}{22} & 0 & 0 & 0 & -\frac{\sqrt{66}i}{33} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{330}i}{132} & 0 & 0 & 0 & \frac{\sqrt{110}i}{44} & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{77}i}{44} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{110}i}{44} & 0 & 0 & 0 & -\frac{\sqrt{22}i}{22} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{66}i}{33} & 0 & 0 & 0 & -\frac{\sqrt{330}i}{132} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{55}i}{44} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{55}i}{44} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{330}i}{132} & 0 & 0 & 0 & \frac{\sqrt{66}i}{33} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{22}i}{22} & 0 & 0 & 0 & -\frac{\sqrt{110}i}{44} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{77}i}{44} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x552}} \quad \mathbb{T}_4^{(1,0;a)}(A_{1g}, 2) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{154}i}{308} & 0 & 0 & 0 & \frac{\sqrt{462}i}{132} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2310}i}{231} & 0 & 0 & 0 & \frac{\sqrt{770}i}{110} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{77}i}{308} & 0 & 0 & 0 & \frac{7\sqrt{55}i}{220} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{7\sqrt{55}i}{220} & 0 & 0 & 0 & -\frac{5\sqrt{77}i}{308} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{770}i}{110} & 0 & 0 & 0 & -\frac{\sqrt{2310}i}{231} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{462}i}{132} & 0 & 0 & 0 & \frac{5\sqrt{154}i}{308} & 0 \\ 0 & 0 & 0 & \frac{7\sqrt{55}i}{220} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{5\sqrt{154}i}{308} & 0 & 0 & 0 & \frac{\sqrt{770}i}{110} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{2310}i}{231} & 0 & 0 & 0 & \frac{\sqrt{462}i}{132} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{5\sqrt{77}i}{308} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{5\sqrt{77}i}{308} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{462}i}{132} & 0 & 0 & 0 & \frac{\sqrt{2310}i}{231} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{770}i}{110} & 0 & 0 & 0 & -\frac{5\sqrt{154}i}{308} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{7\sqrt{55}i}{220} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x553}} \quad \mathbb{T}_6^{(1,0;a)}(A_{1g}, 1) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{33}i}{264} & 0 & 0 & 0 & -\frac{7\sqrt{11}i}{88} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{55}i}{88} & 0 & 0 & 0 & \frac{7\sqrt{165}i}{264} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{66}i}{264} & 0 & 0 & 0 & -\frac{\sqrt{2310}i}{264} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2310}i}{264} & 0 & 0 & 0 & -\frac{5\sqrt{66}i}{264} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{7\sqrt{165}i}{264} & 0 & 0 & 0 & \frac{\sqrt{55}i}{88} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{7\sqrt{11}i}{88} & 0 & 0 & 0 & -\frac{\sqrt{33}i}{264} & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{2310}i}{264} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{33}i}{264} & 0 & 0 & 0 & \frac{7\sqrt{165}i}{264} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{55}i}{88} & 0 & 0 & 0 & -\frac{7\sqrt{11}i}{88} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{5\sqrt{66}i}{264} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{5\sqrt{66}i}{264} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{7\sqrt{11}i}{88} & 0 & 0 & 0 & -\frac{\sqrt{55}i}{88} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{7\sqrt{165}i}{264} & 0 & 0 & 0 & \frac{\sqrt{33}i}{264} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{2310}i}{264} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x554}} \quad \mathbb{T}_6^{(1,0;a)}(A_{1g}, 2) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{231}i}{264} & 0 & 0 & 0 & \frac{\sqrt{77}i}{88} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{385}i}{88} & 0 & 0 & 0 & -\frac{\sqrt{1155}i}{264} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{462}i}{264} & 0 & 0 & 0 & \frac{\sqrt{330}i}{264} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{330}i}{264} & 0 & 0 & 0 & -\frac{5\sqrt{462}i}{264} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{1155}i}{264} & 0 & 0 & 0 & \frac{\sqrt{385}i}{88} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{77}i}{88} & 0 & 0 & 0 & -\frac{\sqrt{231}i}{264} & 0 \\ 0 & 0 & 0 & \frac{\sqrt{330}i}{264} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{231}i}{264} & 0 & 0 & 0 & -\frac{\sqrt{1155}i}{264} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{385}i}{88} & 0 & 0 & 0 & \frac{\sqrt{77}i}{88} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{5\sqrt{462}i}{264} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{5\sqrt{462}i}{264} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{77}i}{88} & 0 & 0 & 0 & -\frac{\sqrt{385}i}{88} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{1155}i}{264} & 0 & 0 & 0 & \frac{\sqrt{231}i}{264} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{330}i}{264} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

