

# Model for “Th”

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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.: `[Ag, Eg, Tg, Au, Eu, Tu]`
  - Spin (s): `[0, 1]`
- Atomic selection:
  - Type: `[Q, G, M, T]`
  - Rank: `[0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11]`
  - Irrep.: `[Ag, Eg, Tg, Au, Eu, Tu]`
  - Spin (s): `[0, 1]`
- Site-cluster selection:
  - Rank: `[0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11]`
  - Irrep.: `[Ag, Eg, Tg, Au, Eu, Tu]`
- Bond-cluster selection:
  - Type: `[Q, G, M, T]`
  - Rank: `[0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11]`
  - Irrep.: `[Ag, Eg, Tg, Au, Eu, Tu]`
- Max. neighbor: `10`
- Search cell range: `(-2, 3), (-2, 3), (-2, 3)`
- Toroidal priority: `false`

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## Group and Unit Cell

- Group: PG No. 29  $T_h$   $m\bar{3}$  [cubic]
- Unit cell:
  - $a = 1.00000$ ,  $b = 1.00000$ ,  $c = 1.00000$ ,  $\alpha = 90.0$ ,  $\beta = 90.0$ ,  $\gamma = 90.0$
- Lattice vectors (conventional cell):
  - $\mathbf{a}_1 = [1.00000, 0.00000, 0.00000]$
  - $\mathbf{a}_2 = [0.00000, 1.00000, 0.00000]$
  - $\mathbf{a}_3 = [0.00000, 0.00000, 1.00000]$

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## Symmetry Operation

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Table 1: Symmetry operation

#	SO	#	SO	#	SO	#	SO	#	SO
1	1	2	2 <sub>001</sub>	3	2 <sub>010</sub>	4	2 <sub>100</sub>	5	3 <sup>+</sup> <sub>111</sub>
6	3 <sup>+</sup> <sub>-11-1</sub>	7	3 <sup>+</sup> <sub>1-1-1</sub>	8	3 <sup>+</sup> <sub>-1-11</sub>	9	3 <sup>-</sup> <sub>111</sub>	10	3 <sup>-</sup> <sub>1-1-1</sub>
11	3 <sup>-</sup> <sub>-1-11</sub>	12	3 <sup>-</sup> <sub>-11-1</sub>	13	-1	14	m <sub>001</sub>	15	m <sub>010</sub>
16	m <sub>100</sub>	17	-3 <sup>+</sup> <sub>111</sub>	18	-3 <sup>+</sup> <sub>-11-1</sub>	19	-3 <sup>+</sup> <sub>1-1-1</sub>	20	-3 <sup>+</sup> <sub>-1-11</sub>
21	-3 <sup>-</sup> <sub>111</sub>	22	-3 <sup>-</sup> <sub>1-1-1</sub>	23	-3 <sup>-</sup> <sub>-1-11</sub>	24	-3 <sup>-</sup> <sub>-11-1</sub>		

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## Harmonics

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Table 2: Harmonics

#	symbol	irrep.	rank	X	multiplicity	component	symmetry
1	$\mathbb{Q}_0(A_g)$	$A_g$	0	$Q, T$	-	-	1
2	$\mathbb{G}_3(A_g)$	$A_g$	3	$G, M$	-	-	$\sqrt{15}xyz$
3	$\mathbb{Q}_4(A_g)$	$A_g$	4	$Q, T$	-	-	$\frac{\sqrt{21}(x^4-3x^2y^2-3x^2z^2+y^4-3y^2z^2+z^4)}{6}$
4	$\mathbb{G}_0(A_u)$	$A_u$	0	$G, M$	-	-	1
5	$\mathbb{Q}_3(A_u)$	$A_u$	3	$Q, T$	-	-	$\sqrt{15}xyz$

*continued ...*

Table 2

#	symbol	irrep.	rank	X	multiplicity	component	symmetry
6	$\mathbb{G}_4(A_u)$	$A_u$	4	$G, M$	-	-	$\frac{\sqrt{21}(x^4-3x^2y^2-3x^2z^2+y^4-3y^2z^2+z^4)}{6}$
7	$\mathbb{Q}_{2,1}(E_g)$	$E_g$	2	$Q, T$	-	1	$-\frac{x^2}{2} - \frac{y^2}{2} + z^2$
8	$\mathbb{Q}_{2,2}(E_g)$					2	$\frac{\sqrt{3}(x-y)(x+y)}{2}$
9	$\mathbb{Q}_{4,1}(E_g)$	$E_g$	4	$Q, T$	-	1	$-\frac{\sqrt{15}(x^4-12x^2y^2+6x^2z^2+y^4+6y^2z^2-2z^4)}{12}$
10	$\mathbb{Q}_{4,2}(E_g)$					2	$\frac{\sqrt{5}(x-y)(x+y)(x^2+y^2-6z^2)}{4}$
11	$\mathbb{G}_{2,1}(E_u)$	$E_u$	2	$G, M$	-	1	$-\frac{x^2}{2} - \frac{y^2}{2} + z^2$
12	$\mathbb{G}_{2,2}(E_u)$					2	$\frac{\sqrt{3}(x-y)(x+y)}{2}$
13	$\mathbb{G}_{4,1}(E_u)$	$E_u$	4	$G, M$	-	1	$-\frac{\sqrt{15}(x^4-12x^2y^2+6x^2z^2+y^4+6y^2z^2-2z^4)}{12}$
14	$\mathbb{G}_{4,2}(E_u)$					2	$\frac{\sqrt{5}(x-y)(x+y)(x^2+y^2-6z^2)}{4}$
15	$\mathbb{Q}_{5,1}(E_u)$	$E_u$	5	$Q, T$	-	1	$\frac{3\sqrt{35}xyz(x-y)(x+y)}{2}$
16	$\mathbb{Q}_{5,2}(E_u)$					2	$\frac{\sqrt{105}xyz(x^2+y^2-2z^2)}{2}$
17	$\mathbb{G}_{1,1}(T_g)$	$T_g$	1	$G, M$	-	1	$x$
18	$\mathbb{G}_{1,2}(T_g)$					2	$y$
19	$\mathbb{G}_{1,3}(T_g)$					3	$z$
20	$\mathbb{Q}_{2,1}(T_g)$	$T_g$	2	$Q, T$	-	1	$\sqrt{3}yz$
21	$\mathbb{Q}_{2,2}(T_g)$					2	$\sqrt{3}xz$
22	$\mathbb{Q}_{2,3}(T_g)$					3	$\sqrt{3}xy$
23	$\mathbb{G}_{3,1}(T_g, 1)$	$T_g$	3	$G, M$	1	1	$\frac{x(2x^2-3y^2-3z^2)}{2}$
24	$\mathbb{G}_{3,2}(T_g, 1)$					2	$-\frac{y(3x^2-2y^2+3z^2)}{2}$
25	$\mathbb{G}_{3,3}(T_g, 1)$					3	$-\frac{z(3x^2+3y^2-2z^2)}{2}$
26	$\mathbb{G}_{3,1}(T_g, 2)$	$T_g$	3	$G, M$	2	1	$\frac{\sqrt{15}x(y-z)(y+z)}{2}$

continued ...

Table 2

#	symbol	irrep.	rank	X	multiplicity	component	symmetry
27	$\mathbb{G}_{3,2}(T_g, 2)$					2	$-\frac{\sqrt{15}y(x-z)(x+z)}{2}$
28	$\mathbb{G}_{3,3}(T_g, 2)$					3	$\frac{\sqrt{15}z(x-y)(x+y)}{2}$
29	$\mathbb{Q}_{4,1}(T_g, 1)$	$T_g$	4	$Q, T$	1	1	$\frac{\sqrt{35}yz(y-z)(y+z)}{2}$
30	$\mathbb{Q}_{4,2}(T_g, 1)$					2	$-\frac{\sqrt{35}xz(x-z)(x+z)}{2}$
31	$\mathbb{Q}_{4,3}(T_g, 1)$					3	$\frac{\sqrt{35}xy(x-y)(x+y)}{2}$
32	$\mathbb{Q}_{4,1}(T_g, 2)$	$T_g$	4	$Q, T$	2	1	$\frac{\sqrt{5}yz(6x^2-y^2-z^2)}{2}$
33	$\mathbb{Q}_{4,2}(T_g, 2)$					2	$-\frac{\sqrt{5}xz(x^2-6y^2+z^2)}{2}$
34	$\mathbb{Q}_{4,3}(T_g, 2)$					3	$-\frac{\sqrt{5}xy(x^2+y^2-6z^2)}{2}$
35	$\mathbb{Q}_{1,1}(T_u)$	$T_u$	1	$Q, T$	-	1	$x$
36	$\mathbb{Q}_{1,2}(T_u)$					2	$y$
37	$\mathbb{Q}_{1,3}(T_u)$					3	$z$
38	$\mathbb{G}_{2,1}(T_u)$	$T_u$	2	$G, M$	-	1	$\sqrt{3}yz$
39	$\mathbb{G}_{2,2}(T_u)$					2	$\sqrt{3}xz$
40	$\mathbb{G}_{2,3}(T_u)$					3	$\sqrt{3}xy$
41	$\mathbb{Q}_{3,1}(T_u, 1)$	$T_u$	3	$Q, T$	1	1	$\frac{x(2x^2-3y^2-3z^2)}{2}$
42	$\mathbb{Q}_{3,2}(T_u, 1)$					2	$-\frac{y(3x^2-2y^2+3z^2)}{2}$
43	$\mathbb{Q}_{3,3}(T_u, 1)$					3	$-\frac{z(3x^2+3y^2-2z^2)}{2}$
44	$\mathbb{Q}_{3,1}(T_u, 2)$	$T_u$	3	$Q, T$	2	1	$\frac{\sqrt{15}x(y-z)(y+z)}{2}$
45	$\mathbb{Q}_{3,2}(T_u, 2)$					2	$-\frac{\sqrt{15}y(x-z)(x+z)}{2}$
46	$\mathbb{Q}_{3,3}(T_u, 2)$					3	$\frac{\sqrt{15}z(x-y)(x+y)}{2}$
47	$\mathbb{G}_{4,1}(T_u, 1)$	$T_u$	4	$G, M$	1	1	$\frac{\sqrt{35}yz(y-z)(y+z)}{2}$

continued ...

Table 2

#	symbol	irrep.	rank	X	multiplicity	component	symmetry
48	$\mathbb{G}_{4,2}(T_u, 1)$					2	$-\frac{\sqrt{35}xz(x-z)(x+z)}{2}$
49	$\mathbb{G}_{4,3}(T_u, 1)$					3	$\frac{\sqrt{35}xy(x-y)(x+y)}{2}$
50	$\mathbb{G}_{4,1}(T_u, 2)$	$T_u$	4	$G, M$	2	1	$\frac{\sqrt{5}yz(6x^2-y^2-z^2)}{2}$
51	$\mathbb{G}_{4,2}(T_u, 2)$					2	$-\frac{\sqrt{5}xz(x^2-6y^2+z^2)}{2}$
52	$\mathbb{G}_{4,3}(T_u, 2)$					3	$-\frac{\sqrt{5}xy(x^2+y^2-6z^2)}{2}$
53	$\mathbb{Q}_{5,1}(T_u, 3)$	$T_u$	5	$Q, T$	3	1	$\frac{\sqrt{105}x(y-z)(y+z)(2x^2-y^2-z^2)}{4}$
54	$\mathbb{Q}_{5,2}(T_u, 3)$					2	$\frac{\sqrt{105}y(x-z)(x+z)(x^2-2y^2+z^2)}{4}$
55	$\mathbb{Q}_{5,3}(T_u, 3)$					3	$-\frac{\sqrt{105}z(x-y)(x+y)(x^2+y^2-2z^2)}{4}$

— Basis in full matrix —

Table 3: dimension = 48

#	orbital@atom(SL)	#	orbital@atom(SL)	#	orbital@atom(SL)	#	orbital@atom(SL)	#	orbital@atom(SL)
0	$ \frac{1}{2}, \frac{1}{2}; p\rangle @A(1)$	1	$ \frac{1}{2}, -\frac{1}{2}; p\rangle @A(1)$	2	$ \frac{3}{2}, \frac{3}{2}; p\rangle @A(1)$	3	$ \frac{3}{2}, \frac{1}{2}; p\rangle @A(1)$	4	$ \frac{3}{2}, -\frac{1}{2}; p\rangle @A(1)$
5	$ \frac{3}{2}, -\frac{3}{2}; p\rangle @A(1)$	6	$ \frac{1}{2}, \frac{1}{2}; p\rangle @A(2)$	7	$ \frac{1}{2}, -\frac{1}{2}; p\rangle @A(2)$	8	$ \frac{3}{2}, \frac{3}{2}; p\rangle @A(2)$	9	$ \frac{3}{2}, \frac{1}{2}; p\rangle @A(2)$
10	$ \frac{3}{2}, -\frac{1}{2}; p\rangle @A(2)$	11	$ \frac{3}{2}, -\frac{3}{2}; p\rangle @A(2)$	12	$ \frac{1}{2}, \frac{1}{2}; p\rangle @A(3)$	13	$ \frac{1}{2}, -\frac{1}{2}; p\rangle @A(3)$	14	$ \frac{3}{2}, \frac{3}{2}; p\rangle @A(3)$
15	$ \frac{3}{2}, \frac{1}{2}; p\rangle @A(3)$	16	$ \frac{3}{2}, -\frac{1}{2}; p\rangle @A(3)$	17	$ \frac{3}{2}, -\frac{3}{2}; p\rangle @A(3)$	18	$ \frac{1}{2}, \frac{1}{2}; p\rangle @A(4)$	19	$ \frac{1}{2}, -\frac{1}{2}; p\rangle @A(4)$
20	$ \frac{3}{2}, \frac{3}{2}; p\rangle @A(4)$	21	$ \frac{3}{2}, \frac{1}{2}; p\rangle @A(4)$	22	$ \frac{3}{2}, -\frac{1}{2}; p\rangle @A(4)$	23	$ \frac{3}{2}, -\frac{3}{2}; p\rangle @A(4)$	24	$ \frac{1}{2}, \frac{1}{2}; p\rangle @A(5)$

continued ...

Table 3

#	orbital@atom(SL)	#	orbital@atom(SL)	#	orbital@atom(SL)	#	orbital@atom(SL)	#	orbital@atom(SL)
25	$ \frac{1}{2}, -\frac{1}{2}; p\rangle @A(5)$	26	$ \frac{3}{2}, \frac{3}{2}; p\rangle @A(5)$	27	$ \frac{3}{2}, \frac{1}{2}; p\rangle @A(5)$	28	$ \frac{3}{2}, -\frac{1}{2}; p\rangle @A(5)$	29	$ \frac{3}{2}, -\frac{3}{2}; p\rangle @A(5)$
30	$ \frac{1}{2}, \frac{1}{2}; p\rangle @A(6)$	31	$ \frac{1}{2}, -\frac{1}{2}; p\rangle @A(6)$	32	$ \frac{3}{2}, \frac{3}{2}; p\rangle @A(6)$	33	$ \frac{3}{2}, \frac{1}{2}; p\rangle @A(6)$	34	$ \frac{3}{2}, -\frac{1}{2}; p\rangle @A(6)$
35	$ \frac{3}{2}, -\frac{3}{2}; p\rangle @A(6)$	36	$ \frac{1}{2}, \frac{1}{2}; p\rangle @A(7)$	37	$ \frac{1}{2}, -\frac{1}{2}; p\rangle @A(7)$	38	$ \frac{3}{2}, \frac{3}{2}; p\rangle @A(7)$	39	$ \frac{3}{2}, \frac{1}{2}; p\rangle @A(7)$
40	$ \frac{3}{2}, -\frac{1}{2}; p\rangle @A(7)$	41	$ \frac{3}{2}, -\frac{3}{2}; p\rangle @A(7)$	42	$ \frac{1}{2}, \frac{1}{2}; p\rangle @A(8)$	43	$ \frac{1}{2}, -\frac{1}{2}; p\rangle @A(8)$	44	$ \frac{3}{2}, \frac{3}{2}; p\rangle @A(8)$
45	$ \frac{3}{2}, \frac{1}{2}; p\rangle @A(8)$	46	$ \frac{3}{2}, -\frac{1}{2}; p\rangle @A(8)$	47	$ \frac{3}{2}, -\frac{3}{2}; p\rangle @A(8)$				

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**SAMB**


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552 (all 552) SAMBs

## • 'A' site-cluster : A

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

\* wyckoff: 8b

$$\boxed{\text{z1}} \quad \mathbb{Q}_0^{(c)}(A_g, a) = \mathbb{Q}_0^{(a)}(A_g) \mathbb{Q}_0^{(s)}(A_g)$$

$$\boxed{\text{z2}} \quad \mathbb{Q}_0^{(c)}(A_g, b) = \frac{\sqrt{3} \mathbb{Q}_{2,1}^{(a)}(T_g) \mathbb{Q}_{2,1}^{(s)}(T_g)}{3} + \frac{\sqrt{3} \mathbb{Q}_{2,2}^{(a)}(T_g) \mathbb{Q}_{2,2}^{(s)}(T_g)}{3} + \frac{\sqrt{3} \mathbb{Q}_{2,3}^{(a)}(T_g) \mathbb{Q}_{2,3}^{(s)}(T_g)}{3}$$

$$\boxed{\text{z3}} \quad \mathbb{Q}_0^{(1,-1;c)}(A_g) = \frac{\sqrt{3} \mathbb{Q}_{2,1}^{(1,-1;a)}(T_g) \mathbb{Q}_{2,1}^{(s)}(T_g)}{3} + \frac{\sqrt{3} \mathbb{Q}_{2,2}^{(1,-1;a)}(T_g) \mathbb{Q}_{2,2}^{(s)}(T_g)}{3} + \frac{\sqrt{3} \mathbb{Q}_{2,3}^{(1,-1;a)}(T_g) \mathbb{Q}_{2,3}^{(s)}(T_g)}{3}$$

$$\boxed{\text{z4}} \quad \mathbb{Q}_0^{(1,1;c)}(A_g) = \mathbb{Q}_0^{(1,1;a)}(A_g) \mathbb{Q}_0^{(s)}(A_g)$$

$$\boxed{\text{z5}} \quad \mathbb{G}_3^{(1,0;c)}(A_g) = \frac{\sqrt{3} \mathbb{G}_{1,1}^{(1,0;a)}(T_g) \mathbb{Q}_{2,1}^{(s)}(T_g)}{3} + \frac{\sqrt{3} \mathbb{G}_{1,2}^{(1,0;a)}(T_g) \mathbb{Q}_{2,2}^{(s)}(T_g)}{3} + \frac{\sqrt{3} \mathbb{G}_{1,3}^{(1,0;a)}(T_g) \mathbb{Q}_{2,3}^{(s)}(T_g)}{3}$$

$$\boxed{\text{z27}} \quad \mathbb{Q}_3^{(c)}(A_u, a) = \mathbb{Q}_0^{(a)}(A_g) \mathbb{Q}_3^{(s)}(A_u)$$

$$\boxed{\text{z28}} \quad \mathbb{Q}_3^{(c)}(A_u, b) = \frac{\sqrt{3}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{1,1}^{(s)}(T_u)}{3} + \frac{\sqrt{3}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{1,2}^{(s)}(T_u)}{3} + \frac{\sqrt{3}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{1,3}^{(s)}(T_u)}{3}$$

$$\boxed{\text{z29}} \quad \mathbb{Q}_3^{(1,-1;c)}(A_u) = \frac{\sqrt{3}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,1}^{(s)}(T_u)}{3} + \frac{\sqrt{3}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,2}^{(s)}(T_u)}{3} + \frac{\sqrt{3}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,3}^{(s)}(T_u)}{3}$$

$$\boxed{\text{z30}} \quad \mathbb{Q}_3^{(1,1;c)}(A_u) = \mathbb{Q}_0^{(1,1;a)}(A_g)\mathbb{Q}_3^{(s)}(A_u)$$

$$\boxed{\text{z31}} \quad \mathbb{G}_0^{(1,0;c)}(A_u) = \frac{\sqrt{3}\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{1,1}^{(s)}(T_u)}{3} + \frac{\sqrt{3}\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{1,2}^{(s)}(T_u)}{3} + \frac{\sqrt{3}\mathbb{G}_{1,3}^{(1,0;a)}(T_g)\mathbb{Q}_{1,3}^{(s)}(T_u)}{3}$$