x555

x556

$$\boxed{\text{x557}} \quad \mathbb{T}_2^{(1,0;a)}(B_{1g}) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{70}i}{84} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}i}{12} & 0 & 0 & 0 & \frac{\sqrt{14}i}{21} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}i}{21} & 0 & 0 & 0 & \frac{\sqrt{105}i}{42} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}i}{42} & 0 & 0 & 0 & \frac{\sqrt{35}i}{21} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}i}{21} & 0 & 0 & 0 & \frac{\sqrt{10}i}{12} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}i}{84} & 0 & 0 & 0 \\ 0 & \frac{\sqrt{10}i}{12} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{35}i}{21} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{105}i}{42} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{70}i}{84} & 0 & 0 & 0 & \frac{\sqrt{14}i}{21} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{14}i}{21} & 0 & 0 & 0 & \frac{\sqrt{70}i}{84} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{105}i}{42} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{35}i}{21} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{10}i}{12} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x558}} \quad \mathbb{T}_4^{(1,0;a)}(B_{1g}) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2310}i}{154} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{330}i}{220} & 0 & 0 & 0 & \frac{\sqrt{462}i}{308} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{9\sqrt{1155}i}{1540} & 0 & 0 & 0 & -\frac{17\sqrt{385}i}{1540} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{17\sqrt{385}i}{1540} & 0 & 0 & 0 & -\frac{9\sqrt{1155}i}{1540} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{462}i}{308} & 0 & 0 & 0 & \frac{3\sqrt{330}i}{220} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2310}i}{154} & 0 & 0 & 0 \\ 0 & \frac{3\sqrt{330}i}{220} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{9\sqrt{1155}i}{1540} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{17\sqrt{385}i}{1540} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{2310}i}{154} & 0 & 0 & 0 & \frac{\sqrt{462}i}{308} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{462}i}{308} & 0 & 0 & 0 & \frac{\sqrt{2310}i}{154} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{17\sqrt{385}i}{1540} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{9\sqrt{1155}i}{1540} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{3\sqrt{330}i}{220} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x559}} \quad \mathbb{T}_6^{(1,0;a)}(B_{1g}, 1) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}i}{24} & 0 & 0 & 0 & \frac{\sqrt{5}i}{8} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{i}{24} & 0 & 0 & 0 & \frac{\sqrt{35}i}{24} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}i}{24} & 0 & 0 & 0 & -\frac{\sqrt{42}i}{24} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{42}i}{24} & 0 & 0 & 0 & \frac{\sqrt{14}i}{24} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}i}{24} & 0 & 0 & 0 & -\frac{i}{24} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{8} & 0 & 0 & 0 & \frac{\sqrt{7}i}{24} & 0 & 0 & 0 \\ 0 & -\frac{i}{24} & 0 & 0 & 0 & \frac{\sqrt{5}i}{8} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{14}i}{24} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{42}i}{24} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{7}i}{24} & 0 & 0 & 0 & \frac{\sqrt{35}i}{24} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{35}i}{24} & 0 & 0 & 0 & -\frac{\sqrt{7}i}{24} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{42}i}{24} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{14}i}{24} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{5}i}{8} & 0 & 0 & 0 & \frac{i}{24} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x560}} \quad \mathbb{T}_6^{(1,0;a)}(B_{1g}, 2) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{385}i}{264} & 0 & 0 & 0 & \frac{\sqrt{11}i}{8} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{55}i}{264} & 0 & 0 & 0 & -\frac{5\sqrt{77}i}{264} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{770}i}{264} & 0 & 0 & 0 & \frac{\sqrt{2310}i}{264} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2310}i}{264} & 0 & 0 & 0 & -\frac{\sqrt{770}i}{264} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{77}i}{264} & 0 & 0 & 0 & \frac{\sqrt{55}i}{264} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{11}i}{8} & 0 & 0 & 0 & -\frac{\sqrt{385}i}{264} & 0 & 0 & 0 \\ 0 & \frac{\sqrt{55}i}{264} & 0 & 0 & 0 & \frac{\sqrt{11}i}{8} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{770}i}{264} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{2310}i}{264} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{385}i}{264} & 0 & 0 & 0 & -\frac{5\sqrt{77}i}{264} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{5\sqrt{77}i}{264} & 0 & 0 & 0 & \frac{\sqrt{385}i}{264} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{2310}i}{264} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{770}i}{264} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{11}i}{8} & 0 & 0 & 0 & -\frac{\sqrt{55}i}{264} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x561}} \quad \mathbb{T}_2^{(1,0;a)}(B_{2g}) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{70}}{84} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{10}}{12} & 0 & 0 & 0 & \frac{\sqrt{14}}{21} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{35}}{21} & 0 & 0 & 0 & \frac{\sqrt{105}}{42} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}}{42} & 0 & 0 & 0 & \frac{\sqrt{35}}{21} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}}{21} & 0 & 0 & 0 & \frac{\sqrt{10}}{12} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{70}}{84} & 0 & 0 & 0 \\ 0 & \frac{\sqrt{10}}{12} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{35}}{21} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{105}}{42} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{70}}{84} & 0 & 0 & 0 & \frac{\sqrt{14}}{21} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{14}}{21} & 0 & 0 & 0 & \frac{\sqrt{70}}{84} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{105}}{42} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{35}}{21} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{10}}{12} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x562}} \quad \mathbb{T}_4^{(1,0;a)}(B_{2g}) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2310}}{154} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{330}}{220} & 0 & 0 & 0 & -\frac{\sqrt{462}}{308} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{9\sqrt{1155}}{1540} & 0 & 0 & 0 & \frac{17\sqrt{385}}{1540} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{17\sqrt{385}}{1540} & 0 & 0 & 0 & \frac{9\sqrt{1155}}{1540} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{462}}{308} & 0 & 0 & 0 & -\frac{3\sqrt{330}}{220} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2310}}{154} & 0 & 0 & 0 \\ 0 & -\frac{3\sqrt{330}}{220} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{9\sqrt{1155}}{1540} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{17\sqrt{385}}{1540} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{2310}}{154} & 0 & 0 & 0 & -\frac{\sqrt{462}}{308} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{462}}{308} & 0 & 0 & 0 & -\frac{\sqrt{2310}}{154} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{17\sqrt{385}}{1540} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{9\sqrt{1155}}{1540} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{3\sqrt{330}}{220} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

x563

x564



$$\boxed{\text{x565}} \quad \mathbb{T}_{2,1}^{(1,0;a)}(E_g) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{2}}{24} & 0 & \frac{5\sqrt{42}}{168} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{70}}{168} & 0 & \frac{11\sqrt{14}}{168} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{84} & 0 & \frac{\sqrt{7}}{12} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}}{12} & 0 & \frac{\sqrt{105}}{84} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{11\sqrt{14}}{168} & 0 & -\frac{\sqrt{70}}{168} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{42}}{168} & 0 & -\frac{5\sqrt{2}}{24} \\ \frac{5\sqrt{2}}{24} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{70}}{168} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{5\sqrt{42}}{168} & 0 & -\frac{\sqrt{105}}{84} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{11\sqrt{14}}{168} & 0 & -\frac{\sqrt{7}}{12} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{7}}{12} & 0 & -\frac{11\sqrt{14}}{168} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{105}}{84} & 0 & -\frac{5\sqrt{42}}{168} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{70}}{168} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{2}}{24} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x566}} \quad \mathbb{T}_{2,2}^{(1,0;a)}(E_g) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{2}i}{24} & 0 & \frac{5\sqrt{42}i}{168} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}i}{168} & 0 & \frac{11\sqrt{14}i}{168} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{84} & 0 & \frac{\sqrt{7}i}{12} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}i}{12} & 0 & \frac{\sqrt{105}i}{84} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{11\sqrt{14}i}{168} & 0 & -\frac{\sqrt{70}i}{168} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{42}i}{168} & 0 & -\frac{5\sqrt{2}i}{24} \\ \frac{5\sqrt{2}i}{24} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{70}i}{168} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{5\sqrt{42}i}{168} & 0 & -\frac{\sqrt{105}i}{84} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{11\sqrt{14}i}{168} & 0 & -\frac{\sqrt{7}i}{12} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{7}i}{12} & 0 & -\frac{11\sqrt{14}i}{168} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{105}i}{84} & 0 & -\frac{5\sqrt{42}i}{168} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{70}i}{168} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{2}i}{24} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x567}} \quad \mathbb{T}_{4,1}^{(1,0;a)}(E_g, 1) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{462}}{176} & 0 & \frac{5\sqrt{22}}{88} & 0 & \frac{\sqrt{330}}{176} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{13\sqrt{330}}{880} & 0 & -\frac{\sqrt{66}}{88} & 0 & \frac{7\sqrt{110}}{880} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{1155}}{880} & 0 & \frac{\sqrt{55}}{880} & 0 & -\frac{7\sqrt{33}}{176} & 0 & -\frac{\sqrt{165}}{880} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{165}}{880} & 0 & \frac{7\sqrt{33}}{176} & 0 & -\frac{\sqrt{55}}{880} & 0 & -\frac{3\sqrt{1155}}{880} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{7\sqrt{110}}{880} & 0 & \frac{\sqrt{66}}{88} & 0 & \frac{13\sqrt{330}}{880} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{330}}{176} & 0 & -\frac{5\sqrt{22}}{88} & 0 & -\frac{\sqrt{462}}{176} \\ \frac{\sqrt{462}}{176} & 0 & \frac{3\sqrt{1155}}{880} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{13\sqrt{330}}{880} & 0 & \frac{\sqrt{165}}{880} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{5\sqrt{22}}{88} & 0 & \frac{\sqrt{55}}{880} & 0 & -\frac{7\sqrt{110}}{880} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{66}}{88} & 0 & \frac{7\sqrt{33}}{176} & 0 & -\frac{\sqrt{330}}{176} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{330}}{176} & 0 & -\frac{7\sqrt{33}}{176} & 0 & \frac{\sqrt{66}}{88} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{7\sqrt{110}}{880} & 0 & -\frac{\sqrt{55}}{880} & 0 & -\frac{5\sqrt{22}}{88} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{165}}{880} & 0 & \frac{13\sqrt{330}}{880} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{3\sqrt{1155}}{880} & 0 & -\frac{\sqrt{462}}{176} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x568}} \quad \mathbb{T}_{4,2}^{(1,0;a)}(E_g, 1) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{462}i}{176} & 0 & \frac{5\sqrt{22}i}{88} & 0 & -\frac{\sqrt{330}i}{176} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{13\sqrt{330}i}{880} & 0 & -\frac{\sqrt{66}i}{88} & 0 & -\frac{7\sqrt{110}i}{880} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{1155}i}{880} & 0 & -\frac{\sqrt{55}i}{880} & 0 & -\frac{7\sqrt{33}i}{176} & 0 & \frac{\sqrt{165}i}{880} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{165}i}{880} & 0 & -\frac{7\sqrt{33}i}{176} & 0 & -\frac{\sqrt{55}i}{880} & 0 & \frac{3\sqrt{1155}i}{880} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{7\sqrt{110}i}{880} & 0 & -\frac{\sqrt{66}i}{88} & 0 & \frac{13\sqrt{330}i}{880} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{330}i}{176} & 0 & \frac{5\sqrt{22}i}{88} & 0 & -\frac{\sqrt{462}i}{176} \\ \frac{\sqrt{462}i}{176} & 0 & -\frac{3\sqrt{1155}i}{880} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{13\sqrt{330}i}{880} & 0 & -\frac{\sqrt{165}i}{880} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{5\sqrt{22}i}{88} & 0 & \frac{\sqrt{55}i}{880} & 0 & \frac{7\sqrt{110}i}{880} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{66}i}{88} & 0 & \frac{7\sqrt{33}i}{176} & 0 & \frac{\sqrt{330}i}{176} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{330}i}{176} & 0 & \frac{7\sqrt{33}i}{176} & 0 & \frac{\sqrt{66}i}{88} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{7\sqrt{110}i}{880} & 0 & \frac{\sqrt{55}i}{880} & 0 & -\frac{5\sqrt{22}i}{88} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{165}i}{880} & 0 & -\frac{13\sqrt{330}i}{880} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{3\sqrt{1155}i}{880} & 0 & \frac{\sqrt{462}i}{176} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x569}} \quad \mathbb{T}_{4,1}^{(1,0;a)}(E_g, 2) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{66}}{176} & 0 & \frac{5\sqrt{154}}{616} & 0 & -\frac{\sqrt{2310}}{176} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{13\sqrt{2310}}{6160} & 0 & -\frac{\sqrt{462}}{616} & 0 & -\frac{7\sqrt{770}}{880} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{21\sqrt{165}}{880} & 0 & \frac{\sqrt{385}}{6160} & 0 & -\frac{\sqrt{231}}{176} & 0 & \frac{\sqrt{1155}}{880} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{1155}}{880} & 0 & \frac{\sqrt{231}}{176} & 0 & -\frac{\sqrt{385}}{6160} & 0 & \frac{21\sqrt{165}}{880} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{7\sqrt{770}}{880} & 0 & \frac{\sqrt{462}}{616} & 0 & \frac{13\sqrt{2310}}{6160} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2310}}{176} & 0 & -\frac{5\sqrt{154}}{616} & 0 & -\frac{\sqrt{66}}{176} \\ \frac{\sqrt{66}}{176} & 0 & -\frac{21\sqrt{165}}{880} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{13\sqrt{2310}}{6160} & 0 & -\frac{\sqrt{1155}}{880} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{5\sqrt{154}}{616} & 0 & \frac{\sqrt{385}}{6160} & 0 & \frac{7\sqrt{770}}{880} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{462}}{616} & 0 & \frac{\sqrt{231}}{176} & 0 & \frac{\sqrt{2310}}{176} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{2310}}{176} & 0 & -\frac{\sqrt{231}}{176} & 0 & \frac{\sqrt{462}}{616} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{7\sqrt{770}}{880} & 0 & -\frac{\sqrt{385}}{6160} & 0 & -\frac{5\sqrt{154}}{616} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{1155}}{880} & 0 & \frac{13\sqrt{2310}}{6160} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{21\sqrt{165}}{880} & 0 & -\frac{\sqrt{66}}{176} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x570}} \quad \mathbb{T}_{4,2}^{(1,0;a)}(E_g, 2) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{66}i}{176} & 0 & \frac{5\sqrt{154}i}{616} & 0 & \frac{\sqrt{2310}i}{176} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{13\sqrt{2310}i}{6160} & 0 & -\frac{\sqrt{462}i}{616} & 0 & \frac{7\sqrt{770}i}{880} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{21\sqrt{165}i}{880} & 0 & -\frac{\sqrt{385}i}{6160} & 0 & -\frac{\sqrt{231}i}{176} & 0 & -\frac{\sqrt{1155}i}{880} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{1155}i}{880} & 0 & -\frac{\sqrt{231}i}{176} & 0 & -\frac{\sqrt{385}i}{6160} & 0 & -\frac{21\sqrt{165}i}{880} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{7\sqrt{770}i}{880} & 0 & -\frac{\sqrt{462}i}{616} & 0 & \frac{13\sqrt{2310}i}{6160} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2310}i}{176} & 0 & \frac{5\sqrt{154}i}{616} & 0 & -\frac{\sqrt{66}i}{176} \\ \frac{\sqrt{66}i}{176} & 0 & \frac{21\sqrt{165}i}{880} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{13\sqrt{2310}i}{6160} & 0 & \frac{\sqrt{1155}i}{880} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{5\sqrt{154}i}{616} & 0 & \frac{\sqrt{385}i}{6160} & 0 & -\frac{7\sqrt{770}i}{880} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{462}i}{616} & 0 & \frac{\sqrt{231}i}{176} & 0 & -\frac{\sqrt{2310}i}{176} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{2310}i}{176} & 0 & \frac{\sqrt{231}i}{176} & 0 & \frac{\sqrt{462}i}{616} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{7\sqrt{770}i}{880} & 0 & \frac{\sqrt{385}i}{6160} & 0 & -\frac{5\sqrt{154}i}{616} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{1155}i}{880} & 0 & -\frac{13\sqrt{2310}i}{6160} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{21\sqrt{165}i}{880} & 0 & \frac{\sqrt{66}i}{176} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x571}} \quad \mathbb{T}_{6,1}^{(1,0;a)}(E_g, 1) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{66}}{1056} & 0 & \frac{\sqrt{154}}{352} & 0 & -\frac{\sqrt{2310}}{352} & 0 & -\frac{\sqrt{462}}{96} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2310}}{1056} & 0 & -\frac{5\sqrt{462}}{1056} & 0 & \frac{3\sqrt{770}}{352} & 0 & \frac{\sqrt{330}}{96} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{165}}{176} & 0 & \frac{\sqrt{385}}{176} & 0 & \frac{5\sqrt{231}}{528} & 0 & -\frac{\sqrt{1155}}{176} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{1155}}{176} & 0 & -\frac{5\sqrt{231}}{528} & 0 & -\frac{\sqrt{385}}{176} & 0 & \frac{\sqrt{165}}{176} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{330}}{96} & 0 & -\frac{3\sqrt{770}}{352} & 0 & \frac{5\sqrt{462}}{1056} & 0 & \frac{\sqrt{2310}}{1056} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{462}}{96} & 0 & \frac{\sqrt{2310}}{352} & 0 & -\frac{\sqrt{154}}{352} & 0 & -\frac{\sqrt{66}}{1056} \\ \frac{\sqrt{66}}{1056} & 0 & -\frac{\sqrt{165}}{176} & 0 & -\frac{\sqrt{330}}{96} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{2310}}{1056} & 0 & \frac{\sqrt{1155}}{176} & 0 & \frac{\sqrt{462}}{96} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{154}}{352} & 0 & \frac{\sqrt{385}}{176} & 0 & -\frac{3\sqrt{770}}{352} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{5\sqrt{462}}{1056} & 0 & -\frac{5\sqrt{231}}{528} & 0 & \frac{\sqrt{2310}}{352} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{2310}}{352} & 0 & \frac{5\sqrt{231}}{528} & 0 & \frac{5\sqrt{462}}{1056} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{3\sqrt{770}}{352} & 0 & -\frac{\sqrt{385}}{176} & 0 & -\frac{\sqrt{154}}{352} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{462}}{96} & 0 & -\frac{\sqrt{1155}}{176} & 0 & \frac{\sqrt{2310}}{1056} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{330}}{96} & 0 & \frac{\sqrt{165}}{176} & 0 & -\frac{\sqrt{66}}{1056} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x572}} \quad \mathbb{T}_{6,2}^{(1,0;a)}(E_g, 1) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{66}i}{1056} & 0 & \frac{\sqrt{154}i}{352} & 0 & \frac{\sqrt{2310}i}{352} & 0 & -\frac{\sqrt{462}i}{96} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2310}i}{1056} & 0 & -\frac{5\sqrt{462}i}{1056} & 0 & -\frac{3\sqrt{770}i}{352} & 0 & \frac{\sqrt{330}i}{96} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{165}i}{176} & 0 & -\frac{\sqrt{385}i}{176} & 0 & \frac{5\sqrt{231}i}{528} & 0 & \frac{\sqrt{1155}i}{176} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{1155}i}{176} & 0 & \frac{5\sqrt{231}i}{528} & 0 & -\frac{\sqrt{385}i}{176} & 0 & -\frac{\sqrt{165}i}{176} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{330}i}{96} & 0 & -\frac{3\sqrt{770}i}{352} & 0 & -\frac{5\sqrt{462}i}{1056} & 0 & \frac{\sqrt{2310}i}{1056} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{462}i}{96} & 0 & \frac{\sqrt{2310}i}{352} & 0 & \frac{\sqrt{154}i}{352} & 0 & -\frac{\sqrt{66}i}{1056} \\ \frac{\sqrt{66}i}{1056} & 0 & \frac{\sqrt{165}i}{176} & 0 & -\frac{\sqrt{330}i}{96} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{2310}i}{1056} & 0 & -\frac{\sqrt{1155}i}{176} & 0 & \frac{\sqrt{462}i}{96} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{154}i}{352} & 