$$\boxed{\text{z32}} \quad \mathbb{Q}_{2,1}^{(c)}(E_g, a) = \frac{\sqrt{2}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_0^{(s)}(A_g)}{2}$$

$$\boxed{\text{z33}} \quad \mathbb{Q}_{2,2}^{(c)}(E_g, a) = \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_0^{(s)}(A_g)}{2}$$

$$\boxed{\text{z34}} \quad \mathbb{Q}_{2,1}^{(c)}(E_g, b) = \frac{\sqrt{3}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{2,1}^{(s)}(T_g)}{6} + \frac{\sqrt{3}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{2,2}^{(s)}(T_g)}{6} - \frac{\sqrt{3}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{2,3}^{(s)}(T_g)}{3}$$

$$\boxed{\text{z35}} \quad \mathbb{Q}_{2,2}^{(c)}(E_g, b) = -\frac{\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{2,1}^{(s)}(T_g)}{2} + \frac{\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{2,2}^{(s)}(T_g)}{2}$$

$$\boxed{\text{z36}} \quad \mathbb{Q}_{2,1}^{(1,-1;c)}(E_g, a) = \frac{\sqrt{2}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_0^{(s)}(A_g)}{2}$$

$$\boxed{\text{z79}} \quad \mathbb{Q}_{2,2}^{(1,-1;c)}(E_g, a) = \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_0^{(s)}(A_g)}{2}$$

$$\boxed{\text{z80}} \quad \mathbb{Q}_{2,1}^{(1,-1;c)}(E_g, b) = \frac{\sqrt{3}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,1}^{(s)}(T_g)}{6} + \frac{\sqrt{3}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,2}^{(s)}(T_g)}{6} - \frac{\sqrt{3}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,3}^{(s)}(T_g)}{3}$$

$$\boxed{\text{z81}} \quad \mathbb{Q}_{2,2}^{(1,-1;c)}(E_g, b) = -\frac{\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,1}^{(s)}(T_g)}{2} + \frac{\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,2}^{(s)}(T_g)}{2}$$

$$\boxed{\text{z82}} \quad \mathbb{Q}_{2,1}^{(1,0;c)}(E_g) = \frac{\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{2,1}^{(s)}(T_g)}{2} - \frac{\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{2,2}^{(s)}(T_g)}{2}$$

$$\boxed{\text{z83}} \quad \mathbb{Q}_{2,2}^{(1,0;c)}(E_g) = \frac{\sqrt{3}\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{2,1}^{(s)}(T_g)}{6} + \frac{\sqrt{3}\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{2,2}^{(s)}(T_g)}{6} - \frac{\sqrt{3}\mathbb{G}_{1,3}^{(1,0;a)}(T_g)\mathbb{Q}_{2,3}^{(s)}(T_g)}{3}$$

$$\boxed{\text{z84}} \quad \mathbb{Q}_{5,1}^{(c)}(E_u) = \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_3^{(s)}(A_u)}{2}$$

$$\boxed{\text{z85}} \quad \mathbb{Q}_{5,2}^{(c)}(E_u) = -\frac{\sqrt{2}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_3^{(s)}(A_u)}{2}$$

$$\boxed{\text{z86}} \quad \mathbb{Q}_{5,1}^{(1,-1;c)}(E_u) = \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_3^{(s)}(A_u)}{2}$$

$$\boxed{\text{z87}} \quad \mathbb{Q}_{5,2}^{(1,-1;c)}(E_u) = -\frac{\sqrt{2}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_3^{(s)}(A_u)}{2}$$

$$\boxed{\text{z88}} \quad \mathbb{G}_{2,1}^{(c)}(E_u) = -\frac{\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{1,1}^{(s)}(T_u)}{2} + \frac{\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{1,2}^{(s)}(T_u)}{2}$$

$$\boxed{\text{z89}} \quad \mathbb{G}_{2,2}^{(c)}(E_u) = -\frac{\sqrt{3}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{1,1}^{(s)}(T_u)}{6} - \frac{\sqrt{3}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{1,2}^{(s)}(T_u)}{6} + \frac{\sqrt{3}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{1,3}^{(s)}(T_u)}{3}$$

$$\boxed{\text{z90}} \quad \mathbb{G}_{2,1}^{(1,-1;c)}(E_u) = -\frac{\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,1}^{(s)}(T_u)}{2} + \frac{\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,2}^{(s)}(T_u)}{2}$$

$$\boxed{\text{z91}} \quad \mathbb{G}_{2,2}^{(1,-1;c)}(E_u) = -\frac{\sqrt{3}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,1}^{(s)}(T_u)}{6} - \frac{\sqrt{3}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,2}^{(s)}(T_u)}{6} + \frac{\sqrt{3}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,3}^{(s)}(T_u)}{3}$$

$$\boxed{\text{z92}} \quad \mathbb{G}_{2,1}^{(1,0;c)}(E_u) = -\frac{\sqrt{3}\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{1,1}^{(s)}(T_u)}{6} - \frac{\sqrt{3}\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{1,2}^{(s)}(T_u)}{6} + \frac{\sqrt{3}\mathbb{G}_{1,3}^{(1,0;a)}(T_g)\mathbb{Q}_{1,3}^{(s)}(T_u)}{3}$$

$$\boxed{\text{z93}} \quad \mathbb{G}_{2,2}^{(1,0;c)}(E_u) = \frac{\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{1,1}^{(s)}(T_u)}{2} - \frac{\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{1,2}^{(s)}(T_u)}{2}$$

$$\boxed{\text{z94}} \quad \mathbb{Q}_{2,1}^{(c)}(T_g, a) = \frac{\sqrt{3}\mathbb{Q}_0^{(a)}(A_g)\mathbb{Q}_{2,1}^{(s)}(T_g)}{3}$$

$$\boxed{\text{z95}} \quad \mathbb{Q}_{2,2}^{(c)}(T_g, a) = \frac{\sqrt{3}\mathbb{Q}_0^{(a)}(A_g)\mathbb{Q}_{2,2}^{(s)}(T_g)}{3}$$

$$\boxed{\text{z96}} \quad \mathbb{Q}_{2,3}^{(c)}(T_g, a) = \frac{\sqrt{3}\mathbb{Q}_0^{(a)}(A_g)\mathbb{Q}_{2,3}^{(s)}(T_g)}{3}$$

$$\boxed{\text{z97}} \quad \mathbb{Q}_{2,1}^{(c)}(T_g, b) = \frac{\sqrt{3}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_0^{(s)}(A_g)}{3}$$

$$\boxed{\text{z98}} \quad \mathbb{Q}_{2,2}^{(c)}(T_g, b) = \frac{\sqrt{3}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_0^{(s)}(A_g)}{3}$$

$$\boxed{\text{z99}} \quad \mathbb{Q}_{2,3}^{(c)}(T_g, b) = \frac{\sqrt{3}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_0^{(s)}(A_g)}{3}$$

$$\boxed{\text{z100}} \quad \mathbb{Q}_{2,1}^{(c)}(T_g, c) = \frac{\sqrt{30}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{2,1}^{(s)}(T_g)}{30} - \frac{\sqrt{10}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{2,1}^{(s)}(T_g)}{10} + \frac{\sqrt{10}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{2,3}^{(s)}(T_g)}{10} + \frac{\sqrt{10}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{2,2}^{(s)}(T_g)}{10}$$

$$\boxed{\text{z101}} \quad \mathbb{Q}_{2,2}^{(c)}(T_g, c) = \frac{\sqrt{30}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{2,2}^{(s)}(T_g)}{30} + \frac{\sqrt{10}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{2,3}^{(s)}(T_g)}{10} + \frac{\sqrt{10}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{2,2}^{(s)}(T_g)}{10} + \frac{\sqrt{10}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{2,1}^{(s)}(T_g)}{10}$$

$$\boxed{\text{z102}} \quad \mathbb{Q}_{2,3}^{(c)}(T_g, c) = -\frac{\sqrt{30}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{2,3}^{(s)}(T_g)}{15} + \frac{\sqrt{10}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{2,2}^{(s)}(T_g)}{10} + \frac{\sqrt{10}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{2,1}^{(s)}(T_g)}{10}$$

$$\boxed{\text{z103}} \quad \mathbb{Q}_{4,1}^{(c)}(T_g, 1) = -\frac{\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{2,1}^{(s)}(T_g)}{2} - \frac{\sqrt{3}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{2,1}^{(s)}(T_g)}{6}$$

$$\boxed{\text{z104}} \quad \mathbb{Q}_{4,2}^{(c)}(T_g, 1) = \frac{\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{2,2}^{(s)}(T_g)}{2} - \frac{\sqrt{3}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{2,2}^{(s)}(T_g)}{6}$$

$$\boxed{\text{z105}} \quad \mathbb{Q}_{4,3}^{(c)}(T_g, 1) = \frac{\sqrt{3}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{2,3}^{(s)}(T_g)}{3}$$

$$\boxed{\text{z106}} \quad \mathbb{Q}_{4,1}^{(c)}(T_g, 2) = -\frac{\sqrt{5}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{2,1}^{(s)}(T_g)}{10} + \frac{\sqrt{15}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{2,1}^{(s)}(T_g)}{10} + \frac{\sqrt{15}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{2,3}^{(s)}(T_g)}{15} + \frac{\sqrt{15}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{2,2}^{(s)}(T_g)}{15}$$

$$\boxed{\text{z107}} \quad \mathbb{Q}_{4,2}^{(c)}(T_g, 2) = -\frac{\sqrt{5}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{2,2}^{(s)}(T_g)}{10} + \frac{\sqrt{15}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{2,3}^{(s)}(T_g)}{15} - \frac{\sqrt{15}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{2,2}^{(s)}(T_g)}{10} + \frac{\sqrt{15}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{2,1}^{(s)}(T_g)}{15}$$

$$\boxed{\text{z108}} \quad \mathbb{Q}_{4,3}^{(c)}(T_g, 2) = \frac{\sqrt{5}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{2,3}^{(s)}(T_g)}{5} + \frac{\sqrt{15}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{2,2}^{(s)}(T_g)}{15} + \frac{\sqrt{15}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{2,1}^{(s)}(T_g)}{15}$$

$$\boxed{\text{z109}} \quad \mathbb{Q}_{2,1}^{(1,-1;c)}(T_g, a) = \frac{\sqrt{3}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_0^{(s)}(A_g)}{3}$$

$$\boxed{\text{z110}} \quad \mathbb{Q}_{2,2}^{(1,-1;c)}(T_g, a) = \frac{\sqrt{3}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_0^{(s)}(A_g)}{3}$$

$$\boxed{\text{z111}} \quad \mathbb{Q}_{2,3}^{(1,-1;c)}(T_g, a) = \frac{\sqrt{3}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_0^{(s)}(A_g)}{3}$$

$$\begin{aligned}
\text{z112} \quad \mathbb{Q}_{2,1}^{(1,-1;c)}(T_g, b) &= \frac{\sqrt{30}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,1}^{(s)}(T_g)}{30} - \frac{\sqrt{10}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,1}^{(s)}(T_g)}{10} + \frac{\sqrt{10}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,3}^{(s)}(T_g)}{10} + \frac{\sqrt{10}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,2}^{(s)}(T_g)}{10} \\
\text{z113} \quad \mathbb{Q}_{2,2}^{(1,-1;c)}(T_g, b) &= \frac{\sqrt{30}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,2}^{(s)}(T_g)}{30} + \frac{\sqrt{10}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,3}^{(s)}(T_g)}{10} + \frac{\sqrt{10}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,2}^{(s)}(T_g)}{10} + \frac{\sqrt{10}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,1}^{(s)}(T_g)}{10} \\
\text{z114} \quad \mathbb{Q}_{2,3}^{(1,-1;c)}(T_g, b) &= -\frac{\sqrt{30}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,3}^{(s)}(T_g)}{15} + \frac{\sqrt{10}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,2}^{(s)}(T_g)}{10} + \frac{\sqrt{10}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,1}^{(s)}(T_g)}{10} \\
\text{z115} \quad \mathbb{Q}_{4,1}^{(1,-1;c)}(T_g, 1) &= -\frac{\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,1}^{(s)}(T_g)}{2} - \frac{\sqrt{3}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,1}^{(s)}(T_g)}{6} \\
\text{z116} \quad \mathbb{Q}_{4,2}^{(1,-1;c)}(T_g, 1) &= \frac{\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,2}^{(s)}(T_g)}{2} - \frac{\sqrt{3}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,2}^{(s)}(T_g)}{6} \\
\text{z117} \quad \mathbb{Q}_{4,3}^{(1,-1;c)}(T_g, 1) &= \frac{\sqrt{3}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,3}^{(s)}(T_g)}{3} \\
\text{z118} \quad \mathbb{Q}_{4,1}^{(1,-1;c)}(T_g, 2) &= -\frac{\sqrt{5}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,1}^{(s)}(T_g)}{10} + \frac{\sqrt{15}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,1}^{(s)}(T_g)}{10} + \frac{\sqrt{15}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,3}^{(s)}(T_g)}{15} + \frac{\sqrt{15}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,2}^{(s)}(T_g)}{15} \\
\text{z119} \quad \mathbb{Q}_{4,2}^{(1,-1;c)}(T_g, 2) &= -\frac{\sqrt{5}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,2}^{(s)}(T_g)}{10} + \frac{\sqrt{15}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,3}^{(s)}(T_g)}{15} - \frac{\sqrt{15}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,2}^{(s)}(T_g)}{10} + \frac{\sqrt{15}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,1}^{(s)}(T_g)}{15} \\
\text{z120} \quad \mathbb{Q}_{4,3}^{(1,-1;c)}(T_g, 2) &= \frac{\sqrt{5}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,3}^{(s)}(T_g)}{5} + \frac{\sqrt{15}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,2}^{(s)}(T_g)}{15} + \frac{\sqrt{15}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,1}^{(s)}(T_g)}{15} \\
\text{z121} \quad \mathbb{Q}_{2,1}^{(1,0;c)}(T_g) &= -\frac{\sqrt{6}\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{2,3}^{(s)}(T_g)}{6} + \frac{\sqrt{6}\mathbb{G}_{1,3}^{(1,0;a)}(T_g)\mathbb{Q}_{2,2}^{(s)}(T_g)}{6} \\
\text{z122} \quad \mathbb{Q}_{2,2}^{(1,0;c)}(T_g) &= \frac{\sqrt{6}\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{2,3}^{(s)}(T_g)}{6} - \frac{\sqrt{6}\mathbb{G}_{1,3}^{(1,0;a)}(T_g)\mathbb{Q}_{2,1}^{(s)}(T_g)}{6} \\
\text{z123} \quad \mathbb{Q}_{2,3}^{(1,0;c)}(T_g) &= -\frac{\sqrt{6}\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{2,2}^{(s)}(T_g)}{6} + \frac{\sqrt{6}\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{2,1}^{(s)}(T_g)}{6} \\
\text{z277} \quad \mathbb{Q}_{2,1}^{(1,1;c)}(T_g) &= \frac{\sqrt{3}\mathbb{Q}_0^{(1,1;a)}(A_g)\mathbb{Q}_{2,1}^{(s)}(T_g)}{3} \\
\text{z278} \quad \mathbb{Q}_{2,2}^{(1,1;c)}(T_g) &= \frac{\sqrt{3}\mathbb{Q}_0^{(1,1;a)}(A_g)\mathbb{Q}_{2,2}^{(s)}(T_g)}{3}
\end{aligned}$$

$$\begin{aligned}
\boxed{\text{z279}} \quad \mathbb{Q}_{2,3}^{(1,1;c)}(T_g) &= \frac{\sqrt{3}\mathbb{Q}_0^{(1,1;a)}(A_g)\mathbb{Q}_{2,3}^{(s)}(T_g)}{3} \\
\boxed{\text{z280}} \quad \mathbb{G}_{1,1}^{(c)}(T_g) &= -\frac{\sqrt{6}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{2,3}^{(s)}(T_g)}{6} + \frac{\sqrt{6}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{2,2}^{(s)}(T_g)}{6} \\
\boxed{\text{z281}} \quad \mathbb{G}_{1,2}^{(c)}(T_g) &= \frac{\sqrt{6}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{2,3}^{(s)}(T_g)}{6} - \frac{\sqrt{6}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{2,1}^{(s)}(T_g)}{6} \\
\boxed{\text{z297}} \quad \mathbb{G}_{1,3}^{(c)}(T_g) &= -\frac{\sqrt{6}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{2,2}^{(s)}(T_g)}{6} + \frac{\sqrt{6}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{2,1}^{(s)}(T_g)}{6} \\
\boxed{\text{z298}} \quad \mathbb{G}_{1,1}^{(1,-1;c)}(T_g) &= -\frac{\sqrt{6}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,3}^{(s)}(T_g)}{6} + \frac{\sqrt{6}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,2}^{(s)}(T_g)}{6} \\
\boxed{\text{z299}} \quad \mathbb{G}_{1,2}^{(1,-1;c)}(T_g) &= \frac{\sqrt{6}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,3}^{(s)}(T_g)}{6} - \frac{\sqrt{6}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,1}^{(s)}(T_g)}{6} \\
\boxed{\text{z300}} \quad \mathbb{G}_{1,3}^{(1,-1;c)}(T_g) &= -\frac{\sqrt{6}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,2}^{(s)}(T_g)}{6} + \frac{\sqrt{6}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,1}^{(s)}(T_g)}{6} \\
\boxed{\text{z301}} \quad \mathbb{G}_{1,1}^{(1,0;c)}(T_g, a) &= \frac{\sqrt{3}\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_0^{(s)}(A_g)}{3} \\
\boxed{\text{z302}} \quad \mathbb{G}_{1,2}^{(1,0;c)}(T_g, a) &= \frac{\sqrt{3}\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_0^{(s)}(A_g)}{3} \\
\boxed{\text{z303}} \quad \mathbb{G}_{1,3}^{(1,0;c)}(T_g, a) &= \frac{\sqrt{3}\mathbb{G}_{1,3}^{(1,0;a)}(T_g)\mathbb{Q}_0^{(s)}(A_g)}{3} \\
\boxed{\text{z304}} \quad \mathbb{G}_{1,1}^{(1,0;c)}(T_g, b) &= \frac{\sqrt{6}\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{2,3}^{(s)}(T_g)}{6} + \frac{\sqrt{6}\mathbb{G}_{1,3}^{(1,0;a)}(T_g)\mathbb{Q}_{2,2}^{(s)}(T_g)}{6} \\
\boxed{\text{z305}} \quad \mathbb{G}_{1,2}^{(1,0;c)}(T_g, b) &= \frac{\sqrt{6}\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{2,3}^{(s)}(T_g)}{6} + \frac{\sqrt{6}\mathbb{G}_{1,3}^{(1,0;a)}(T_g)\mathbb{Q}_{2,1}^{(s)}(T_g)}{6} \\
\boxed{\text{z306}} \quad \mathbb{G}_{1,3}^{(1,0;c)}(T_g, b) &= \frac{\sqrt{6}\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{2,2}^{(s)}(T_g)}{6} + \frac{\sqrt{6}\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{2,1}^{(s)}(T_g)}{6} \\
\boxed{\text{z337}} \quad \mathbb{Q}_{1,1}^{(c)}(T_u, a) &= \frac{\sqrt{3}\mathbb{Q}_0^{(a)}(A_g)\mathbb{Q}_{1,1}^{(s)}(T_u)}{3}
\end{aligned}$$

$$\begin{aligned}
\boxed{\text{z338}} \quad \mathbb{Q}_{1,2}^{(c)}(T_u, a) &= \frac{\sqrt{3}\mathbb{Q}_0^{(a)}(A_g)\mathbb{Q}_{1,2}^{(s)}(T_u)}{3} \\
\boxed{\text{z339}} \quad \mathbb{Q}_{1,3}^{(c)}(T_u, a) &= \frac{\sqrt{3}\mathbb{Q}_0^{(a)}(A_g)\mathbb{Q}_{1,3}^{(s)}(T_u)}{3} \\
\boxed{\text{z340}} \quad \mathbb{Q}_{1,1}^{(c)}(T_u, b) &= \frac{\sqrt{3}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_3^{(s)}(A_u)}{3} \\
\boxed{\text{z341}} \quad \mathbb{Q}_{1,2}^{(c)}(T_u, b) &= \frac{\sqrt{3}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_3^{(s)}(A_u)}{3} \\
\boxed{\text{z342}} \quad \mathbb{Q}_{1,3}^{(c)}(T_u, b) &= \frac{\sqrt{3}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_3^{(s)}(A_u)}{3} \\
\boxed{\text{z343}} \quad \mathbb{Q}_{1,1}^{(c)}(T_u, c) &= -\frac{\sqrt{30}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{1,1}^{(s)}(T_u)}{30} + \frac{\sqrt{10}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{1,1}^{(s)}(T_u)}{10} + \frac{\sqrt{10}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{1,3}^{(s)}(T_u)}{10} + \frac{\sqrt{10}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{1,2}^{(s)}(T_u)}{10} \\
\boxed{\text{z344}} \quad \mathbb{Q}_{1,2}^{(c)}(T_u, c) &= -\frac{\sqrt{30}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{1,2}^{(s)}(T_u)}{30} + \frac{\sqrt{10}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{1,3}^{(s)}(T_u)}{10} - \frac{\sqrt{10}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{1,2}^{(s)}(T_u)}{10} + \frac{\sqrt{10}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{1,1}^{(s)}(T_u)}{10} \\
\boxed{\text{z345}} \quad \mathbb{Q}_{1,3}^{(c)}(T_u, c) &= \frac{\sqrt{30}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{1,3}^{(s)}(T_u)}{15} + \frac{\sqrt{10}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{1,2}^{(s)}(T_u)}{10} + \frac{\sqrt{10}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{1,1}^{(s)}(T_u)}{10} \\
\boxed{\text{z346}} \quad \mathbb{Q}_{3,1}^{(c)}(T_u, 1) &= -\frac{\sqrt{5}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{1,1}^{(s)}(T_u)}{10} + \frac{\sqrt{15}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{1,1}^{(s)}(T_u)}{10} - \frac{\sqrt{15}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{1,3}^{(s)}(T_u)}{15} - \frac{\sqrt{15}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{1,2}^{(s)}(T_u)}{15} \\
\boxed{\text{z347}} \quad \mathbb{Q}_{3,2}^{(c)}(T_u, 1) &= -\frac{\sqrt{5}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{1,2}^{(s)}(T_u)}{10} - \frac{\sqrt{15}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{1,3}^{(s)}(T_u)}{15} - \frac{\sqrt{15}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{1,2}^{(s)}(T_u)}{10} - \frac{\sqrt{15}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{1,1}^{(s)}(T_u)}{15} \\
\boxed{\text{z348}} \quad \mathbb{Q}_{3,3}^{(c)}(T_u, 1) &= \frac{\sqrt{5}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{1,3}^{(s)}(T_u)}{5} - \frac{\sqrt{15}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{1,2}^{(s)}(T_u)}{15} - \frac{\sqrt{15}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{1,1}^{(s)}(T_u)}{15} \\
\boxed{\text{z349}} \quad \mathbb{Q}_{3,1}^{(c)}(T_u, 2) &= -\frac{\sqrt{3}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{1,1}^{(s)}(T_u)}{6} - \frac{\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{1,1}^{(s)}(T_u)}{6} - \frac{\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{1,3}^{(s)}(T_u)}{3} + \frac{\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{1,2}^{(s)}(T_u)}{3} \\
\boxed{\text{z350}} \quad \mathbb{Q}_{3,2}^{(c)}(T_u, 2) &= \frac{\sqrt{3}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{1,2}^{(s)}(T_u)}{6} + \frac{\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{1,3}^{(s)}(T_u)}{3} - \frac{\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{1,2}^{(s)}(T_u)}{6} - \frac{\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{1,1}^{(s)}(T_u)}{3} \\
\boxed{\text{z351}} \quad \mathbb{Q}_{3,3}^{(c)}(T_u, 2) &= -\frac{\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{1,2}^{(s)}(T_u)}{3} + \frac{\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{1,3}^{(s)}(T_u)}{3} + \frac{\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{1,1}^{(s)}(T_u)}{3}
\end{aligned}$$

$$\begin{aligned}
\text{z352} \quad \mathbb{Q}_{1,1}^{(1,-1;c)}(T_u, a) &= \frac{\sqrt{3}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_3^{(s)}(A_u)}{3} \\
\text{z353} \quad \mathbb{Q}_{1,2}^{(1,-1;c)}(T_u, a) &= \frac{\sqrt{3}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_3^{(s)}(A_u)}{3} \\
\text{z354} \quad \mathbb{Q}_{1,3}^{(1,-1;c)}(T_u, a) &= \frac{\sqrt{3}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_3^{(s)}(A_u)}{3} \\
\text{z355} \quad \mathbb{Q}_{1,1}^{(1,-1;c)}(T_u, b) &= -\frac{\sqrt{30}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{1,1}^{(s)}(T_u)}{30} + \frac{\sqrt{10}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{1,1}^{(s)}(T_u)}{10} + \frac{\sqrt{10}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,3}^{(s)}(T_u)}{10} + \frac{\sqrt{10}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,2}^{(s)}(T_u)}{10} \\
\text{z356} \quad \mathbb{Q}_{1,2}^{(1,-1;c)}(T_u, b) &= -\frac{\sqrt{30}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{1,2}^{(s)}(T_u)}{30} + \frac{\sqrt{10}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,3}^{(s)}(T_u)}{10} - \frac{\sqrt{10}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{1,2}^{(s)}(T_u)}{10} + \frac{\sqrt{10}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,1}^{(s)}(T_u)}{10} \\
\text{z357} \quad \mathbb{Q}_{1,3}^{(1,-1;c)}(T_u, b) &= \frac{\sqrt{30}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{1,3}^{(s)}(T_u)}{15} + \frac{\sqrt{10}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,2}^{(s)}(T_u)}{10} + \frac{\sqrt{10}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,1}^{(s)}(T_u)}{10} \\
\text{z358} \quad \mathbb{Q}_{3,1}^{(1,-1;c)}(T_u, 1) &= -\frac{\sqrt{5}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{1,1}^{(s)}(T_u)}{10} + \frac{\sqrt{15}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{1,1}^{(s)}(T_u)}{10} - \frac{\sqrt{15}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,3}^{(s)}(T_u)}{15} - \frac{\sqrt{15}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,2}^{(s)}(T_u)}{15} \\
\text{z359} \quad \mathbb{Q}_{3,2}^{(1,-1;c)}(T_u, 1) &= -\frac{\sqrt{5}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{1,2}^{(s)}(T_u)}{10} - \frac{\sqrt{15}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,3}^{(s)}(T_u)}{15} - \frac{\sqrt{15}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{1,2}^{(s)}(T_u)}{10} - \frac{\sqrt{15}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,1}^{(s)}(T_u)}{15} \\
\text{z360} \quad \mathbb{Q}_{3,3}^{(1,-1;c)}(T_u, 1) &= \frac{\sqrt{5}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{1,3}^{(s)}(T_u)}{5} - \frac{\sqrt{15}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,2}^{(s)}(T_u)}{15} - \frac{\sqrt{15}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,1}^{(s)}(T_u)}{15} \\
\text{z361} \quad \mathbb{Q}_{3,1}^{(1,-1;c)}(T_u, 2) &= -\frac{\sqrt{3}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{1,1}^{(s)}(T_u)}{6} - \frac{\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{1,1}^{(s)}(T_u)}{6} - \frac{\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,3}^{(s)}(T_u)}{3} + \frac{\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,2}^{(s)}(T_u)}{3} \\
\text{z362} \quad \mathbb{Q}_{3,2}^{(1,-1;c)}(T_u, 2) &= \frac{\sqrt{3}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{1,2}^{(s)}(T_u)}{6} + \frac{\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,3}^{(s)}(T_u)}{3} - \frac{\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{1,2}^{(s)}(T_u)}{6} - \frac{\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,1}^{(s)}(T_u)}{3} \\
\text{z363} \quad \mathbb{Q}_{3,3}^{(1,-1;c)}(T_u, 2) &= -\frac{\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,2}^{(s)}(T_u)}{3} + \frac{\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{1,3}^{(s)}(T_u)}{3} + \frac{\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,1}^{(s)}(T_u)}{3} \\
\text{z364} \quad \mathbb{Q}_{1,1}^{(1,0;c)}(T_u) &= \frac{\sqrt{6}\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{1,3}^{(s)}(T_u)}{6} - \frac{\sqrt{6}\mathbb{G}_{1,3}^{(1,0;a)}(T_g)\mathbb{Q}_{1,2}^{(s)}(T_u)}{6} \\
\text{z365} \quad \mathbb{Q}_{1,2}^{(1,0;c)}(T_u) &= -\frac{\sqrt{6}\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{1,3}^{(s)}(T_u)}{6} + \frac{\sqrt{6}\mathbb{G}_{1,3}^{(1,0;a)}(T_g)\mathbb{Q}_{1,1}^{(s)}(T_u)}{6}
\end{aligned}$$

$$\boxed{\text{z366}} \quad \mathbb{Q}_{1,3}^{(1,0;c)}(T_u) = \frac{\sqrt{6}\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{1,2}^{(s)}(T_u)}{6} - \frac{\sqrt{6}\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{1,1}^{(s)}(T_u)}{6}$$

$$\boxed{\text{z367}} \quad \mathbb{Q}_{3,1}^{(1,0;c)}(T_u, 2) = -\frac{\sqrt{3}\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_3^{(s)}(A_u)}{3}$$

$$\boxed{\text{z368}} \quad \mathbb{Q}_{3,2}^{(1,0;c)}(T_u, 2) = -\frac{\sqrt{3}\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_3^{(s)}(A_u)}{3}$$

$$\boxed{\text{z369}} \quad \mathbb{Q}_{3,3}^{(1,0;c)}(T_u, 2) = -\frac{\sqrt{3}\mathbb{G}_{1,3}^{(1,0;a)}(T_g)\mathbb{Q}_3^{(s)}(A_u)}{3}$$

$$\boxed{\text{z370}} \quad \mathbb{Q}_{1,1}^{(1,1;c)}(T_u) = \frac{\sqrt{3}\mathbb{Q}_0^{(1,1;a)}(A_g)\mathbb{Q}_{1,1}^{(s)}(T_u)}{3}$$

$$\boxed{\text{z371}} \quad \mathbb{Q}_{1,2}^{(1,1;c)}(T_u) = \frac{\sqrt{3}\mathbb{Q}_0^{(1,1;a)}(A_g)\mathbb{Q}_{1,2}^{(s)}(T_u)}{3}$$

$$\boxed{\text{z372}} \quad \mathbb{Q}_{1,3}^{(1,1;c)}(T_u) = \frac{\sqrt{3}\mathbb{Q}_0^{(1,1;a)}(A_g)\mathbb{Q}_{1,3}^{(s)}(T_u)}{3}$$

$$\boxed{\text{z373}} \quad \mathbb{G}_{2,1}^{(c)}(T_u) = \frac{\sqrt{6}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{1,1}^{(s)}(T_u)}{6} + \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{1,1}^{(s)}(T_u)}{6} - \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{1,3}^{(s)}(T_u)}{6} + \frac{\sqrt{2}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{1,2}^{(s)}(T_u)}{6}$$

$$\boxed{\text{z374}} \quad \mathbb{G}_{2,2}^{(c)}(T_u) = -\frac{\sqrt{6}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{1,2}^{(s)}(T_u)}{6} + \frac{\sqrt{2}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{1,3}^{(s)}(T_u)}{6} + \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{1,2}^{(s)}(T_u)}{6} - \frac{\sqrt{2}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{1,1}^{(s)}(T_u)}{6}$$

$$\boxed{\text{z375}} \quad \mathbb{G}_{2,3}^{(c)}(T_u) = -\frac{\sqrt{2}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{1,2}^{(s)}(T_u)}{6} - \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{1,3}^{(s)}(T_u)}{3} + \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{1,1}^{(s)}(T_u)}{6}$$

$$\boxed{\text{z376}} \quad \mathbb{G}_{2,1}^{(1,-1;c)}(T_u) = \frac{\sqrt{6}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{1,1}^{(s)}(T_u)}{6} + \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{1,1}^{(s)}(T_u)}{6} - \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,3}^{(s)}(T_u)}{6} + \frac{\sqrt{2}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,2}^{(s)}(T_u)}{6}$$

$$\boxed{\text{z377}} \quad \mathbb{G}_{2,2}^{(1,-1;c)}(T_u) = -\frac{\sqrt{6}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{1,2}^{(s)}(T_u)}{6} + \frac{\sqrt{2}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,3}^{(s)}(T_u)}{6} + \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{1,2}^{(s)}(T_u)}{6} - \frac{\sqrt{2}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,1}^{(s)}(T_u)}{6}$$

$$\boxed{\text{z378}} \quad \mathbb{G}_{2,3}^{(1,-1;c)}(T_u) = -\frac{\sqrt{2}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,2}^{(s)}(T_u)}{6} - \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{1,3}^{(s)}(T_u)}{3} + \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,1}^{(s)}(T_u)}{6}$$

$$\boxed{\text{z379}} \quad \mathbb{G}_{2,1}^{(1,0;c)}(T_u) = \frac{\sqrt{6}\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{1,3}^{(s)}(T_u)}{6} + \frac{\sqrt{6}\mathbb{G}_{1,3}^{(1,0;a)}(T_g)\mathbb{Q}_{1,2}^{(s)}(T_u)}{6}$$

$$\boxed{\text{z380}} \quad \mathbb{G}_{2,2}^{(1,0;c)}(T_u) = \frac{\sqrt{6}\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{1,3}^{(s)}(T_u)}{6} + \frac{\sqrt{6}\mathbb{G}_{1,3}^{(1,0;a)}(T_g)\mathbb{Q}_{1,1}^{(s)}(T_u)}{6}$$

$$\boxed{\text{z381}} \quad \mathbb{G}_{2,3}^{(1,0;c)}(T_u) = \frac{\sqrt{6}\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{1,2}^{(s)}(T_u)}{6} + \frac{\sqrt{6}\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{1,1}^{(s)}(T_u)}{6}$$

• 'A'-'A' bond-cluster : **A;A\_001\_1**

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

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

\* wyckoff: **12b@12c**

$$\boxed{\text{z6}} \quad \mathbb{Q}_0^{(c)}(A_g, a) = \mathbb{Q}_0^{(a)}(A_g)\mathbb{Q}_0^{(b)}(A_g)$$

$$\boxed{\text{z7}} \quad \mathbb{Q}_0^{(c)}(A_g, b) = \frac{\sqrt{5}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{5} + \frac{\sqrt{5}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{5} + \frac{\sqrt{5}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{5} + \frac{\sqrt{5}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{5} + \frac{\sqrt{5}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{5}$$

$$\boxed{\text{z8}} \quad \mathbb{Q}_0^{(c)}(A_g, c) = \frac{\sqrt{3}\mathbb{M}_{1,1}^{(a)}(T_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{3} + \frac{\sqrt{3}\mathbb{M}_{1,2}^{(a)}(T_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{3} + \frac{\sqrt{3}\mathbb{M}_{1,3}^{(a)}(T_g)\mathbb{M}_{1,3}^{(b)}(T_g)}{3}$$

$$\boxed{\text{z9}} \quad \mathbb{Q}_4^{(c)}(A_g) = \frac{\sqrt{30}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{10} - \frac{\sqrt{30}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{15} + \frac{\sqrt{30}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{10} - \frac{\sqrt{30}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{15} - \frac{\sqrt{30}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{15}$$

$$\boxed{\text{z10}} \quad \mathbb{Q}_0^{(1,-1;c)}(A_g, a) = \frac{\sqrt{5}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{5} + \frac{\sqrt{5}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{5} + \frac{\sqrt{5}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{5} + \frac{\sqrt{5}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{5} + \frac{\sqrt{5}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{5}$$

$$\boxed{\text{z11}} \quad \mathbb{Q}_0^{(1,-1;c)}(A_g, b) = \frac{\sqrt{3}\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{3} + \frac{\sqrt{3}\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{3} + \frac{\sqrt{3}\mathbb{M}_{1,3}^{(1,-1;a)}(T_g)\mathbb{M}_{1,3}^{(b)}(T_g)}{3}$$

$$\boxed{\text{z12}} \quad \mathbb{Q}_4^{(1,-1;c)}(A_g, a) = \frac{\sqrt{30}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{10} - \frac{\sqrt{30}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{15} + \frac{\sqrt{30}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{10} - \frac{\sqrt{30}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{15} - \frac{\sqrt{30}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{15}$$

$$\boxed{\text{z13}} \quad \mathbb{Q}_4^{(1,-1;c)}(A_g, b) = \frac{\sqrt{3}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,1}^{(b)}(T_g)}{3} + \frac{\sqrt{3}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,2}^{(b)}(T_g)}{3} + \frac{\sqrt{3}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,3}^{(b)}(T_g)}{3}$$

$$\boxed{\text{z14}} \quad \mathbb{Q}_4^{(1,-1;c)}(A_g, c) = -\frac{\sqrt{3}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{2,1}^{(b)}(T_g)}{3} - \frac{\sqrt{3}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{2,2}^{(b)}(T_g)}{3} - \frac{\sqrt{3}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{2,3}^{(b)}(T_g)}{3}$$

$$\boxed{\text{z15}} \quad \mathbb{Q}_0^{(1,0;c)}(A_g) = \frac{\sqrt{3}\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{T}_{2,1}^{(b)}(T_g)}{3} + \frac{\sqrt{3}\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{T}_{2,2}^{(b)}(T_g)}{3} + \frac{\sqrt{3}\mathbb{T}_{2,3}^{(1,0;a)}(T_g)\mathbb{T}_{2,3}^{(b)}(T_g)}{3}$$

$$\boxed{\text{z16}} \quad \mathbb{Q}_0^{(1,1;c)}(A_g, a) = \mathbb{Q}_0^{(1,1;a)}(A_g) \mathbb{Q}_0^{(b)}(A_g)$$

$$\boxed{\text{z17}} \quad \mathbb{Q}_0^{(1,1;c)}(A_g, b) = \frac{\sqrt{3}\mathbb{M}_{1,1}^{(1,1;a)}(T_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{3} + \frac{\sqrt{3}\mathbb{M}_{1,2}^{(1,1;a)}(T_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{3} + \frac{\sqrt{3}\mathbb{M}_{1,3}^{(1,1;a)}(T_g)\mathbb{M}_{1,3}^{(b)}(T_g)}{3}$$

$$\boxed{\text{z18}} \quad \mathbb{G}_3^{(c)}(A_g, a) = \frac{\sqrt{2}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{2} - \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z19}} \quad \mathbb{G}_3^{(c)}(A_g, b) = \frac{\sqrt{3}\mathbb{M}_{1,1}^{(a)}(T_g)\mathbb{T}_{2,1}^{(b)}(T_g)}{3} + \frac{\sqrt{3}\mathbb{M}_{1,2}^{(a)}(T_g)\mathbb{T}_{2,2}^{(b)}(T_g)}{3} + \frac{\sqrt{3}\mathbb{M}_{1,3}^{(a)}(T_g)\mathbb{T}_{2,3}^{(b)}(T_g)}{3}$$

$$\boxed{\text{z20}} \quad \mathbb{G}_3^{(1,-1;c)}(A_g, a) = \frac{\sqrt{2}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{2} - \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z21}} \quad \mathbb{G}_3^{(1,-1;c)}(A_g, b) = -\frac{\sqrt{3}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,1}^{(b)}(T_g)}{3} - \frac{\sqrt{3}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,2}^{(b)}(T_g)}{3} - \frac{\sqrt{3}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,3}^{(b)}(T_g)}{3}$$

$$\boxed{\text{z22}} \quad \mathbb{G}_3^{(1,-1;c)}(A_g, c) = -\frac{\sqrt{3}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{2,1}^{(b)}(T_g)}{3} - \frac{\sqrt{3}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{2,2}^{(b)}(T_g)}{3} - \frac{\sqrt{3}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{2,3}^{(b)}(T_g)}{3}$$