0 & \frac{\sqrt{385}i}{176} & 0 & \frac{3\sqrt{770}i}{352} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{5\sqrt{462}i}{1056} & 0 & -\frac{5\sqrt{231}i}{528} & 0 & -\frac{\sqrt{2310}i}{352} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{2310}i}{352} & 0 & -\frac{5\sqrt{231}i}{528} & 0 & \frac{5\sqrt{462}i}{1056} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{3\sqrt{770}i}{352} & 0 & \frac{\sqrt{385}i}{176} & 0 & -\frac{\sqrt{154}i}{352} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{462}i}{96} & 0 & -\frac{\sqrt{1155}i}{176} & 0 & -\frac{\sqrt{2310}i}{1056} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{330}i}{96} & 0 & \frac{\sqrt{165}i}{176} & 0 & \frac{\sqrt{66}i}{1056} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x573}} \quad \mathbb{T}_{6,1}^{(1,0;a)}(E_g, 2) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & \frac{1}{64} & 0 & \frac{\sqrt{21}}{64} & 0 & \frac{\sqrt{35}}{64} & 0 & \frac{\sqrt{7}}{64} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}}{64} & 0 & -\frac{5\sqrt{7}}{64} & 0 & -\frac{\sqrt{105}}{64} & 0 & -\frac{\sqrt{5}}{64} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{10}}{64} & 0 & \frac{\sqrt{210}}{64} & 0 & \frac{5\sqrt{14}}{64} & 0 & \frac{\sqrt{70}}{64} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}}{64} & 0 & -\frac{5\sqrt{14}}{64} & 0 & -\frac{\sqrt{210}}{64} & 0 & -\frac{\sqrt{10}}{64} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}}{64} & 0 & \frac{\sqrt{105}}{64} & 0 & \frac{5\sqrt{7}}{64} & 0 & \frac{\sqrt{35}}{64} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}}{64} & 0 & -\frac{\sqrt{35}}{64} & 0 & -\frac{\sqrt{21}}{64} & 0 & -\frac{1}{64} \\ \frac{1}{64} & 0 & \frac{\sqrt{10}}{64} & 0 & \frac{\sqrt{5}}{64} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{35}}{64} & 0 & -\frac{\sqrt{70}}{64} & 0 & -\frac{\sqrt{7}}{64} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{21}}{64} & 0 & \frac{\sqrt{210}}{64} & 0 & \frac{\sqrt{105}}{64} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{5\sqrt{7}}{64} & 0 & -\frac{5\sqrt{14}}{64} & 0 & -\frac{\sqrt{35}}{64} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{35}}{64} & 0 & \frac{5\sqrt{14}}{64} & 0 & \frac{5\sqrt{7}}{64} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{105}}{64} & 0 & -\frac{\sqrt{210}}{64} & 0 & -\frac{\sqrt{21}}{64} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{7}}{64} & 0 & \frac{\sqrt{70}}{64} & 0 & \frac{\sqrt{35}}{64} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{5}}{64} & 0 & -\frac{\sqrt{10}}{64} & 0 & -\frac{1}{64} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x574}} \quad \mathbb{T}_{6,2}^{(1,0;a)}(E_g, 2) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & -\frac{i}{64} & 0 & \frac{\sqrt{21}i}{64} & 0 & -\frac{\sqrt{35}i}{64} & 0 & \frac{\sqrt{7}i}{64} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{35}i}{64} & 0 & -\frac{5\sqrt{7}i}{64} & 0 & \frac{\sqrt{105}i}{64} & 0 & -\frac{\sqrt{5}i}{64} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{10}i}{64} & 0 & -\frac{\sqrt{210}i}{64} & 0 & \frac{5\sqrt{14}i}{64} & 0 & -\frac{\sqrt{70}i}{64} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}i}{64} & 0 & \frac{5\sqrt{14}i}{64} & 0 & -\frac{\sqrt{210}i}{64} & 0 & \frac{\sqrt{10}i}{64} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{64} & 0 & \frac{\sqrt{105}i}{64} & 0 & -\frac{5\sqrt{7}i}{64} & 0 & \frac{\sqrt{35}i}{64} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}i}{64} & 0 & -\frac{\sqrt{35}i}{64} & 0 & \frac{\sqrt{21}i}{64} & 0 & -\frac{i}{64} \\ \frac{i}{64} & 0 & -\frac{\sqrt{10}i}{64} & 0 & \frac{\sqrt{5}i}{64} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{35}i}{64} & 0 & \frac{\sqrt{70}i}{64} & 0 & -\frac{\sqrt{7}i}{64} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{21}i}{64} & 0 & \frac{\sqrt{210}i}{64} & 0 & -\frac{\sqrt{105}i}{64} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{5\sqrt{7}i}{64} & 0 & -\frac{5\sqrt{14}i}{64} & 0 & \frac{\sqrt{35}i}{64} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{35}i}{64} & 0 & -\frac{5\sqrt{14}i}{64} & 0 & \frac{5\sqrt{7}i}{64} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{105}i}{64} & 0 & \frac{\sqrt{210}i}{64} & 0 & -\frac{\sqrt{21}i}{64} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{7}i}{64} & 0 & \frac{\sqrt{70}i}{64} & 0 & -\frac{\sqrt{35}i}{64} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{5}i}{64} & 0 & -\frac{\sqrt{10}i}{64} & 0 & \frac{i}{64} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x575}} \quad \mathbb{T}_{6,1}^{(1,0;a)}(E_g, 3) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{55}}{2112} & 0 & \frac{\sqrt{1155}}{2112} & 0 & -\frac{9\sqrt{77}}{704} & 0 & \frac{\sqrt{385}}{64} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{77}}{2112} & 0 & -\frac{5\sqrt{385}}{2112} & 0 & \frac{9\sqrt{231}}{704} & 0 & -\frac{5\sqrt{11}}{64} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{9\sqrt{22}}{704} & 0 & \frac{5\sqrt{462}}{2112} & 0 & \frac{5\sqrt{770}}{2112} & 0 & -\frac{9\sqrt{154}}{704} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{9\sqrt{154}}{704} & 0 & -\frac{5\sqrt{770}}{2112} & 0 & -\frac{5\sqrt{462}}{2112} & 0 & \frac{9\sqrt{22}}{704} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{11}}{64} & 0 & -\frac{9\sqrt{231}}{704} & 0 & \frac{5\sqrt{385}}{2112} & 0 & \frac{5\sqrt{77}}{2112} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{385}}{64} & 0 & \frac{9\sqrt{77}}{704} & 0 & -\frac{\sqrt{1155}}{2112} & 0 & -\frac{\sqrt{55}}{2112} \\ \frac{\sqrt{55}}{2112} & 0 & -\frac{9\sqrt{22}}{704} & 0 & \frac{5\sqrt{11}}{64} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{5\sqrt{77}}{2112} & 0 & \frac{9\sqrt{154}}{704} & 0 & -\frac{\sqrt{385}}{64} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{1155}}{2112} & 0 & \frac{5\sqrt{462}}{2112} & 0 & -\frac{9\sqrt{231}}{704} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{5\sqrt{385}}{2112} & 0 & -\frac{5\sqrt{770}}{2112} & 0 & \frac{9\sqrt{77}}{704} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{9\sqrt{77}}{704} & 0 & \frac{5\sqrt{770}}{2112} & 0 & \frac{5\sqrt{385}}{2112} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{9\sqrt{231}}{704} & 0 & -\frac{5\sqrt{462}}{2112} & 0 & -\frac{\sqrt{1155}}{2112} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{385}}{64} & 0 & -\frac{9\sqrt{154}}{704} & 0 & \frac{5\sqrt{77}}{2112} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{5\sqrt{11}}{64} & 0 & \frac{9\sqrt{22}}{704} & 0 & -\frac{\sqrt{55}}{2112} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x576}} \quad \mathbb{T}_{6,2}^{(1,0;a)}(E_g, 3) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{55}i}{2112} & 0 & \frac{\sqrt{1155}i}{2112} & 0 & \frac{9\sqrt{77}i}{704} & 0 & \frac{\sqrt{385}i}{64} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{77}i}{2112} & 0 & -\frac{5\sqrt{385}i}{2112} & 0 & -\frac{9\sqrt{231}i}{704} & 0 & -\frac{5\sqrt{11}i}{64} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{9\sqrt{22}i}{704} & 0 & -\frac{5\sqrt{462}i}{2112} & 0 & \frac{5\sqrt{770}i}{2112} & 0 & \frac{9\sqrt{154}i}{704} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{9\sqrt{154}i}{704} & 0 & \frac{5\sqrt{770}i}{2112} & 0 & -\frac{5\sqrt{462}i}{2112} & 0 & -\frac{9\sqrt{22}i}{704} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{11}i}{64} & 0 & -\frac{9\sqrt{231}i}{704} & 0 & -\frac{5\sqrt{385}i}{2112} & 0 & \frac{5\sqrt{77}i}{2112} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{385}i}{64} & 0 & \frac{9\sqrt{77}i}{704} & 0 & \frac{\sqrt{1155}i}{2112} & 0 & -\frac{\sqrt{55}i}{2112} \\ \frac{\sqrt{55}i}{2112} & 0 & \frac{9\sqrt{22}i}{704} & 0 & \frac{5\sqrt{11}i}{64} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{5\sqrt{77}i}{2112} & 0 & -\frac{9\sqrt{154}i}{704} & 0 & -\frac{\sqrt{385}i}{64} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{1155}i}{2112} & 0 & \frac{5\sqrt{462}i}{2112} & 0 & \frac{9\sqrt{231}i}{704} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{5\sqrt{385}i}{2112} & 0 & -\frac{5\sqrt{770}i}{2112} & 0 & -\frac{9\sqrt{77}i}{704} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{9\sqrt{77}i}{704} & 0 & -\frac{5\sqrt{770}i}{2112} & 0 & \frac{5\sqrt{385}i}{2112} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{9\sqrt{231}i}{704} & 0 & \frac{5\sqrt{462}i}{2112} & 0 & -\frac{\sqrt{1155}i}{2112} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{385}i}{64} & 0 & -\frac{9\sqrt{154}i}{704} & 0 & -\frac{5\sqrt{77}i}{2112} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{5\sqrt{11}i}{64} & 0 & \frac{9\sqrt{22}i}{704} & 0 & \frac{\sqrt{55}i}{2112} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