$$\boxed{\text{z23}} \quad \mathbb{G}_3^{(1,-1;c)}(A_g, d) = \frac{\sqrt{3}\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{T}_{2,1}^{(b)}(T_g)}{3} + \frac{\sqrt{3}\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{T}_{2,2}^{(b)}(T_g)}{3} + \frac{\sqrt{3}\mathbb{M}_{1,3}^{(1,-1;a)}(T_g)\mathbb{T}_{2,3}^{(b)}(T_g)}{3}$$

$$\boxed{\text{z24}} \quad \mathbb{G}_3^{(1,0;c)}(A_g, a) = \frac{\sqrt{3}\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{3} + \frac{\sqrt{3}\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{3} + \frac{\sqrt{3}\mathbb{G}_{1,3}^{(1,0;a)}(T_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{3}$$

$$\boxed{\text{z25}} \quad \mathbb{G}_3^{(1,0;c)}(A_g, b) = \frac{\sqrt{3}\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{3} + \frac{\sqrt{3}\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{3} + \frac{\sqrt{3}\mathbb{T}_{2,3}^{(1,0;a)}(T_g)\mathbb{M}_{1,3}^{(b)}(T_g)}{3}$$

$$\boxed{\text{z26}} \quad \mathbb{G}_3^{(1,1;c)}(A_g) = \frac{\sqrt{3}\mathbb{M}_{1,1}^{(1,1;a)}(T_g)\mathbb{T}_{2,1}^{(b)}(T_g)}{3} + \frac{\sqrt{3}\mathbb{M}_{1,2}^{(1,1;a)}(T_g)\mathbb{T}_{2,2}^{(b)}(T_g)}{3} + \frac{\sqrt{3}\mathbb{M}_{1,3}^{(1,1;a)}(T_g)\mathbb{T}_{2,3}^{(b)}(T_g)}{3}$$

$$\boxed{\text{z37}} \quad \mathbb{Q}_3^{(c)}(A_u, a) = \frac{\sqrt{3}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{3} + \frac{\sqrt{3}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{3} + \frac{\sqrt{3}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{1,3}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z38}} \quad \mathbb{Q}_3^{(c)}(A_u, b) = -\frac{\sqrt{3}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{3} - \frac{\sqrt{3}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{3} - \frac{\sqrt{3}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{3}$$

$$\boxed{\text{z39}} \quad \mathbb{Q}_3^{(1,-1;c)}(A_u, a) = \frac{\sqrt{3}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{3} + \frac{\sqrt{3}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{3} + \frac{\sqrt{3}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,3}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z40}} \quad \mathbb{Q}_3^{(1,-1;c)}(A_u, b) = -\frac{\sqrt{3}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{3} - \frac{\sqrt{3}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{3} - \frac{\sqrt{3}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{3}$$

$$\boxed{\text{z41}} \quad \mathbb{Q}_3^{(1,-1;c)}(A_u, c) = -\frac{\sqrt{3}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,1}^{(b)}(T_u)}{3} - \frac{\sqrt{3}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,2}^{(b)}(T_u)}{3} - \frac{\sqrt{3}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,3}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z42}} \quad \mathbb{Q}_3^{(1,0;c)}(A_u, a) = \frac{\sqrt{2}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{M}_{2,2}^{(b)}(E_u)}{2} - \frac{\sqrt{2}\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{M}_{2,1}^{(b)}(E_u)}{2}$$

$$\boxed{\text{z43}} \quad \mathbb{Q}_3^{(1,0;c)}(A_u, b) = \frac{\sqrt{3}\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{3} + \frac{\sqrt{3}\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{3} + \frac{\sqrt{3}\mathbb{T}_{2,3}^{(1,0;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z44}} \quad \mathbb{G}_0^{(c)}(A_u) = \frac{\sqrt{3}\mathbb{M}_{1,1}^{(a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{3} + \frac{\sqrt{3}\mathbb{M}_{1,2}^{(a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{3} + \frac{\sqrt{3}\mathbb{M}_{1,3}^{(a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z45}} \quad \mathbb{G}_0^{(1,-1;c)}(A_u, a) = \mathbb{M}_3^{(1,-1;a)}(A_g)\mathbb{T}_3^{(b)}(A_u)$$

$$\boxed{\text{z46}} \quad \mathbb{G}_0^{(1,-1;c)}(A_u, b) = \frac{\sqrt{3}\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{3} + \frac{\sqrt{3}\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{3} + \frac{\sqrt{3}\mathbb{M}_{1,3}^{(1,-1;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z47}} \quad \mathbb{G}_4^{(1,-1;c)}(A_u) = \frac{\sqrt{3}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,1}^{(b)}(T_u)}{3} + \frac{\sqrt{3}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,2}^{(b)}(T_u)}{3} + \frac{\sqrt{3}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,3}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z48}} \quad \mathbb{G}_0^{(1,0;c)}(A_u, a) = \frac{\sqrt{3}\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{3} + \frac{\sqrt{3}\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{3} + \frac{\sqrt{3}\mathbb{G}_{1,3}^{(1,0;a)}(T_g)\mathbb{Q}_{1,3}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z49}} \quad \mathbb{G}_0^{(1,0;c)}(A_u, b) = \frac{\sqrt{2}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{M}_{2,1}^{(b)}(E_u)}{2} + \frac{\sqrt{2}\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{M}_{2,2}^{(b)}(E_u)}{2}$$

$$\boxed{\text{z50}} \quad \mathbb{G}_4^{(1,0;c)}(A_u) = \frac{\sqrt{3}\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{3} + \frac{\sqrt{3}\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{3} + \frac{\sqrt{3}\mathbb{G}_{1,3}^{(1,0;a)}(T_g)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{3}$$

$$\boxed{\text{z51}} \quad \mathbb{G}_0^{(1,1;c)}(A_u) = \frac{\sqrt{3}\mathbb{M}_{1,1}^{(1,1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{3} + \frac{\sqrt{3}\mathbb{M}_{1,2}^{(1,1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{3} + \frac{\sqrt{3}\mathbb{M}_{1,3}^{(1,1;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z52}} \quad \mathbb{Q}_{2,1}^{(c)}(E_g, a) = \frac{\sqrt{2}\mathbb{Q}_0^{(a)}(A_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z53}} \quad \mathbb{Q}_{2,2}^{(c)}(E_g, a) = \frac{\sqrt{2}\mathbb{Q}_0^{(a)}(A_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z54}} \quad \mathbb{Q}_{2,1}^{(c)}(E_g, b) = \frac{\sqrt{2}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_0^{(b)}(A_g)}{2}$$

$$\boxed{\text{z55}} \quad \mathbb{Q}_{2,2}^{(c)}(E_g, b) = \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_0^{(b)}(A_g)}{2}$$

$$\boxed{\text{z56}} \quad \mathbb{Q}_{2,1}^{(c)}(E_g, c) = \frac{\sqrt{7}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{7} + \frac{\sqrt{7}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{14} - \frac{\sqrt{7}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{7} + \frac{\sqrt{7}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{14} - \frac{\sqrt{7}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{7}$$

$$\boxed{\text{z57}} \quad \mathbb{Q}_{2,2}^{(c)}(E_g, c) = -\frac{\sqrt{7}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{7} - \frac{\sqrt{21}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{14} - \frac{\sqrt{7}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{7} + \frac{\sqrt{21}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{14}$$

$$\boxed{\text{z58}} \quad \mathbb{Q}_{2,1}^{(c)}(E_g, d) = -\frac{\sqrt{3}\mathbb{M}_{1,1}^{(a)}(T_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{6} - \frac{\sqrt{3}\mathbb{M}_{1,2}^{(a)}(T_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{6} + \frac{\sqrt{3}\mathbb{M}_{1,3}^{(a)}(T_g)\mathbb{M}_{1,3}^{(b)}(T_g)}{3}$$

$$\boxed{\text{z59}} \quad \mathbb{Q}_{2,2}^{(c)}(E_g, d) = \frac{\mathbb{M}_{1,1}^{(a)}(T_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{2} - \frac{\mathbb{M}_{1,2}^{(a)}(T_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{2}$$

$$\boxed{\text{z60}} \quad \mathbb{Q}_{2,1}^{(c)}(E_g, e) = \frac{\mathbb{M}_{1,1}^{(a)}(T_g)\mathbb{T}_{2,1}^{(b)}(T_g)}{2} - \frac{\mathbb{M}_{1,2}^{(a)}(T_g)\mathbb{T}_{2,2}^{(b)}(T_g)}{2}$$

$$\boxed{\text{z61}} \quad \mathbb{Q}_{2,2}^{(c)}(E_g, e) = \frac{\sqrt{3}\mathbb{M}_{1,1}^{(a)}(T_g)\mathbb{T}_{2,1}^{(b)}(T_g)}{6} + \frac{\sqrt{3}\mathbb{M}_{1,2}^{(a)}(T_g)\mathbb{T}_{2,2}^{(b)}(T_g)}{6} - \frac{\sqrt{3}\mathbb{M}_{1,3}^{(a)}(T_g)\mathbb{T}_{2,3}^{(b)}(T_g)}{3}$$

$$\boxed{\text{z62}} \quad \mathbb{Q}_{4,1}^{(c)}(E_g) = \frac{\sqrt{21}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{14} - \frac{\sqrt{21}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{21} - \frac{\sqrt{21}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{14} - \frac{\sqrt{21}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{21} + \frac{2\sqrt{21}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{21}$$

$$\boxed{\text{z63}} \quad \mathbb{Q}_{4,2}^{(c)}(E_g) = -\frac{\sqrt{21}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{14} + \frac{\sqrt{7}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{7} - \frac{\sqrt{21}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{14} - \frac{\sqrt{7}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{7}$$

$$\boxed{\text{z64}} \quad \mathbb{Q}_{2,1}^{(1,-1;c)}(E_g, a) = \frac{\sqrt{2}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_0^{(b)}(A_g)}{2}$$

$$\boxed{\text{z65}} \quad \mathbb{Q}_{2,2}^{(1,-1;c)}(E_g, a) = \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_0^{(b)}(A_g)}{2}$$

$$\boxed{\text{z66}} \quad \mathbb{Q}_{2,1}^{(1,-1;c)}(E_g, b) = \frac{\sqrt{7}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{7} + \frac{\sqrt{7}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{14} - \frac{\sqrt{7}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{7} + \frac{\sqrt{7}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{14} - \frac{\sqrt{7}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{7}$$

$$\boxed{\text{z67}} \quad \mathbb{Q}_{2,2}^{(1,-1;c)}(E_g, b) = -\frac{\sqrt{7}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{7} - \frac{\sqrt{21}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{14} - \frac{\sqrt{7}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{7} + \frac{\sqrt{21}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{14}$$

$$\begin{aligned}
\boxed{\text{z68}} \quad \mathbb{Q}_{2,1}^{(1,-1;c)}(E_g, c) &= -\frac{\sqrt{42}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,1}^{(b)}(T_g)}{28} - \frac{\sqrt{70}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,1}^{(b)}(T_g)}{28} - \frac{\sqrt{42}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,2}^{(b)}(T_g)}{28} + \frac{\sqrt{70}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,2}^{(b)}(T_g)}{28} + \frac{\sqrt{42}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,3}^{(b)}(T_g)}{14} \\
\boxed{\text{z69}} \quad \mathbb{Q}_{2,2}^{(1,-1;c)}(E_g, c) &= \frac{3\sqrt{14}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,1}^{(b)}(T_g)}{28} - \frac{\sqrt{210}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,1}^{(b)}(T_g)}{84} - \frac{3\sqrt{14}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,2}^{(b)}(T_g)}{28} - \frac{\sqrt{210}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,2}^{(b)}(T_g)}{84} \\
&+ \frac{\sqrt{210}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,3}^{(b)}(T_g)}{42} \\
\boxed{\text{z70}} \quad \mathbb{Q}_{2,1}^{(1,-1;c)}(E_g, d) &= -\frac{\sqrt{6}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{2,1}^{(b)}(T_g)}{12} - \frac{\sqrt{10}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{2,1}^{(b)}(T_g)}{12} + \frac{\sqrt{6}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{2,2}^{(b)}(T_g)}{12} - \frac{\sqrt{10}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{2,2}^{(b)}(T_g)}{12} + \frac{\sqrt{10}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{2,3}^{(b)}(T_g)}{6} \\
\boxed{\text{z71}} \quad \mathbb{Q}_{2,2}^{(1,-1;c)}(E_g, d) &= -\frac{\sqrt{2}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{2,1}^{(b)}(T_g)}{12} + \frac{\sqrt{30}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{2,1}^{(b)}(T_g)}{12} - \frac{\sqrt{2}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{2,2}^{(b)}(T_g)}{12} - \frac{\sqrt{30}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{2,2}^{(b)}(T_g)}{12} + \frac{\sqrt{2}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{2,3}^{(b)}(T_g)}{6} \\
\boxed{\text{z72}} \quad \mathbb{Q}_{2,1}^{(1,-1;c)}(E_g, e) &= -\frac{\sqrt{3}\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{6} - \frac{\sqrt{3}\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{6} + \frac{\sqrt{3}\mathbb{M}_{1,3}^{(1,-1;a)}(T_g)\mathbb{M}_{1,3}^{(b)}(T_g)}{3} \\
\boxed{\text{z73}} \quad \mathbb{Q}_{2,2}^{(1,-1;c)}(E_g, e) &= \frac{\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{2} - \frac{\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{2} \\
\boxed{\text{z74}} \quad \mathbb{Q}_{2,1}^{(1,-1;c)}(E_g, f) &= \frac{\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{T}_{2,1}^{(b)}(T_g)}{2} - \frac{\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{T}_{2,2}^{(b)}(T_g)}{2} \\
\boxed{\text{z75}} \quad \mathbb{Q}_{2,2}^{(1,-1;c)}(E_g, f) &= \frac{\sqrt{3}\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{T}_{2,1}^{(b)}(T_g)}{6} + \frac{\sqrt{3}\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{T}_{2,2}^{(b)}(T_g)}{6} - \frac{\sqrt{3}\mathbb{M}_{1,3}^{(1,-1;a)}(T_g)\mathbb{T}_{2,3}^{(b)}(T_g)}{3} \\
\boxed{\text{z76}} \quad \mathbb{Q}_{4,1}^{(1,-1;c)}(E_g, a) &= \frac{\sqrt{21}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{14} - \frac{\sqrt{21}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{21} - \frac{\sqrt{21}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{14} - \frac{\sqrt{21}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{21} + \frac{2\sqrt{21}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{21} \\
\boxed{\text{z77}} \quad \mathbb{Q}_{4,2}^{(1,-1;c)}(E_g, a) &= -\frac{\sqrt{21}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{14} + \frac{\sqrt{7}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{7} - \frac{\sqrt{21}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{14} - \frac{\sqrt{7}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{7} \\
\boxed{\text{z78}} \quad \mathbb{Q}_{4,1}^{(1,-1;c)}(E_g, b) &= -\frac{\sqrt{210}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,1}^{(b)}(T_g)}{84} + \frac{3\sqrt{14}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,1}^{(b)}(T_g)}{28} - \frac{\sqrt{210}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,2}^{(b)}(T_g)}{84} \\
&- \frac{3\sqrt{14}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,2}^{(b)}(T_g)}{28} + \frac{\sqrt{210}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,3}^{(b)}(T_g)}{42} \\
\boxed{\text{z124}} \quad \mathbb{Q}_{4,2}^{(1,-1;c)}(E_g, b) &= \frac{\sqrt{70}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,1}^{(b)}(T_g)}{28} + \frac{\sqrt{42}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,1}^{(b)}(T_g)}{28} - \frac{\sqrt{70}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,2}^{(b)}(T_g)}{28} + \frac{\sqrt{42}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,2}^{(b)}(T_g)}{28} - \frac{\sqrt{42}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,3}^{(b)}(T_g)}{14}
\end{aligned}$$

$$\begin{aligned}
\text{z125} \quad \mathbb{Q}_{4,1}^{(1,-1;c)}(E_g, c) &= -\frac{\sqrt{30}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{2,1}^{(b)}(T_g)}{12} + \frac{\sqrt{2}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{2,1}^{(b)}(T_g)}{12} + \frac{\sqrt{30}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{2,2}^{(b)}(T_g)}{12} + \frac{\sqrt{2}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{2,2}^{(b)}(T_g)}{12} - \frac{\sqrt{2}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{2,3}^{(b)}(T_g)}{6} \\
\text{z126} \quad \mathbb{Q}_{4,2}^{(1,-1;c)}(E_g, c) &= -\frac{\sqrt{10}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{2,1}^{(b)}(T_g)}{12} - \frac{\sqrt{6}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{2,1}^{(b)}(T_g)}{12} - \frac{\sqrt{10}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{2,2}^{(b)}(T_g)}{12} + \frac{\sqrt{6}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{2,2}^{(b)}(T_g)}{12} + \frac{\sqrt{10}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{2,3}^{(b)}(T_g)}{6} \\
\text{z127} \quad \mathbb{Q}_{2,1}^{(1,0;c)}(E_g, a) &= \frac{\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{2} - \frac{\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{2} \\
\text{z128} \quad \mathbb{Q}_{2,2}^{(1,0;c)}(E_g, a) &= \frac{\sqrt{3}\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{6} + \frac{\sqrt{3}\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{6} - \frac{\sqrt{3}\mathbb{G}_{1,3}^{(1,0;a)}(T_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{3} \\
\text{z129} \quad \mathbb{Q}_{2,1}^{(1,0;c)}(E_g, b) &= -\frac{\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{2} + \frac{\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{2} \\
\text{z130} \quad \mathbb{Q}_{2,2}^{(1,0;c)}(E_g, b) &= -\frac{\sqrt{3}\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{6} - \frac{\sqrt{3}\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{6} + \frac{\sqrt{3}\mathbb{T}_{2,3}^{(1,0;a)}(T_g)\mathbb{M}_{1,3}^{(b)}(T_g)}{3} \\
\text{z131} \quad \mathbb{Q}_{2,1}^{(1,0;c)}(E_g, c) &= \frac{\sqrt{3}\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{T}_{2,1}^{(b)}(T_g)}{6} + \frac{\sqrt{3}\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{T}_{2,2}^{(b)}(T_g)}{6} - \frac{\sqrt{3}\mathbb{T}_{2,3}^{(1,0;a)}(T_g)\mathbb{T}_{2,3}^{(b)}(T_g)}{3} \\
\text{z132} \quad \mathbb{Q}_{2,2}^{(1,0;c)}(E_g, c) &= -\frac{\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{T}_{2,1}^{(b)}(T_g)}{2} + \frac{\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{T}_{2,2}^{(b)}(T_g)}{2} \\
\text{z133} \quad \mathbb{Q}_{2,1}^{(1,1;c)}(E_g, a) &= \frac{\sqrt{2}\mathbb{Q}_0^{(1,1;a)}(A_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{2} \\
\text{z134} \quad \mathbb{Q}_{2,2}^{(1,1;c)}(E_g, a) &= \frac{\sqrt{2}\mathbb{Q}_0^{(1,1;a)}(A_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{2} \\
\text{z135} \quad \mathbb{Q}_{2,1}^{(1,1;c)}(E_g, b) &= -\frac{\sqrt{3}\mathbb{M}_{1,1}^{(1,1;a)}(T_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{6} - \frac{\sqrt{3}\mathbb{M}_{1,2}^{(1,1;a)}(T_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{6} + \frac{\sqrt{3}\mathbb{M}_{1,3}^{(1,1;a)}(T_g)\mathbb{M}_{1,3}^{(b)}(T_g)}{3} \\
\text{z136} \quad \mathbb{Q}_{2,2}^{(1,1;c)}(E_g, b) &= \frac{\mathbb{M}_{1,1}^{(1,1;a)}(T_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{2} - \frac{\mathbb{M}_{1,2}^{(1,1;a)}(T_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{2} \\
\text{z137} \quad \mathbb{Q}_{2,1}^{(1,1;c)}(E_g, c) &= \frac{\mathbb{M}_{1,1}^{(1,1;a)}(T_g)\mathbb{T}_{2,1}^{(b)}(T_g)}{2} - \frac{\mathbb{M}_{1,2}^{(1,1;a)}(T_g)\mathbb{T}_{2,2}^{(b)}(T_g)}{2} \\
\text{z138} \quad \mathbb{Q}_{2,2}^{(1,1;c)}(E_g, c) &= \frac{\sqrt{3}\mathbb{M}_{1,1}^{(1,1;a)}(T_g)\mathbb{T}_{2,1}^{(b)}(T_g)}{6} + \frac{\sqrt{3}\mathbb{M}_{1,2}^{(1,1;a)}(T_g)\mathbb{T}_{2,2}^{(b)}(T_g)}{6} - \frac{\sqrt{3}\mathbb{M}_{1,3}^{(1,1;a)}(T_g)\mathbb{T}_{2,3}^{(b)}(T_g)}{3}
\end{aligned}$$

$$\boxed{\text{z139}} \quad \mathbb{Q}_{5,1}^{(c)}(E_u) = \frac{\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{2} - \frac{\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{2}$$

$$\boxed{\text{z140}} \quad \mathbb{Q}_{5,2}^{(c)}(E_u) = \frac{\sqrt{3}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{6} + \frac{\sqrt{3}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{6} - \frac{\sqrt{3}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{3}$$

$$\boxed{\text{z141}} \quad \mathbb{Q}_{5,1}^{(1,-1;c)}(E_u, a) = \frac{\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{2} - \frac{\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{2}$$

$$\boxed{\text{z142}} \quad \mathbb{Q}_{5,2}^{(1,-1;c)}(E_u, a) = \frac{\sqrt{3}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{6} + \frac{\sqrt{3}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{6} - \frac{\sqrt{3}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{3}$$

$$\boxed{\text{z143}} \quad \mathbb{Q}_{5,1}^{(1,-1;c)}(E_u, b) = \frac{\sqrt{2}\mathbb{M}_3^{(1,-1;a)}(A_g)\mathbb{M}_{2,2}^{(b)}(E_u)}{2}$$

$$\boxed{\text{z144}} \quad \mathbb{Q}_{5,2}^{(1,-1;c)}(E_u, b) = -\frac{\sqrt{2}\mathbb{M}_3^{(1,-1;a)}(A_g)\mathbb{M}_{2,1}^{(b)}(E_u)}{2}$$

$$\boxed{\text{z145}} \quad \mathbb{Q}_{5,1}^{(1,0;c)}(E_u) = \frac{\sqrt{2}\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{T}_3^{(b)}(A_u)}{2}$$

$$\boxed{\text{z146}} \quad \mathbb{Q}_{5,2}^{(1,0;c)}(E_u) = -\frac{\sqrt{2}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{T}_3^{(b)}(A_u)}{2}$$

$$\boxed{\text{z147}} \quad \mathbb{G}_{2,1}^{(c)}(E_u, a) = -\frac{\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{2} + \frac{\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{2}$$

$$\boxed{\text{z148}} \quad \mathbb{G}_{2,2}^{(c)}(E_u, a) = -\frac{\sqrt{3}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{6} - \frac{\sqrt{3}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{6} + \frac{\sqrt{3}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{1,3}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z149}} \quad \mathbb{G}_{2,1}^{(c)}(E_u, b) = -\frac{\sqrt{3}\mathbb{M}_{1,1}^{(a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{6} - \frac{\sqrt{3}\mathbb{M}_{1,2}^{(a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{6} + \frac{\sqrt{3}\mathbb{M}_{1,3}^{(a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z150}} \quad \mathbb{G}_{2,2}^{(c)}(E_u, b) = \frac{\mathbb{M}_{1,1}^{(a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{2} - \frac{\mathbb{M}_{1,2}^{(a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{2}$$

$$\boxed{\text{z151}} \quad \mathbb{G}_{2,1}^{(1,-1;c)}(E_u, a) = -\frac{\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{2} + \frac{\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{2}$$

$$\boxed{\text{z152}} \quad \mathbb{G}_{2,2}^{(1,-1;c)}(E_u, a) = -\frac{\sqrt{3}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{6} - \frac{\sqrt{3}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{6} + \frac{\sqrt{3}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,3}^{(b)}(T_u)}{3}$$

$$\begin{aligned}
\text{z153} \quad \mathbb{G}_{2,1}^{(1,-1;c)}(E_u, b) &= -\frac{\sqrt{42}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,1}^{(b)}(T_u)}{28} - \frac{\sqrt{70}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,1}^{(b)}(T_u)}{28} - \frac{\sqrt{42}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,2}^{(b)}(T_u)}{28} + \frac{\sqrt{70}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,2}^{(b)}(T_u)}{28} + \frac{\sqrt{42}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,3}^{(b)}(T_u)}{14} \\
\text{z154} \quad \mathbb{G}_{2,2}^{(1,-1;c)}(E_u, b) &= \frac{3\sqrt{14}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,1}^{(b)}(T_u)}{28} - \frac{\sqrt{210}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,1}^{(b)}(T_u)}{84} - \frac{3\sqrt{14}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,2}^{(b)}(T_u)}{28} - \frac{\sqrt{210}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,2}^{(b)}(T_u)}{84} + \frac{\sqrt{210}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,3}^{(b)}(T_u)}{42} \\
\text{z155} \quad \mathbb{G}_{2,1}^{(1,-1;c)}(E_u, c) &= -\frac{\sqrt{3}\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{6} - \frac{\sqrt{3}\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{6} + \frac{\sqrt{3}\mathbb{M}_{1,3}^{(1,-1;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{3} \\
\text{z156} \quad \mathbb{G}_{2,2}^{(1,-1;c)}(E_u, c) &= \frac{\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{2} - \frac{\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{2} \\
\text{z157} \quad \mathbb{G}_{4,1}^{(1,-1;c)}(E_u) &= -\frac{\sqrt{210}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,1}^{(b)}(T_u)}{84} + \frac{3\sqrt{14}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,1}^{(b)}(T_u)}{28} - \frac{\sqrt{210}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,2}^{(b)}(T_u)}{84} - \frac{3\sqrt{14}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,2}^{(b)}(T_u)}{28} + \frac{\sqrt{210}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,3}^{(b)}(T_u)}{42} \\
\text{z158} \quad \mathbb{G}_{4,2}^{(1,-1;c)}(E_u) &= \frac{\sqrt{70}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,1}^{(b)}(T_u)}{28} + \frac{\sqrt{42}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,1}^{(b)}(T_u)}{28} - \frac{\sqrt{70}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,2}^{(b)}(T_u)}{28} + \frac{\sqrt{42}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,2}^{(b)}(T_u)}{28} - \frac{\sqrt{42}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,3}^{(b)}(T_u)}{14} \\
\text{z159} \quad \mathbb{G}_{2,1}^{(1,0;c)}(E_u, a) &= -\frac{\sqrt{3}\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{6} - \frac{\sqrt{3}\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{6} + \frac{\sqrt{3}\mathbb{G}_{1,3}^{(1,0;a)}(T_g)\mathbb{Q}_{1,3}^{(b)}(T_u)}{3} \\
\text{z160} \quad \mathbb{G}_{2,2}^{(1,0;c)}(E_u, a) &= \frac{\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{2} - \frac{\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{2} \\
\text{z161} \quad \mathbb{G}_{2,1}^{(1,0;c)}(E_u, b) &= -\frac{\sqrt{3}\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{6} - \frac{\sqrt{3}\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{6} + \frac{\sqrt{3}\mathbb{G}_{1,3}^{(1,0;a)}(T_g)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{3} \\
\text{z162} \quad \mathbb{G}_{2,2}^{(1,0;c)}(E_u, b) &= \frac{\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{2} - \frac{\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{2} \\
\text{z163} \quad \mathbb{G}_{2,1}^{(1,0;c)}(E_u, c) &= \frac{\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{M}_{2,1}^{(b)}(E_u)}{2} - \frac{\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{M}_{2,2}^{(b)}(E_u)}{2} \\
\text{z164} \quad \mathbb{G}_{2,2}^{(1,0;c)}(E_u, c) &= -\frac{\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{M}_{2,2}^{(b)}(E_u)}{2} - \frac{\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{M}_{2,1}^{(b)}(E_u)}{2} \\
\text{z165} \quad \mathbb{G}_{2,1}^{(1,0;c)}(E_u, d) &= -\frac{\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{2} + \frac{\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{2} \\
\text{z166} \quad \mathbb{G}_{2,2}^{(1,0;c)}(E_u, d) &= -\frac{\sqrt{3}\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{6} - \frac{\sqrt{3}\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{6} + \frac{\sqrt{3}\mathbb{T}_{2,3}^{(1,0;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{3}
\end{aligned}$$

$$\boxed{\text{z167}} \quad \mathbb{G}_{2,1}^{(1,1;c)}(E_u) = -\frac{\sqrt{3}\mathbb{M}_{1,1}^{(1,1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{6} - \frac{\sqrt{3}\mathbb{M}_{1,2}^{(1,1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{6} + \frac{\sqrt{3}\mathbb{M}_{1,3}^{(1,1;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z168}} \quad \mathbb{G}_{2,2}^{(1,1;c)}(E_u) = \frac{\mathbb{M}_{1,1}^{(1,1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{2} - \frac{\mathbb{M}_{1,2}^{(1,1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{2}$$

$$\boxed{\text{z169}} \quad \mathbb{Q}_{2,1}^{(c)}(T_g, a) = \frac{\sqrt{3}\mathbb{Q}_0^{(a)}(A_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{3}$$

$$\boxed{\text{z170}} \quad \mathbb{Q}_{2,2}^{(c)}(T_g, a) = \frac{\sqrt{3}\mathbb{Q}_0^{(a)}(A_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{3}$$

$$\boxed{\text{z171}} \quad \mathbb{Q}_{2,3}^{(c)}(T_g, a) = \frac{\sqrt{3}\mathbb{Q}_0^{(a)}(A_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{3}$$

$$\boxed{\text{z172}} \quad \mathbb{Q}_{2,1}^{(c)}(T_g, b) = \frac{\sqrt{3}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_0^{(b)}(A_g)}{3}$$

$$\boxed{\text{z173}} \quad \mathbb{Q}_{2,2}^{(c)}(T_g, b) = \frac{\sqrt{3}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_0^{(b)}(A_g)}{3}$$

$$\boxed{\text{z174}} \quad \mathbb{Q}_{2,3}^{(c)}(T_g, b) = \frac{\sqrt{3}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_0^{(b)}(A_g)}{3}$$

$$\boxed{\text{z175}} \quad \mathbb{Q}_{2,1}^{(c)}(T_g, c) = \frac{\sqrt{42}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{42} + \frac{\sqrt{42}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{42} - \frac{\sqrt{14}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{14} - \frac{\sqrt{14}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{14} + \frac{\sqrt{14}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{14} + \frac{\sqrt{14}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{14}$$

$$\boxed{\text{z176}} \quad \mathbb{Q}_{2,2}^{(c)}(T_g, c) = \frac{\sqrt{42}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{42} + \frac{\sqrt{14}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{14} + \frac{\sqrt{14}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{14} + \frac{\sqrt{42}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{42} + \frac{\sqrt{14}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{14} + \frac{\sqrt{14}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{14}$$

$$\boxed{\text{z177}} \quad \mathbb{Q}_{2,3}^{(c)}(T_g, c) = -\frac{\sqrt{42}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{21} + \frac{\sqrt{14}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{14} + \frac{\sqrt{14}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{14} - \frac{\sqrt{42}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{21}$$

$$\boxed{\text{z178}} \quad \mathbb{Q}_{2,1}^{(c)}(T_g, d) = \frac{\sqrt{6}\mathbb{M}_{1,2}^{(a)}(T_g)\mathbb{M}_{1,3}^{(b)}(T_g)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(a)}(T_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{6}$$

$$\boxed{\text{z179}} \quad \mathbb{Q}_{2,2}^{(c)}(T_g, d) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(a)}(T_g)\mathbb{M}_{1,3}^{(b)}(T_g)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(a)}(T_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{6}$$

$$\boxed{\text{z180}} \quad \mathbb{Q}_{2,3}^{(c)}(T_g, d) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(a)}(T_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,2}^{(a)}(T_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{6}$$

$$\boxed{\text{z181}} \quad \mathbb{Q}_{2,1}^{(c)}(T_g, e) = -\frac{\sqrt{6}\mathbb{M}_{1,2}^{(a)}(T_g)\mathbb{T}_{2,3}^{(b)}(T_g)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(a)}(T_g)\mathbb{T}_{2,2}^{(b)}(T_g)}{6}$$

$$\boxed{\text{z182}} \quad \mathbb{Q}_{2,2}^{(c)}(T_g, e) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(a)}(T_g)\mathbb{T}_{2,3}^{(b)}(T_g)}{6} - \frac{\sqrt{6}\mathbb{M}_{1,3}^{(a)}(T_g)\mathbb{T}_{2,1}^{(b)}(T_g)}{6}$$

$$\boxed{\text{z183}} \quad \mathbb{Q}_{2,3}^{(c)}(T_g, e) = -\frac{\sqrt{6}\mathbb{M}_{1,1}^{(a)}(T_g)\mathbb{T}_{2,2}^{(b)}(T_g)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,2}^{(a)}(T_g)\mathbb{T}_{2,1}^{(b)}(T_g)}{6}$$

$$\boxed{\text{z184}} \quad \mathbb{Q}_{4,1}^{(c)}(T_g, 1) = -\frac{\sqrt{2}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{4} - \frac{\sqrt{2}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{4} - \frac{\sqrt{6}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{12} - \frac{\sqrt{6}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{12}$$

$$\boxed{\text{z185}} \quad \mathbb{Q}_{4,2}^{(c)}(T_g, 1) = \frac{\sqrt{2}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{4} - \frac{\sqrt{6}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{12} + \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{4} - \frac{\sqrt{6}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{12}$$

$$\boxed{\text{z186}} \quad \mathbb{Q}_{4,3}^{(c)}(T_g, 1) = \frac{\sqrt{6}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{6} + \frac{\sqrt{6}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{6}$$

$$\boxed{\text{z187}} \quad \mathbb{Q}_{4,1}^{(c)}(T_g, 2) = -\frac{\sqrt{14}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{28} - \frac{\sqrt{14}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{28} + \frac{\sqrt{42}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{28} + \frac{\sqrt{42}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{28} + \frac{\sqrt{42}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{21} + \frac{\sqrt{42}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{21}$$

$$\boxed{\text{z188}} \quad \mathbb{Q}_{4,2}^{(c)}(T_g, 2) = -\frac{\sqrt{14}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{28} + \frac{\sqrt{42}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{21} - \frac{\sqrt{42}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{28} - \frac{\sqrt{14}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{28} - \frac{\sqrt{42}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{28} + \frac{\sqrt{42}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{21}$$

$$\boxed{\text{z189}} \quad \mathbb{Q}_{4,3}^{(c)}(T_g, 2) = \frac{\sqrt{14}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{14} + \frac{\sqrt{42}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{21} + \frac{\sqrt{42}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{21} + \frac{\sqrt{14}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{14}$$

$$\boxed{\text{z190}} \quad \mathbb{Q}_{2,1}^{(1,-1;c)}(T_g, a) = \frac{\sqrt{3}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_0^{(b)}(A_g)}{3}$$

$$\boxed{\text{z191}} \quad \mathbb{Q}_{2,2}^{(1,-1;c)}(T_g, a) = \frac{\sqrt{3}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_0^{(b)}(A_g)}{3}$$

$$\boxed{\text{z192}} \quad \mathbb{Q}_{2,3}^{(1,-1;c)}(T_g, a) = \frac{\sqrt{3}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_0^{(b)}(A_g)}{3}$$

$$\boxed{\text{z193}} \quad \mathbb{Q}_{2,1}^{(1,-1;c)}(T_g, b) = \frac{\sqrt{42}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{42} + \frac{\sqrt{42}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{42} - \frac{\sqrt{14}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{14} \\ - \frac{\sqrt{14}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{14} + \frac{\sqrt{14}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{14} + \frac{\sqrt{14}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{14}$$

$$\begin{aligned}
\text{z194} \quad \mathbb{Q}_{2,2}^{(1,-1;c)}(T_g, b) &= \frac{\sqrt{42}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{42} + \frac{\sqrt{14}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{14} + \frac{\sqrt{14}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{14} \\
&\quad + \frac{\sqrt{42}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{42} + \frac{\sqrt{14}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{14} + \frac{\sqrt{14}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{14} \\
\text{z195} \quad \mathbb{Q}_{2,3}^{(1,-1;c)}(T_g, b) &= -\frac{\sqrt{42}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{21} + \frac{\sqrt{14}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{14} + \frac{\sqrt{14}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{14} - \frac{\sqrt{42}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{21} \\
\text{z196} \quad \mathbb{Q}_{2,1}^{(1,-1;c)}(T_g, c) &= -\frac{\sqrt{21}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,3}^{(b)}(T_g)}{21} + \frac{\sqrt{35}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,3}^{(b)}(T_g)}{21} - \frac{\sqrt{21}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,2}^{(b)}(T_g)}{21} - \frac{\sqrt{35}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,2}^{(b)}(T_g)}{21} + \frac{\sqrt{35}\mathbb{M}_3^{(1,-1;a)}(A_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{21} \\
\text{z197} \quad \mathbb{Q}_{2,2}^{(1,-1;c)}(T_g, c) &= -\frac{\sqrt{21}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,3}^{(b)}(T_g)}{21} - \frac{\sqrt{35}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,3}^{(b)}(T_g)}{21} - \frac{\sqrt{21}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,1}^{(b)}(T_g)}{21} + \frac{\sqrt{35}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,1}^{(b)}(T_g)}{21} + \frac{\sqrt{35}\mathbb{M}_3^{(1,-1;a)}(A_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{21} \\
\text{z198} \quad \mathbb{Q}_{2,3}^{(1,-1;c)}(T_g, c) &= -\frac{\sqrt{21}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,2}^{(b)}(T_g)}{21} + \frac{\sqrt{35}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,2}^{(b)}(T_g)}{21} - \frac{\sqrt{21}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,1}^{(b)}(T_g)}{21} - \frac{\sqrt{35}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,1}^{(b)}(T_g)}{21} + \frac{\sqrt{35}\mathbb{M}_3^{(1,-1;a)}(A_g)\mathbb{M}_{1,3}^{(b)}(T_g)}{21} \\
\text{z199} \quad \mathbb{Q}_{2,1}^{(1,-1;c)}(T_g, d) &= -\frac{\sqrt{6}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{2,3}^{(b)}(T_g)}{6} + \frac{\sqrt{6}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{2,2}^{(b)}(T_g)}{6} \\
\text{z200} \quad \mathbb{Q}_{2,2}^{(1,-1;c)}(T_g, d) &= \frac{\sqrt{6}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{2,3}^{(b)}(T_g)}{6} - \frac{\sqrt{6}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{2,1}^{(b)}(T_g)}{6} \\
\text{z201} \quad \mathbb{Q}_{2,3}^{(1,-1;c)}(T_g, d) &= -\frac{\sqrt{6}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{2,2}^{(b)}(T_g)}{6} + \frac{\sqrt{6}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{2,1}^{(b)}(T_g)}{6} \\
\text{z202} \quad \mathbb{Q}_{2,1}^{(1,-1;c)}(T_g, e) &= \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{M}_{1,3}^{(b)}(T_g)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,-1;a)}(T_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{6} \\
\text{z203} \quad \mathbb{Q}_{2,2}^{(1,-1;c)}(T_g, e) &= \frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{M}_{1,3}^{(b)}(T_g)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,-1;a)}(T_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{6} \\
\text{z204} \quad \mathbb{Q}_{2,3}^{(1,-1;c)}(T_g, e) &= \frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{6} \\
\text{z205} \quad \mathbb{Q}_{2,1}^{(1,-1;c)}(T_g, f) &= -\frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{T}_{2,3}^{(b)}(T_g)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,-1;a)}(T_g)\mathbb{T}_{2,2}^{(b)}(T_g)}{6} \\
\text{z206} \quad \mathbb{Q}_{2,2}^{(1,-1;c)}(T_g, f) &= \frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{T}_{2,3}^{(b)}(T_g)}{6} - \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,-1;a)}(T_g)\mathbb{T}_{2,1}^{(b)}(T_g)}{6}
\end{aligned}$$