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## Cluster SAMB

- Site cluster

\*\* Wyckoff: 2a

$$\boxed{\text{y1}} \quad \mathbb{Q}_0^{(s)}(A_{1g}) = [1]$$

- Bond cluster

\*\* Wyckoff: 4b@4c

$$\boxed{\text{y2}} \quad \mathbb{Q}_0^{(s)}(A_{1g}) = \left[ \frac{\sqrt{2}}{2}, \frac{\sqrt{2}}{2} \right]$$

$$\boxed{\text{y3}} \quad \mathbb{Q}_2^{(s)}(B_{1g}) = \left[ \frac{\sqrt{2}}{2}, -\frac{\sqrt{2}}{2} \right]$$

$$\boxed{\text{y4}} \quad \mathbb{T}_{1,1}^{(s)}(E_u) = [0, -i]$$

$$\boxed{\text{y5}} \quad \mathbb{T}_{1,2}^{(s)}(E_u) = [i, 0]$$

— Site and Bond —

Table 4: Orbital of each site

#	site	orbital
1	U	$ \frac{3}{2}, \frac{3}{2}; d\rangle,  \frac{3}{2}, \frac{1}{2}; d\rangle,  \frac{3}{2}, -\frac{1}{2}; d\rangle,  \frac{3}{2}, -\frac{3}{2}; d\rangle,  \frac{5}{2}, \frac{5}{2}; d\rangle,  \frac{5}{2}, \frac{3}{2}; d\rangle,  \frac{5}{2}, \frac{1}{2}; d\rangle,  \frac{5}{2}, -\frac{1}{2}; d\rangle,  \frac{5}{2}, -\frac{3}{2}; d\rangle,  \frac{5}{2}, -\frac{5}{2}; d\rangle,  \frac{5}{2}, \frac{5}{2}; f\rangle,  \frac{5}{2}, \frac{3}{2}; f\rangle,  \frac{5}{2}, \frac{1}{2}; f\rangle,  \frac{5}{2}, -\frac{1}{2}; f\rangle,  \frac{5}{2}, -\frac{3}{2}; f\rangle,  \frac{5}{2}, -\frac{5}{2}; f\rangle$ $ \frac{7}{2}, \frac{7}{2}; f\rangle,  \frac{7}{2}, \frac{5}{2}; f\rangle,  \frac{7}{2}, \frac{3}{2}; f\rangle,  \frac{7}{2}, \frac{1}{2}; f\rangle,  \frac{7}{2}, -\frac{1}{2}; f\rangle,  \frac{7}{2}, -\frac{3}{2}; f\rangle,  \frac{7}{2}, -\frac{5}{2}; f\rangle,  \frac{7}{2}, -\frac{7}{2}; f\rangle$

Table 5: Neighbor and bra-ket of each bond

#	head	tail	neighbor	head (bra)	tail (ket)
1	U	U	[1]	[d,f]	[d,f]

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**Site in Unit Cell**


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Sites in (conventional) cell (no plus set), SL = sublattice

Table 6: 'U' (#1) site cluster (2a), 4/mmm

SL	position ( $s$ )	mapping
1	[ 0.00000, 0.00000, 0.00000]	[1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16]

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**Bond in Unit Cell**


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Bonds in (conventional) cell (no plus set): tail, head = (SL, plus set), (N)D = (non)directional (listed up to 5th neighbor at most)



Table 7: 1-th 'U'-'U' [1] (#1) bond cluster (4b04c), ND,  $|v|=4.126$  (cartesian)

SL	vector ( $v$ )	center ( $c$ )	mapping	head	tail	$R$ (primitive)
1	[ 0.00000, 1.00000, 0.00000]	[ 0.00000, 0.50000, 0.00000]	[1,-2,5,-6,-9,10,-13,14]	(1,1)	(1,1)	[-1,0,-1]
2	[-1.00000, 0.00000, 0.00000]	[ 0.50000, 0.00000, 0.00000]	[3,-4,-7,8,-11,12,15,-16]	(1,1)	(1,1)	[0,1,1]