$$\begin{aligned}
\text{z207} \quad \mathbb{Q}_{2,3}^{(1,-1;c)}(T_g, f) &= -\frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{T}_{2,2}^{(b)}(T_g)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{T}_{2,1}^{(b)}(T_g)}{6} \\
\text{z208} \quad \mathbb{Q}_{4,1}^{(1,-1;c)}(T_g, 1a) &= -\frac{\sqrt{2}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{4} - \frac{\sqrt{2}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{4} - \frac{\sqrt{6}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{12} - \frac{\sqrt{6}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{12} \\
\text{z209} \quad \mathbb{Q}_{4,2}^{(1,-1;c)}(T_g, 1a) &= \frac{\sqrt{2}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{4} - \frac{\sqrt{6}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{12} + \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{4} - \frac{\sqrt{6}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{12} \\
\text{z210} \quad \mathbb{Q}_{4,3}^{(1,-1;c)}(T_g, 1a) &= \frac{\sqrt{6}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{6} + \frac{\sqrt{6}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{6} \\
\text{z211} \quad \mathbb{Q}_{4,1}^{(1,-1;c)}(T_g, 1b) &= \frac{\sqrt{15}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,3}^{(b)}(T_g)}{12} - \frac{\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,3}^{(b)}(T_g)}{4} - \frac{\sqrt{15}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,2}^{(b)}(T_g)}{12} - \frac{\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,2}^{(b)}(T_g)}{4} \\
\text{z212} \quad \mathbb{Q}_{4,2}^{(1,-1;c)}(T_g, 1b) &= -\frac{\sqrt{15}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,3}^{(b)}(T_g)}{12} - \frac{\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,3}^{(b)}(T_g)}{4} + \frac{\sqrt{15}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,1}^{(b)}(T_g)}{12} - \frac{\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,1}^{(b)}(T_g)}{4} \\
\text{z213} \quad \mathbb{Q}_{4,3}^{(1,-1;c)}(T_g, 1b) &= \frac{\sqrt{15}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,2}^{(b)}(T_g)}{12} - \frac{\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,2}^{(b)}(T_g)}{4} - \frac{\sqrt{15}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,1}^{(b)}(T_g)}{12} - \frac{\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,1}^{(b)}(T_g)}{4} \\
\text{z214} \quad \mathbb{Q}_{4,1}^{(1,-1;c)}(T_g, 1c) &= -\frac{\sqrt{5}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{2,3}^{(b)}(T_g)}{8} + \frac{\sqrt{3}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{2,3}^{(b)}(T_g)}{8} - \frac{\sqrt{5}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{2,2}^{(b)}(T_g)}{8} - \frac{\sqrt{3}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{2,2}^{(b)}(T_g)}{8} - \frac{\sqrt{3}\mathbb{M}_3^{(1,-1;a)}(A_g)\mathbb{T}_{2,1}^{(b)}(T_g)}{6} \\
\text{z215} \quad \mathbb{Q}_{4,2}^{(1,-1;c)}(T_g, 1c) &= -\frac{\sqrt{5}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{2,3}^{(b)}(T_g)}{8} - \frac{\sqrt{3}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{2,3}^{(b)}(T_g)}{8} - \frac{\sqrt{5}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{2,1}^{(b)}(T_g)}{8} + \frac{\sqrt{3}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{2,1}^{(b)}(T_g)}{8} - \frac{\sqrt{3}\mathbb{M}_3^{(1,-1;a)}(A_g)\mathbb{T}_{2,2}^{(b)}(T_g)}{6} \\
\text{z216} \quad \mathbb{Q}_{4,3}^{(1,-1;c)}(T_g, 1c) &= -\frac{\sqrt{5}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{2,2}^{(b)}(T_g)}{8} + \frac{\sqrt{3}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{2,2}^{(b)}(T_g)}{8} - \frac{\sqrt{5}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{2,1}^{(b)}(T_g)}{8} - \frac{\sqrt{3}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{2,1}^{(b)}(T_g)}{8} - \frac{\sqrt{3}\mathbb{M}_3^{(1,-1;a)}(A_g)\mathbb{T}_{2,3}^{(b)}(T_g)}{6} \\
\text{z217} \quad \mathbb{Q}_{4,1}^{(1,-1;c)}(T_g, 2a) &= -\frac{\sqrt{14}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{28} - \frac{\sqrt{14}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{28} + \frac{\sqrt{42}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{28} \\
&\quad + \frac{\sqrt{42}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{28} + \frac{\sqrt{42}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{21} + \frac{\sqrt{42}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{21} \\
\text{z218} \quad \mathbb{Q}_{4,2}^{(1,-1;c)}(T_g, 2a) &= -\frac{\sqrt{14}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{28} + \frac{\sqrt{42}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{21} - \frac{\sqrt{42}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{28} \\
&\quad - \frac{\sqrt{14}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{28} - \frac{\sqrt{42}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{28} + \frac{\sqrt{42}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{21}
\end{aligned}$$

$$\begin{aligned}
\text{z219} \quad \mathbb{Q}_{4,3}^{(1,-1;c)}(T_g, 2a) &= \frac{\sqrt{14}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{14} + \frac{\sqrt{42}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{21} + \frac{\sqrt{42}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{21} + \frac{\sqrt{14}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{14} \\
\text{z220} \quad \mathbb{Q}_{4,1}^{(1,-1;c)}(T_g, 2b) &= -\frac{\sqrt{105}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,3}^{(b)}(T_g)}{84} - \frac{3\sqrt{7}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,3}^{(b)}(T_g)}{28} - \frac{\sqrt{105}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,2}^{(b)}(T_g)}{84} + \frac{3\sqrt{7}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,2}^{(b)}(T_g)}{28} + \frac{\sqrt{7}\mathbb{M}_3^{(1,-1;a)}(A_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{7} \\
\text{z221} \quad \mathbb{Q}_{4,2}^{(1,-1;c)}(T_g, 2b) &= -\frac{\sqrt{105}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,3}^{(b)}(T_g)}{84} + \frac{3\sqrt{7}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,3}^{(b)}(T_g)}{28} - \frac{\sqrt{105}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,1}^{(b)}(T_g)}{84} - \frac{3\sqrt{7}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,1}^{(b)}(T_g)}{28} + \frac{\sqrt{7}\mathbb{M}_3^{(1,-1;a)}(A_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{7} \\
\text{z222} \quad \mathbb{Q}_{4,3}^{(1,-1;c)}(T_g, 2b) &= -\frac{\sqrt{105}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,2}^{(b)}(T_g)}{84} - \frac{3\sqrt{7}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,2}^{(b)}(T_g)}{28} - \frac{\sqrt{105}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,1}^{(b)}(T_g)}{84} + \frac{3\sqrt{7}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,1}^{(b)}(T_g)}{28} + \frac{\sqrt{7}\mathbb{M}_3^{(1,-1;a)}(A_g)\mathbb{M}_{1,3}^{(b)}(T_g)}{7} \\
\text{z223} \quad \mathbb{Q}_{4,1}^{(1,-1;c)}(T_g, 2c) &= -\frac{\sqrt{6}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{2,3}^{(b)}(T_g)}{6} - \frac{\sqrt{6}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{2,2}^{(b)}(T_g)}{6} \\
\text{z224} \quad \mathbb{Q}_{4,2}^{(1,-1;c)}(T_g, 2c) &= -\frac{\sqrt{6}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{2,3}^{(b)}(T_g)}{6} - \frac{\sqrt{6}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{2,1}^{(b)}(T_g)}{6} \\
\text{z225} \quad \mathbb{Q}_{4,3}^{(1,-1;c)}(T_g, 2c) &= -\frac{\sqrt{6}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{2,2}^{(b)}(T_g)}{6} - \frac{\sqrt{6}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{2,1}^{(b)}(T_g)}{6} \\
\text{z226} \quad \mathbb{Q}_{2,1}^{(1,0;c)}(T_g, a) &= -\frac{\sqrt{6}\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{6} - \frac{\sqrt{2}\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{6} - \frac{\sqrt{2}\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{6} + \frac{\sqrt{2}\mathbb{G}_{1,3}^{(1,0;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{6} \\
\text{z227} \quad \mathbb{Q}_{2,2}^{(1,0;c)}(T_g, a) &= \frac{\sqrt{2}\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{6} + \frac{\sqrt{6}\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{6} - \frac{\sqrt{2}\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{6} - \frac{\sqrt{2}\mathbb{G}_{1,3}^{(1,0;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{6} \\
\text{z228} \quad \mathbb{Q}_{2,3}^{(1,0;c)}(T_g, a) &= -\frac{\sqrt{2}\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{6} + \frac{\sqrt{2}\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{6} + \frac{\sqrt{2}\mathbb{G}_{1,3}^{(1,0;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{3} \\
\text{z229} \quad \mathbb{Q}_{2,1}^{(1,0;c)}(T_g, b) &= \frac{\sqrt{6}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{6} + \frac{\sqrt{2}\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{6} - \frac{\sqrt{2}\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{M}_{1,3}^{(b)}(T_g)}{6} + \frac{\sqrt{2}\mathbb{T}_{2,3}^{(1,0;a)}(T_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{6} \\
\text{z230} \quad \mathbb{Q}_{2,2}^{(1,0;c)}(T_g, b) &= -\frac{\sqrt{6}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{6} + \frac{\sqrt{2}\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{M}_{1,3}^{(b)}(T_g)}{6} + \frac{\sqrt{2}\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{6} - \frac{\sqrt{2}\mathbb{T}_{2,3}^{(1,0;a)}(T_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{6} \\
\text{z231} \quad \mathbb{Q}_{2,3}^{(1,0;c)}(T_g, b) &= -\frac{\sqrt{2}\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{6} - \frac{\sqrt{2}\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{M}_{1,3}^{(b)}(T_g)}{3} + \frac{\sqrt{2}\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{6} \\
\text{z232} \quad \mathbb{Q}_{2,1}^{(1,0;c)}(T_g, c) &= \frac{\sqrt{30}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{T}_{2,1}^{(b)}(T_g)}{30} - \frac{\sqrt{10}\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{T}_{2,1}^{(b)}(T_g)}{10} + \frac{\sqrt{10}\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{T}_{2,3}^{(b)}(T_g)}{10} + \frac{\sqrt{10}\mathbb{T}_{2,3}^{(1,0;a)}(T_g)\mathbb{T}_{2,2}^{(b)}(T_g)}{10}
\end{aligned}$$

$$\begin{aligned}
\text{z233} \quad \mathbb{Q}_{2,2}^{(1,0;c)}(T_g, c) &= \frac{\sqrt{30}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{T}_{2,2}^{(b)}(T_g)}{30} + \frac{\sqrt{10}\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{T}_{2,3}^{(b)}(T_g)}{10} + \frac{\sqrt{10}\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{T}_{2,2}^{(b)}(T_g)}{10} + \frac{\sqrt{10}\mathbb{T}_{2,3}^{(1,0;a)}(T_g)\mathbb{T}_{2,1}^{(b)}(T_g)}{10} \\
\text{z234} \quad \mathbb{Q}_{2,3}^{(1,0;c)}(T_g, c) &= -\frac{\sqrt{30}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{T}_{2,3}^{(b)}(T_g)}{15} + \frac{\sqrt{10}\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{T}_{2,2}^{(b)}(T_g)}{10} + \frac{\sqrt{10}\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{T}_{2,1}^{(b)}(T_g)}{10} \\
\text{z235} \quad \mathbb{Q}_{4,1}^{(1,0;c)}(T_g, 1) &= -\frac{\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{T}_{2,1}^{(b)}(T_g)}{2} - \frac{\sqrt{3}\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{T}_{2,1}^{(b)}(T_g)}{6} \\
\text{z236} \quad \mathbb{Q}_{4,2}^{(1,0;c)}(T_g, 1) &= \frac{\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{T}_{2,2}^{(b)}(T_g)}{2} - \frac{\sqrt{3}\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{T}_{2,2}^{(b)}(T_g)}{6} \\
\text{z237} \quad \mathbb{Q}_{4,3}^{(1,0;c)}(T_g, 1) &= \frac{\sqrt{3}\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{T}_{2,3}^{(b)}(T_g)}{3} \\
\text{z238} \quad \mathbb{Q}_{4,1}^{(1,0;c)}(T_g, 2) &= -\frac{\sqrt{5}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{T}_{2,1}^{(b)}(T_g)}{10} + \frac{\sqrt{15}\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{T}_{2,1}^{(b)}(T_g)}{10} + \frac{\sqrt{15}\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{T}_{2,3}^{(b)}(T_g)}{15} + \frac{\sqrt{15}\mathbb{T}_{2,3}^{(1,0;a)}(T_g)\mathbb{T}_{2,2}^{(b)}(T_g)}{15} \\
\text{z239} \quad \mathbb{Q}_{4,2}^{(1,0;c)}(T_g, 2) &= -\frac{\sqrt{5}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{T}_{2,2}^{(b)}(T_g)}{10} + \frac{\sqrt{15}\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{T}_{2,3}^{(b)}(T_g)}{15} - \frac{\sqrt{15}\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{T}_{2,2}^{(b)}(T_g)}{10} + \frac{\sqrt{15}\mathbb{T}_{2,3}^{(1,0;a)}(T_g)\mathbb{T}_{2,1}^{(b)}(T_g)}{15} \\
\text{z240} \quad \mathbb{Q}_{4,3}^{(1,0;c)}(T_g, 2) &= \frac{\sqrt{5}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{T}_{2,3}^{(b)}(T_g)}{5} + \frac{\sqrt{15}\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{T}_{2,2}^{(b)}(T_g)}{15} + \frac{\sqrt{15}\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{T}_{2,1}^{(b)}(T_g)}{15} \\
\text{z241} \quad \mathbb{Q}_{2,1}^{(1,1;c)}(T_g, a) &= \frac{\sqrt{3}\mathbb{Q}_0^{(1,1;a)}(A_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{3} \\
\text{z242} \quad \mathbb{Q}_{2,2}^{(1,1;c)}(T_g, a) &= \frac{\sqrt{3}\mathbb{Q}_0^{(1,1;a)}(A_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{3} \\
\text{z243} \quad \mathbb{Q}_{2,3}^{(1,1;c)}(T_g, a) &= \frac{\sqrt{3}\mathbb{Q}_0^{(1,1;a)}(A_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{3} \\
\text{z244} \quad \mathbb{Q}_{2,1}^{(1,1;c)}(T_g, b) &= \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,1;a)}(T_g)\mathbb{M}_{1,3}^{(b)}(T_g)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,1;a)}(T_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{6} \\
\text{z245} \quad \mathbb{Q}_{2,2}^{(1,1;c)}(T_g, b) &= \frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,1;a)}(T_g)\mathbb{M}_{1,3}^{(b)}(T_g)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,1;a)}(T_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{6} \\
\text{z246} \quad \mathbb{Q}_{2,3}^{(1,1;c)}(T_g, b) &= \frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,1;a)}(T_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,1;a)}(T_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{6}
\end{aligned}$$

$$\boxed{\text{z247}} \quad \mathbb{Q}_{2,1}^{(1,1;c)}(T_g, c) = -\frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,1;a)}(T_g)\mathbb{T}_{2,3}^{(b)}(T_g)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,1;a)}(T_g)\mathbb{T}_{2,2}^{(b)}(T_g)}{6}$$

$$\boxed{\text{z248}} \quad \mathbb{Q}_{2,2}^{(1,1;c)}(T_g, c) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,1;a)}(T_g)\mathbb{T}_{2,3}^{(b)}(T_g)}{6} - \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,1;a)}(T_g)\mathbb{T}_{2,1}^{(b)}(T_g)}{6}$$

$$\boxed{\text{z249}} \quad \mathbb{Q}_{2,3}^{(1,1;c)}(T_g, c) = -\frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,1;a)}(T_g)\mathbb{T}_{2,2}^{(b)}(T_g)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,1;a)}(T_g)\mathbb{T}_{2,1}^{(b)}(T_g)}{6}$$

$$\boxed{\text{z250}} \quad \mathbb{G}_{1,1}^{(c)}(T_g, a) = -\frac{\sqrt{10}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{10} + \frac{\sqrt{10}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{10} + \frac{\sqrt{30}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{30} - \frac{\sqrt{30}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{30} - \frac{\sqrt{30}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{30} + \frac{\sqrt{30}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{30}$$

$$\boxed{\text{z251}} \quad \mathbb{G}_{1,2}^{(c)}(T_g, a) = \frac{\sqrt{10}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{10} + \frac{\sqrt{30}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{30} - \frac{\sqrt{30}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{30} - \frac{\sqrt{10}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{10} + \frac{\sqrt{30}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{30} - \frac{\sqrt{30}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{30}$$

$$\boxed{\text{z252}} \quad \mathbb{G}_{1,3}^{(c)}(T_g, a) = -\frac{\sqrt{30}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{30} + \frac{\sqrt{30}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{15} + \frac{\sqrt{30}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{30} - \frac{\sqrt{30}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{15}$$

$$\boxed{\text{z253}} \quad \mathbb{G}_{1,1}^{(c)}(T_g, b) = \frac{\sqrt{6}\mathbb{M}_{1,2}^{(a)}(T_g)\mathbb{M}_{1,3}^{(b)}(T_g)}{6} - \frac{\sqrt{6}\mathbb{M}_{1,3}^{(a)}(T_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{6}$$

$$\boxed{\text{z254}} \quad \mathbb{G}_{1,2}^{(c)}(T_g, b) = -\frac{\sqrt{6}\mathbb{M}_{1,1}^{(a)}(T_g)\mathbb{M}_{1,3}^{(b)}(T_g)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(a)}(T_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{6}$$

$$\boxed{\text{z255}} \quad \mathbb{G}_{1,3}^{(c)}(T_g, b) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(a)}(T_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{6} - \frac{\sqrt{6}\mathbb{M}_{1,2}^{(a)}(T_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{6}$$

$$\boxed{\text{z256}} \quad \mathbb{G}_{1,1}^{(c)}(T_g, c) = \frac{\sqrt{6}\mathbb{M}_{1,2}^{(a)}(T_g)\mathbb{T}_{2,3}^{(b)}(T_g)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(a)}(T_g)\mathbb{T}_{2,2}^{(b)}(T_g)}{6}$$

$$\boxed{\text{z257}} \quad \mathbb{G}_{1,2}^{(c)}(T_g, c) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(a)}(T_g)\mathbb{T}_{2,3}^{(b)}(T_g)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(a)}(T_g)\mathbb{T}_{2,1}^{(b)}(T_g)}{6}$$

$$\boxed{\text{z258}} \quad \mathbb{G}_{1,3}^{(c)}(T_g, c) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(a)}(T_g)\mathbb{T}_{2,2}^{(b)}(T_g)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,2}^{(a)}(T_g)\mathbb{T}_{2,1}^{(b)}(T_g)}{6}$$

$$\boxed{\text{z259}} \quad \mathbb{G}_{3,1}^{(c)}(T_g, 1) = \frac{\sqrt{10}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{20} - \frac{\sqrt{10}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{20} - \frac{\sqrt{30}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{60} + \frac{\sqrt{30}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{60} - \frac{\sqrt{30}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{15} + \frac{\sqrt{30}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{15}$$

$$\boxed{\text{z260}} \quad \mathbb{G}_{3,2}^{(c)}(T_g, 1) = -\frac{\sqrt{10}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{20} + \frac{\sqrt{30}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{15} + \frac{\sqrt{30}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{60} + \frac{\sqrt{10}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{20} - \frac{\sqrt{30}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{60} - \frac{\sqrt{30}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{15}$$

$$\boxed{\text{z261}} \quad \mathbb{G}_{3,3}^{(c)}(T_g, 1) = -\frac{\sqrt{30}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{15} - \frac{\sqrt{30}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{30} + \frac{\sqrt{30}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{15} + \frac{\sqrt{30}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{30}$$

$$\boxed{\text{z262}} \quad \mathbb{G}_{3,1}^{(c)}(T_g, 2) = \frac{\sqrt{6}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{12} - \frac{\sqrt{6}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{12} + \frac{\sqrt{2}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{4} - \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{4}$$

$$\boxed{\text{z263}} \quad \mathbb{G}_{3,2}^{(c)}(T_g, 2) = \frac{\sqrt{6}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{12} + \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{4} - \frac{\sqrt{6}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{12} - \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{4}$$

$$\boxed{\text{z264}} \quad \mathbb{G}_{3,3}^{(c)}(T_g, 2) = -\frac{\sqrt{6}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{6} + \frac{\sqrt{6}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{6}$$

$$\boxed{\text{z265}} \quad \mathbb{G}_{1,1}^{(1,-1;c)}(T_g, a) = -\frac{\sqrt{10}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{10} + \frac{\sqrt{10}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{10} + \frac{\sqrt{30}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{30} \\ - \frac{\sqrt{30}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{30} - \frac{\sqrt{30}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{30} + \frac{\sqrt{30}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{30}$$

$$\boxed{\text{z266}} \quad \mathbb{G}_{1,2}^{(1,-1;c)}(T_g, a) = \frac{\sqrt{10}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{10} + \frac{\sqrt{30}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{30} - \frac{\sqrt{30}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{30} \\ - \frac{\sqrt{10}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{10} + \frac{\sqrt{30}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{30} - \frac{\sqrt{30}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{30}$$

$$\boxed{\text{z267}} \quad \mathbb{G}_{1,3}^{(1,-1;c)}(T_g, a) = -\frac{\sqrt{30}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{30} + \frac{\sqrt{30}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{15} + \frac{\sqrt{30}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{30} - \frac{\sqrt{30}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{15}$$

$$\boxed{\text{z268}} \quad \mathbb{G}_{1,1}^{(1,-1;c)}(T_g, b) = -\frac{21\sqrt{79}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{2,3}^{(b)}(T_g)}{632} - \frac{13\sqrt{1185}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{2,3}^{(b)}(T_g)}{1896} - \frac{21\sqrt{79}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{2,2}^{(b)}(T_g)}{632} \\ + \frac{13\sqrt{1185}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{2,2}^{(b)}(T_g)}{1896} + \frac{\sqrt{1185}\mathbb{M}_3^{(1,-1;a)}(A_g)\mathbb{T}_{2,1}^{(b)}(T_g)}{158}$$

$$\boxed{\text{z269}} \quad \mathbb{G}_{1,2}^{(1,-1;c)}(T_g, b) = -\frac{21\sqrt{79}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{2,3}^{(b)}(T_g)}{632} + \frac{13\sqrt{1185}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{2,3}^{(b)}(T_g)}{1896} - \frac{21\sqrt{79}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{2,1}^{(b)}(T_g)}{632} \\ - \frac{13\sqrt{1185}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{2,1}^{(b)}(T_g)}{1896} + \frac{\sqrt{1185}\mathbb{M}_3^{(1,-1;a)}(A_g)\mathbb{T}_{2,2}^{(b)}(T_g)}{158}$$

$$\boxed{\text{z270}} \quad \mathbb{G}_{1,3}^{(1,-1;c)}(T_g, b) = -\frac{21\sqrt{79}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{2,2}^{(b)}(T_g)}{632} - \frac{13\sqrt{1185}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{2,2}^{(b)}(T_g)}{1896} - \frac{21\sqrt{79}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{2,1}^{(b)}(T_g)}{632} \\ + \frac{13\sqrt{1185}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{2,1}^{(b)}(T_g)}{1896} + \frac{\sqrt{1185}\mathbb{M}_3^{(1,-1;a)}(A_g)\mathbb{T}_{2,3}^{(b)}(T_g)}{158}$$

$$\boxed{\text{z271}} \quad \mathbb{G}_{1,1}^{(1,-1;c)}(T_g, c) = \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{M}_{1,3}^{(b)}(T_g)}{6} - \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,-1;a)}(T_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{6}$$

$$\boxed{\text{z272}} \quad \mathbb{G}_{1,2}^{(1,-1;c)}(T_g, c) = -\frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{M}_{1,3}^{(b)}(T_g)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,-1;a)}(T_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{6}$$

$$\boxed{\text{z273}} \quad \mathbb{G}_{1,3}^{(1,-1;c)}(T_g, c) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{6} - \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{6}$$

$$\boxed{\text{z274}} \quad \mathbb{G}_{1,1}^{(1,-1;c)}(T_g, d) = \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{T}_{2,3}^{(b)}(T_g)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,-1;a)}(T_g)\mathbb{T}_{2,2}^{(b)}(T_g)}{6}$$

$$\boxed{\text{z275}} \quad \mathbb{G}_{1,2}^{(1,-1;c)}(T_g, d) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{T}_{2,3}^{(b)}(T_g)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,-1;a)}(T_g)\mathbb{T}_{2,1}^{(b)}(T_g)}{6}$$

$$\boxed{\text{z276}} \quad \mathbb{G}_{1,3}^{(1,-1;c)}(T_g, d) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{T}_{2,2}^{(b)}(T_g)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{T}_{2,1}^{(b)}(T_g)}{6}$$

$$\boxed{\text{z282}} \quad \mathbb{G}_{3,1}^{(1,-1;c)}(T_g, 1a) = \frac{\sqrt{10}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{20} - \frac{\sqrt{10}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{20} - \frac{\sqrt{30}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{60} \\ + \frac{\sqrt{30}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{60} - \frac{\sqrt{30}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{15} + \frac{\sqrt{30}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{15}$$

$$\boxed{\text{z283}} \quad \mathbb{G}_{3,2}^{(1,-1;c)}(T_g, 1a) = -\frac{\sqrt{10}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{20} + \frac{\sqrt{30}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{15} + \frac{\sqrt{30}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{60} \\ + \frac{\sqrt{10}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{20} - \frac{\sqrt{30}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{60} - \frac{\sqrt{30}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{15}$$

$$\boxed{\text{z284}} \quad \mathbb{G}_{3,3}^{(1,-1;c)}(T_g, 1a) = -\frac{\sqrt{30}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{15} - \frac{\sqrt{30}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{30} + \frac{\sqrt{30}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{15} + \frac{\sqrt{30}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{30}$$

$$\boxed{\text{z285}} \quad \mathbb{G}_{3,1}^{(1,-1;c)}(T_g, 1b) = -\frac{\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,3}^{(b)}(T_g)}{4} - \frac{\sqrt{15}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,3}^{(b)}(T_g)}{12} + \frac{\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,2}^{(b)}(T_g)}{4} - \frac{\sqrt{15}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,2}^{(b)}(T_g)}{12}$$

$$\boxed{\text{z286}} \quad \mathbb{G}_{3,2}^{(1,-1;c)}(T_g, 1b) = \frac{\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,3}^{(b)}(T_g)}{4} - \frac{\sqrt{15}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,3}^{(b)}(T_g)}{12} - \frac{\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,1}^{(b)}(T_g)}{4} - \frac{\sqrt{15}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,1}^{(b)}(T_g)}{12}$$

$$\boxed{\text{z287}} \quad \mathbb{G}_{3,3}^{(1,-1;c)}(T_g, 1b) = -\frac{\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,2}^{(b)}(T_g)}{4} - \frac{\sqrt{15}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,2}^{(b)}(T_g)}{12} + \frac{\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,1}^{(b)}(T_g)}{4} - \frac{\sqrt{15}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,1}^{(b)}(T_g)}{12}$$

$$\begin{aligned}
\text{z288} \quad \mathbb{G}_{3,1}^{(1,-1;c)}(T_g, 1c) &= \frac{\sqrt{1185}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{2,3}^{(b)}(T_g)}{948} - \frac{9\sqrt{79}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{2,3}^{(b)}(T_g)}{316} + \frac{\sqrt{1185}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{2,2}^{(b)}(T_g)}{948} + \frac{9\sqrt{79}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{2,2}^{(b)}(T_g)}{316} - \frac{4\sqrt{79}\mathbb{M}_3^{(1,-1;a)}(A_g)\mathbb{T}_{2,1}^{(b)}(T_g)}{79} \\
\text{z289} \quad \mathbb{G}_{3,2}^{(1,-1;c)}(T_g, 1c) &= \frac{\sqrt{1185}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{2,3}^{(b)}(T_g)}{948} + \frac{9\sqrt{79}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{2,3}^{(b)}(T_g)}{316} + \frac{\sqrt{1185}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{2,1}^{(b)}(T_g)}{948} - \frac{9\sqrt{79}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{2,1}^{(b)}(T_g)}{316} - \frac{4\sqrt{79}\mathbb{M}_3^{(1,-1;a)}(A_g)\mathbb{T}_{2,2}^{(b)}(T_g)}{79} \\
\text{z290} \quad \mathbb{G}_{3,3}^{(1,-1;c)}(T_g, 1c) &= \frac{\sqrt{1185}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{2,2}^{(b)}(T_g)}{948} - \frac{9\sqrt{79}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{2,2}^{(b)}(T_g)}{316} + \frac{\sqrt{1185}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{2,1}^{(b)}(T_g)}{948} + \frac{9\sqrt{79}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{2,1}^{(b)}(T_g)}{316} - \frac{4\sqrt{79}\mathbb{M}_3^{(1,-1;a)}(A_g)\mathbb{T}_{2,3}^{(b)}(T_g)}{79} \\
\text{z291} \quad \mathbb{G}_{3,1}^{(1,-1;c)}(T_g, 2a) &= \frac{\sqrt{6}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{12} - \frac{\sqrt{6}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{12} + \frac{\sqrt{2}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{4} - \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{4} \\
\text{z292} \quad \mathbb{G}_{3,2}^{(1,-1;c)}(T_g, 2a) &= \frac{\sqrt{6}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{12} + \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{4} - \frac{\sqrt{6}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{12} - \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{4} \\
\text{z293} \quad \mathbb{G}_{3,3}^{(1,-1;c)}(T_g, 2a) &= -\frac{\sqrt{6}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{6} + \frac{\sqrt{6}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{6} \\
\text{z294} \quad \mathbb{G}_{3,1}^{(1,-1;c)}(T_g, 2b) &= \frac{\sqrt{15}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,3}^{(b)}(T_g)}{12} + \frac{\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,3}^{(b)}(T_g)}{12} + \frac{\sqrt{15}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,2}^{(b)}(T_g)}{12} - \frac{\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,2}^{(b)}(T_g)}{12} + \frac{\mathbb{M}_3^{(1,-1;a)}(A_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{3} \\
\text{z295} \quad \mathbb{G}_{3,2}^{(1,-1;c)}(T_g, 2b) &= \frac{\sqrt{15}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,3}^{(b)}(T_g)}{12} - \frac{\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,3}^{(b)}(T_g)}{12} + \frac{\sqrt{15}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,1}^{(b)}(T_g)}{12} + \frac{\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,1}^{(b)}(T_g)}{12} + \frac{\mathbb{M}_3^{(1,-1;a)}(A_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{3} \\
\text{z296} \quad \mathbb{G}_{3,3}^{(1,-1;c)}(T_g, 2b) &= \frac{\sqrt{15}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,2}^{(b)}(T_g)}{12} + \frac{\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,2}^{(b)}(T_g)}{12} + \frac{\sqrt{15}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,1}^{(b)}(T_g)}{12} - \frac{\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,1}^{(b)}(T_g)}{12} + \frac{\mathbb{M}_3^{(1,-1;a)}(A_g)\mathbb{M}_{1,3}^{(b)}(T_g)}{3} \\
\text{z307} \quad \mathbb{G}_{1,1}^{(1,0;c)}(T_g, a) &= \frac{\sqrt{3}\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_0^{(b)}(A_g)}{3} \\
\text{z308} \quad \mathbb{G}_{1,2}^{(1,0;c)}(T_g, a) &= \frac{\sqrt{3}\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_0^{(b)}(A_g)}{3} \\
\text{z309} \quad \mathbb{G}_{1,3}^{(1,0;c)}(T_g, a) &= \frac{\sqrt{3}\mathbb{G}_{1,3}^{(1,0;a)}(T_g)\mathbb{Q}_0^{(b)}(A_g)}{3} \\
\text{z310} \quad \mathbb{G}_{1,1}^{(1,0;c)}(T_g, b) &= -\frac{\sqrt{30}\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{30} + \frac{\sqrt{10}\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{10} + \frac{\sqrt{10}\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{10} + \frac{\sqrt{10}\mathbb{G}_{1,3}^{(1,0;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{10} \\
\text{z311} \quad \mathbb{G}_{1,2}^{(1,0;c)}(T_g, b) &= \frac{\sqrt{10}\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{10} - \frac{\sqrt{30}\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{30} - \frac{\sqrt{10}\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{10} + \frac{\sqrt{10}\mathbb{G}_{1,3}^{(1,0;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{10}
\end{aligned}$$

$$\begin{aligned}
\text{z312} \quad \mathbb{G}_{1,3}^{(1,0;c)}(T_g, b) &= \frac{\sqrt{10}\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{10} + \frac{\sqrt{10}\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{10} + \frac{\sqrt{30}\mathbb{G}_{1,3}^{(1,0;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{15} \\
\text{z313} \quad \mathbb{G}_{1,1}^{(1,0;c)}(T_g, c) &= -\frac{\sqrt{30}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{30} + \frac{\sqrt{10}\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{10} + \frac{\sqrt{10}\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{M}_{1,3}^{(b)}(T_g)}{10} + \frac{\sqrt{10}\mathbb{T}_{2,3}^{(1,0;a)}(T_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{10} \\
\text{z314} \quad \mathbb{G}_{1,2}^{(1,0;c)}(T_g, c) &= -\frac{\sqrt{30}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{30} + \frac{\sqrt{10}\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{M}_{1,3}^{(b)}(T_g)}{10} - \frac{\sqrt{10}\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{10} + \frac{\sqrt{10}\mathbb{T}_{2,3}^{(1,0;a)}(T_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{10} \\
\text{z315} \quad \mathbb{G}_{1,3}^{(1,0;c)}(T_g, c) &= \frac{\sqrt{30}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{M}_{1,3}^{(b)}(T_g)}{15} + \frac{\sqrt{10}\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{10} + \frac{\sqrt{10}\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{10} \\
\text{z316} \quad \mathbb{G}_{1,1}^{(1,0;c)}(T_g, d) &= -\frac{\sqrt{6}\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{T}_{2,3}^{(b)}(T_g)}{6} + \frac{\sqrt{6}\mathbb{T}_{2,3}^{(1,0;a)}(T_g)\mathbb{T}_{2,2}^{(b)}(T_g)}{6} \\
\text{z317} \quad \mathbb{G}_{1,2}^{(1,0;c)}(T_g, d) &= \frac{\sqrt{6}\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{T}_{2,3}^{(b)}(T_g)}{6} - \frac{\sqrt{6}\mathbb{T}_{2,3}^{(1,0;a)}(T_g)\mathbb{T}_{2,1}^{(b)}(T_g)}{6} \\
\text{z318} \quad \mathbb{G}_{1,3}^{(1,0;c)}(T_g, d) &= -\frac{\sqrt{6}\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{T}_{2,2}^{(b)}(T_g)}{6} + \frac{\sqrt{6}\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{T}_{2,1}^{(b)}(T_g)}{6} \\
\text{z319} \quad \mathbb{G}_{3,1}^{(1,0;c)}(T_g, 1a) &= -\frac{\sqrt{5}\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{10} + \frac{\sqrt{15}\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{10} - \frac{\sqrt{15}\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{15} - \frac{\sqrt{15}\mathbb{G}_{1,3}^{(1,0;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{15} \\
\text{z320} \quad \mathbb{G}_{3,2}^{(1,0;c)}(T_g, 1a) &= -\frac{\sqrt{15}\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{15} - \frac{\sqrt{5}\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{10} - \frac{\sqrt{15}\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{10} - \frac{\sqrt{15}\mathbb{G}_{1,3}^{(1,0;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{15} \\
\text{z321} \quad \mathbb{G}_{3,3}^{(1,0;c)}(T_g, 1a) &= -\frac{\sqrt{15}\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{15} - \frac{\sqrt{15}\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{15} + \frac{\sqrt{5}\mathbb{G}_{1,3}^{(1,0;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{5} \\
\text{z322} \quad \mathbb{G}_{3,1}^{(1,0;c)}(T_g, 1b) &= -\frac{\sqrt{5}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{10} + \frac{\sqrt{15}\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{10} - \frac{\sqrt{15}\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{M}_{1,3}^{(b)}(T_g)}{15} - \frac{\sqrt{15}\mathbb{T}_{2,3}^{(1,0;a)}(T_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{15} \\
\text{z323} \quad \mathbb{G}_{3,2}^{(1,0;c)}(T_g, 1b) &= -\frac{\sqrt{5}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{10} - \frac{\sqrt{15}\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{M}_{1,3}^{(b)}(T_g)}{15} - \frac{\sqrt{15}\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{10} - \frac{\sqrt{15}\mathbb{T}_{2,3}^{(1,0;a)}(T_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{15} \\
\text{z324} \quad \mathbb{G}_{3,3}^{(1,0;c)}(T_g, 1b) &= \frac{\sqrt{5}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{M}_{1,3}^{(b)}(T_g)}{5} - \frac{\sqrt{15}\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{15} - \frac{\sqrt{15}\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{15} \\
\text{z325} \quad \mathbb{G}_{3,1}^{(1,0;c)}(T_g, 2a) &= -\frac{\sqrt{3}\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{6} - \frac{\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{6} + \frac{\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{3} - \frac{\mathbb{G}_{1,3}^{(1,0;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{3}
\end{aligned}$$

$$\boxed{\text{z326}} \quad \mathbb{G}_{3,2}^{(1,0;c)}(T_g, 2a) = -\frac{\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{3} + \frac{\sqrt{3}\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{6} - \frac{\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{6} + \frac{\mathbb{G}_{1,3}^{(1,0;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{3}$$

$$\boxed{\text{z327}} \quad \mathbb{G}_{3,3}^{(1,0;c)}(T_g, 2a) = \frac{\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{3} - \frac{\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{3} + \frac{\mathbb{G}_{1,3}^{(1,0;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{3}$$

$$\boxed{\text{z328}} \quad \mathbb{G}_{3,1}^{(1,0;c)}(T_g, 2b) = -\frac{\sqrt{3}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{6} - \frac{\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{6} - \frac{\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{M}_{1,3}^{(b)}(T_g)}{3} + \frac{\mathbb{T}_{2,3}^{(1,0;a)}(T_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{3}$$

$$\boxed{\text{z329}} \quad \mathbb{G}_{3,2}^{(1,0;c)}(T_g, 2b) = \frac{\sqrt{3}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{6} + \frac{\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{M}_{1,3}^{(b)}(T_g)}{3} - \frac{\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{6} - \frac{\mathbb{T}_{2,3}^{(1,0;a)}(T_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{3}$$

$$\boxed{\text{z330}} \quad \mathbb{G}_{3,3}^{(1,0;c)}(T_g, 2b) = -\frac{\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{3} + \frac{\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{M}_{1,3}^{(b)}(T_g)}{3} + \frac{\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{3}$$

$$\boxed{\text{z331}} \quad \mathbb{G}_{1,1}^{(1,1;c)}(T_g, a) = \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,1;a)}(T_g)\mathbb{M}_{1,3}^{(b)}(T_g)}{6} - \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,1;a)}(T_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{6}$$

$$\boxed{\text{z332}} \quad \mathbb{G}_{1,2}^{(1,1;c)}(T_g, a) = -\frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,1;a)}(T_g)\mathbb{M}_{1,3}^{(b)}(T_g)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,1;a)}(T_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{6}$$

$$\boxed{\text{z333}} \quad \mathbb{G}_{1,3}^{(1,1;c)}(T_g, a) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,1;a)}(T_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{6} - \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,1;a)}(T_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{6}$$

$$\boxed{\text{z334}} \quad \mathbb{G}_{1,1}^{(1,1;c)}(T_g, b) = \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,1;a)}(T_g)\mathbb{T}_{2,3}^{(b)}(T_g)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,1;a)}(T_g)\mathbb{T}_{2,2}^{(b)}(T_g)}{6}$$

$$\boxed{\text{z335}} \quad \mathbb{G}_{1,2}^{(1,1;c)}(T_g, b) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,1;a)}(T_g)\mathbb{T}_{2,3}^{(b)}(T_g)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,1;a)}(T_g)\mathbb{T}_{2,1}^{(b)}(T_g)}{6}$$

$$\boxed{\text{z336}} \quad \mathbb{G}_{1,3}^{(1,1;c)}(T_g, b) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,1;a)}(T_g)\mathbb{T}_{2,2}^{(b)}(T_g)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,1;a)}(T_g)\mathbb{T}_{2,1}^{(b)}(T_g)}{6}$$

$$\boxed{\text{z382}} \quad \mathbb{Q}_{1,1}^{(c)}(T_u, a) = \frac{\sqrt{3}\mathbb{Q}_0^{(a)}(A_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z383}} \quad \mathbb{Q}_{1,2}^{(c)}(T_u, a) = \frac{\sqrt{3}\mathbb{Q}_0^{(a)}(A_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z384}} \quad \mathbb{Q}_{1,3}^{(c)}(T_u, a) = \frac{\sqrt{3}\mathbb{Q}_0^{(a)}(A_g)\mathbb{Q}_{1,3}^{(b)}(T_u)}{3}$$

$$\begin{aligned}
\boxed{\text{z385}} \quad \mathbb{Q}_{1,1}^{(c)}(T_u, b) &= -\frac{\sqrt{30}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{30} + \frac{\sqrt{10}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{10} + \frac{\sqrt{10}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{1,3}^{(b)}(T_u)}{10} + \frac{\sqrt{10}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{10} \\
\boxed{\text{z386}} \quad \mathbb{Q}_{1,2}^{(c)}(T_u, b) &= -\frac{\sqrt{30}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{30} + \frac{\sqrt{10}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{1,3}^{(b)}(T_u)}{10} - \frac{\sqrt{10}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{10} + \frac{\sqrt{10}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{10} \\
\boxed{\text{z387}} \quad \mathbb{Q}_{1,3}^{(c)}(T_u, b) &= \frac{\sqrt{30}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{1,3}^{(b)}(T_u)}{15} + \frac{\sqrt{10}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{10} + \frac{\sqrt{10}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{10} \\
\boxed{\text{z388}} \quad \mathbb{Q}_{1,1}^{(c)}(T_u, c) &= -\frac{\sqrt{5}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{10} + \frac{\sqrt{15}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{10} - \frac{\sqrt{15}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{15} - \frac{\sqrt{15}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{15} \\
\boxed{\text{z389}} \quad \mathbb{Q}_{1,2}^{(c)}(T_u, c) &= -\frac{\sqrt{5}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{10} - \frac{\sqrt{15}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{15} - \frac{\sqrt{15}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{10} - \frac{\sqrt{15}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{15} \\
\boxed{\text{z390}} \quad \mathbb{Q}_{1,3}^{(c)}(T_u, c) &= \frac{\sqrt{5}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{5} - \frac{\sqrt{15}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{15} - \frac{\sqrt{15}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{15} \\
\boxed{\text{z391}} \quad \mathbb{Q}_{1,1}^{(c)}(T_u, d) &= -\frac{\sqrt{3}\mathbb{M}_{1,1}^{(a)}(T_g)\mathbb{M}_{2,1}^{(b)}(E_u)}{6} + \frac{\mathbb{M}_{1,1}^{(a)}(T_g)\mathbb{M}_{2,2}^{(b)}(E_u)}{2} \\
\boxed{\text{z392}} \quad \mathbb{Q}_{1,2}^{(c)}(T_u, d) &= -\frac{\sqrt{3}\mathbb{M}_{1,2}^{(a)}(T_g)\mathbb{M}_{2,1}^{(b)}(E_u)}{6} - \frac{\mathbb{M}_{1,2}^{(a)}(T_g)\mathbb{M}_{2,2}^{(b)}(E_u)}{2} \\
\boxed{\text{z393}} \quad \mathbb{Q}_{1,3}^{(c)}(T_u, d) &= \frac{\sqrt{3}\mathbb{M}_{1,3}^{(a)}(T_g)\mathbb{M}_{2,1}^{(b)}(E_u)}{3} \\
\boxed{\text{z394}} \quad \mathbb{Q}_{1,1}^{(c)}(T_u, e) &= \frac{\sqrt{6}\mathbb{M}_{1,2}^{(a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{6} - \frac{\sqrt{6}\mathbb{M}_{1,3}^{(a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{6} \\
\boxed{\text{z395}} \quad \mathbb{Q}_{1,2}^{(c)}(T_u, e) &= -\frac{\sqrt{6}\mathbb{M}_{1,1}^{(a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{6} \\
\boxed{\text{z396}} \quad \mathbb{Q}_{1,3}^{(c)}(T_u, e) &= \frac{\sqrt{6}\mathbb{M}_{1,1}^{(a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{6} - \frac{\sqrt{6}\mathbb{M}_{1,2}^{(a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{6} \\
\boxed{\text{z397}} \quad \mathbb{Q}_{3,1}^{(c)}(T_u, 1a) &= \frac{\sqrt{3}\mathbb{Q}_0^{(a)}(A_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{3} \\
\boxed{\text{z398}} \quad \mathbb{Q}_{3,2}^{(c)}(T_u, 1a) &= \frac{\sqrt{3}\mathbb{Q}_0^{(a)}(A_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{3}
\end{aligned}$$

$$\begin{aligned}
\text{z399} \quad \mathbb{Q}_{3,3}^{(c)}(T_u, 1a) &= \frac{\sqrt{3}\mathbb{Q}_0^{(a)}(A_g)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{3} \\
\text{z400} \quad \mathbb{Q}_{3,1}^{(c)}(T_u, 1b) &= -\frac{\sqrt{5}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{10} + \frac{\sqrt{15}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{10} - \frac{\sqrt{15}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{1,3}^{(b)}(T_u)}{15} - \frac{\sqrt{15}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{15} \\
\text{z401} \quad \mathbb{Q}_{3,2}^{(c)}(T_u, 1b) &= -\frac{\sqrt{5}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{10} - \frac{\sqrt{15}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{1,3}^{(b)}(T_u)}{15} - \frac{\sqrt{15}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{10} - \frac{\sqrt{15}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{15} \\
\text{z402} \quad \mathbb{Q}_{3,3}^{(c)}(T_u, 1b) &= \frac{\sqrt{5}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{1,3}^{(b)}(T_u)}{5} - \frac{\sqrt{15}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{15} - \frac{\sqrt{15}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{15} \\
\text{z403} \quad \mathbb{Q}_{3,1}^{(c)}(T_u, 1c) &= -\frac{\sqrt{30}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{30} + \frac{\sqrt{10}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{10} + \frac{\sqrt{10}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{10} + \frac{\sqrt{10}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{10} \\
\text{z404} \quad \mathbb{Q}_{3,2}^{(c)}(T_u, 1c) &= -\frac{\sqrt{30}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{30} + \frac{\sqrt{10}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{10} - \frac{\sqrt{10}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{10} + \frac{\sqrt{10}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{10} \\
\text{z405} \quad \mathbb{Q}_{3,3}^{(c)}(T_u, 1c) &= \frac{\sqrt{30}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{15} + \frac{\sqrt{10}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{10} + \frac{\sqrt{10}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{10} \\
\text{z406} \quad \mathbb{Q}_{3,1}^{(c)}(T_u, 2a) &= -\frac{\sqrt{3}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{6} - \frac{\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{6} - \frac{\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{1,3}^{(b)}(T_u)}{3} + \frac{\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{3} \\
\text{z407} \quad \mathbb{Q}_{3,2}^{(c)}(T_u, 2a) &= \frac{\sqrt{3}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{6} + \frac{\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{1,3}^{(b)}(T_u)}{3} - \frac{\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{6} - \frac{\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{3} \\
\text{z408} \quad \mathbb{Q}_{3,3}^{(c)}(T_u, 2a) &= -\frac{\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{3} + \frac{\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{1,3}^{(b)}(T_u)}{3} + \frac{\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{3} \\
\text{z409} \quad \mathbb{Q}_{3,1}^{(c)}(T_u, 2b) &= \frac{\sqrt{2}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{3} + \frac{\sqrt{6}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{9} - \frac{\sqrt{6}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{18} + \frac{\sqrt{6}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{18} \\
\text{z410} \quad \mathbb{Q}_{3,2}^{(c)}(T_u, 2b) &= -\frac{\sqrt{2}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{3} + \frac{\sqrt{6}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{18} + \frac{\sqrt{6}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{9} - \frac{\sqrt{6}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{18} \\
\text{z411} \quad \mathbb{Q}_{3,3}^{(c)}(T_u, 2b) &= -\frac{\sqrt{6}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{18} - \frac{2\sqrt{6}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{9} + \frac{\sqrt{6}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{18} \\
\text{z412} \quad \mathbb{Q}_{3,1}^{(c)}(T_u, 2c) &= -\frac{\sqrt{3}\mathbb{M}_{1,1}^{(a)}(T_g)\mathbb{T}_3^{(b)}(A_u)}{3}
\end{aligned}$$

$$\begin{aligned}
\text{z413} \quad \mathbb{Q}_{3,2}^{(c)}(T_u, 2c) &= -\frac{\sqrt{3}\mathbb{M}_{1,2}^{(a)}(T_g)\mathbb{T}_3^{(b)}(A_u)}{3} \\
\text{z414} \quad \mathbb{Q}_{3,3}^{(c)}(T_u, 2c) &= -\frac{\sqrt{3}\mathbb{M}_{1,3}^{(a)}(T_g)\mathbb{T}_3^{(b)}(A_u)}{3} \\
\text{z415} \quad \mathbb{Q}_{3,1}^{(c)}(T_u, 2d) &= -\frac{\mathbb{M}_{1,1}^{(a)}(T_g)\mathbb{M}_{2,1}^{(b)}(E_u)}{2} - \frac{\sqrt{3}\mathbb{M}_{1,1}^{(a)}(T_g)\mathbb{M}_{2,2}^{(b)}(E_u)}{6} \\
\text{z416} \quad \mathbb{Q}_{3,2}^{(c)}(T_u, 2d) &= \frac{\mathbb{M}_{1,2}^{(a)}(T_g)\mathbb{M}_{2,1}^{(b)}(E_u)}{2} - \frac{\sqrt{3}\mathbb{M}_{1,2}^{(a)}(T_g)\mathbb{M}_{2,2}^{(b)}(E_u)}{6} \\
\text{z417} \quad \mathbb{Q}_{3,3}^{(c)}(T_u, 2d) &= \frac{\sqrt{3}\mathbb{M}_{1,3}^{(a)}(T_g)\mathbb{M}_{2,2}^{(b)}(E_u)}{3} \\
\text{z418} \quad \mathbb{Q}_{5,1}^{(c)}(T_u, 3) &= \frac{\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{6} + \frac{\sqrt{3}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{18} + \frac{2\sqrt{3}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{9} - \frac{2\sqrt{3}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{9} \\
\text{z419} \quad \mathbb{Q}_{5,2}^{(c)}(T_u, 3) &= -\frac{\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{6} - \frac{2\sqrt{3}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{9} + \frac{\sqrt{3}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{18} + \frac{2\sqrt{3}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{9} \\
\text{z420} \quad \mathbb{Q}_{5,3}^{(c)}(T_u, 3) &= \frac{2\sqrt{3}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{9} - \frac{\sqrt{3}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{9} - \frac{2\sqrt{3}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{9} \\
\text{z421} \quad \mathbb{Q}_{1,1}^{(1,-1;c)}(T_u, a) &= -\frac{\sqrt{30}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{30} + \frac{\sqrt{10}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{10} + \frac{\sqrt{10}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,3}^{(b)}(T_u)}{10} + \frac{\sqrt{10}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{10} \\
\text{z422} \quad \mathbb{Q}_{1,2}^{(1,-1;c)}(T_u, a) &= -\frac{\sqrt{30}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{30} + \frac{\sqrt{10}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,3}^{(b)}(T_u)}{10} - \frac{\sqrt{10}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{10} + \frac{\sqrt{10}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{10} \\
\text{z423} \quad \mathbb{Q}_{1,3}^{(1,-1;c)}(T_u, a) &= \frac{\sqrt{30}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{1,3}^{(b)}(T_u)}{15} + \frac{\sqrt{10}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{10} + \frac{\sqrt{10}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{10} \\
\text{z424} \quad \mathbb{Q}_{1,1}^{(1,-1;c)}(T_u, b) &= -\frac{\sqrt{5}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{10} + \frac{\sqrt{15}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{10} - \frac{\sqrt{15}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{15} - \frac{\sqrt{15}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{15} \\
\text{z425} \quad \mathbb{Q}_{1,2}^{(1,-1;c)}(T_u, b) &= -\frac{\sqrt{5}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{10} - \frac{\sqrt{15}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{15} - \frac{\sqrt{15}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{10} - \frac{\sqrt{15}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{15} \\
\text{z426} \quad \mathbb{Q}_{1,3}^{(1,-1;c)}(T_u, b) &= \frac{\sqrt{5}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{5} - \frac{\sqrt{15}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{15} - \frac{\sqrt{15}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{15}
\end{aligned}$$

$$\boxed{\text{z427}} \quad \mathbb{Q}_{1,1}^{(1,-1;c)}(T_u, c) = \frac{\sqrt{3}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_3^{(b)}(A_u)}{3}$$

$$\boxed{\text{z428}} \quad \mathbb{Q}_{1,2}^{(1,-1;c)}(T_u, c) = \frac{\sqrt{3}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_3^{(b)}(A_u)}{3}$$

$$\boxed{\text{z429}} \quad \mathbb{Q}_{1,3}^{(1,-1;c)}(T_u, c) = \frac{\sqrt{3}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{T}_3^{(b)}(A_u)}{3}$$

$$\boxed{\text{z430}} \quad \mathbb{Q}_{1,1}^{(1,-1;c)}(T_u, d) = -\frac{\sqrt{42}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{2,1}^{(b)}(E_u)}{28} + \frac{3\sqrt{14}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{2,2}^{(b)}(E_u)}{28} - \frac{\sqrt{70}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{2,1}^{(b)}(E_u)}{28} - \frac{\sqrt{210}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{2,2}^{(b)}(E_u)}{84}$$

$$\boxed{\text{z431}} \quad \mathbb{Q}_{1,2}^{(1,-1;c)}(T_u, d) = -\frac{\sqrt{42}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{2,1}^{(b)}(E_u)}{28} - \frac{3\sqrt{14}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{2,2}^{(b)}(E_u)}{28} + \frac{\sqrt{70}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{2,1}^{(b)}(E_u)}{28} - \frac{\sqrt{210}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{2,2}^{(b)}(E_u)}{84}$$

$$\boxed{\text{z432}} \quad \mathbb{Q}_{1,3}^{(1,-1;c)}(T_u, d) = \frac{\sqrt{42}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{2,1}^{(b)}(E_u)}{14} + \frac{\sqrt{210}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{2,2}^{(b)}(E_u)}{42}$$

$$\boxed{\text{z433}} \quad \mathbb{Q}_{1,1}^{(1,-1;c)}(T_u, e) = -\frac{\sqrt{3}\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{M}_{2,1}^{(b)}(E_u)}{6} + \frac{\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{M}_{2,2}^{(b)}(E_u)}{2}$$

$$\boxed{\text{z434}} \quad \mathbb{Q}_{1,2}^{(1,-1;c)}(T_u, e) = -\frac{\sqrt{3}\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{M}_{2,1}^{(b)}(E_u)}{6} - \frac{\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{M}_{2,2}^{(b)}(E_u)}{2}$$

$$\boxed{\text{z435}} \quad \mathbb{Q}_{1,3}^{(1,-1;c)}(T_u, e) = \frac{\sqrt{3}\mathbb{M}_{1,3}^{(1,-1;a)}(T_g)\mathbb{M}_{2,1}^{(b)}(E_u)}{3}$$

$$\boxed{\text{z436}} \quad \mathbb{Q}_{1,1}^{(1,-1;c)}(T_u, f) = \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{6} - \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,-1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z437}} \quad \mathbb{Q}_{1,2}^{(1,-1;c)}(T_u, f) = -\frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,-1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z438}} \quad \mathbb{Q}_{1,3}^{(1,-1;c)}(T_u, f) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{6} - \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z439}} \quad \mathbb{Q}_{3,1}^{(1,-1;c)}(T_u, 1a) = -\frac{\sqrt{5}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{10} + \frac{\sqrt{15}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{10} - \frac{\sqrt{15}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,3}^{(b)}(T_u)}{15} - \frac{\sqrt{15}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{15}$$

$$\boxed{\text{z440}} \quad \mathbb{Q}_{3,2}^{(1,-1;c)}(T_u, 1a) = -\frac{\sqrt{5}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{10} - \frac{\sqrt{15}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,3}^{(b)}(T_u)}{15} - \frac{\sqrt{15}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{10} - \frac{\sqrt{15}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{15}$$

$$\begin{aligned}
\text{z441} \quad \mathbb{Q}_{3,3}^{(1,-1;c)}(T_u, 1a) &= \frac{\sqrt{5}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{1,3}^{(b)}(T_u)}{5} - \frac{\sqrt{15}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{15} - \frac{\sqrt{15}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{15} \\
\text{z442} \quad \mathbb{Q}_{3,1}^{(1,-1;c)}(T_u, 1b) &= -\frac{\sqrt{30}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{30} + \frac{\sqrt{10}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{10} + \frac{\sqrt{10}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{10} + \frac{\sqrt{10}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{10} \\
\text{z443} \quad \mathbb{Q}_{3,2}^{(1,-1;c)}(T_u, 1b) &= -\frac{\sqrt{30}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{30} + \frac{\sqrt{10}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{10} - \frac{\sqrt{10}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{10} + \frac{\sqrt{10}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{10} \\
\text{z444} \quad \mathbb{Q}_{3,3}^{(1,-1;c)}(T_u, 1b) &= \frac{\sqrt{30}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{15} + \frac{\sqrt{10}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{10} + \frac{\sqrt{10}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{10} \\
\text{z445} \quad \mathbb{Q}_{3,1}^{(1,-1;c)}(T_u, 1c) &= -\frac{\sqrt{210}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{2,1}^{(b)}(E_u)}{84} + \frac{\sqrt{70}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{2,2}^{(b)}(E_u)}{28} + \frac{3\sqrt{14}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{2,1}^{(b)}(E_u)}{28} + \frac{\sqrt{42}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{2,2}^{(b)}(E_u)}{28} \\
\text{z446} \quad \mathbb{Q}_{3,2}^{(1,-1;c)}(T_u, 1c) &= -\frac{\sqrt{210}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{2,1}^{(b)}(E_u)}{84} - \frac{\sqrt{70}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{2,2}^{(b)}(E_u)}{28} - \frac{3\sqrt{14}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{2,1}^{(b)}(E_u)}{28} + \frac{\sqrt{42}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{2,2}^{(b)}(E_u)}{28} \\
\text{z447} \quad \mathbb{Q}_{3,3}^{(1,-1;c)}(T_u, 1c) &= \frac{\sqrt{210}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{2,1}^{(b)}(E_u)}{42} - \frac{\sqrt{42}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{2,2}^{(b)}(E_u)}{14} \\
\text{z448} \quad \mathbb{Q}_{3,1}^{(1,-1;c)}(T_u, 1d) &= -\frac{\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,3}^{(b)}(T_u)}{4} - \frac{\sqrt{15}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,3}^{(b)}(T_u)}{12} + \frac{\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,2}^{(b)}(T_u)}{4} - \frac{\sqrt{15}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,2}^{(b)}(T_u)}{12} \\
\text{z449} \quad \mathbb{Q}_{3,2}^{(1,-1;c)}(T_u, 1d) &= \frac{\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,3}^{(b)}(T_u)}{4} - \frac{\sqrt{15}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,3}^{(b)}(T_u)}{12} - \frac{\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,1}^{(b)}(T_u)}{4} - \frac{\sqrt{15}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,1}^{(b)}(T_u)}{12} \\
\text{z450} \quad \mathbb{Q}_{3,3}^{(1,-1;c)}(T_u, 1d) &= -\frac{\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,2}^{(b)}(T_u)}{4} - \frac{\sqrt{15}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,2}^{(b)}(T_u)}{12} + \frac{\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,1}^{(b)}(T_u)}{4} - \frac{\sqrt{15}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,1}^{(b)}(T_u)}{12} \\
\text{z451} \quad \mathbb{Q}_{3,1}^{(1,-1;c)}(T_u, 2a) &= -\frac{\sqrt{3}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{6} - \frac{\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{6} - \frac{\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,3}^{(b)}(T_u)}{3} + \frac{\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{3} \\
\text{z452} \quad \mathbb{Q}_{3,2}^{(1,-1;c)}(T_u, 2a) &= \frac{\sqrt{3}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{6} + \frac{\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,3}^{(b)}(T_u)}{3} - \frac{\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{6} - \frac{\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{3} \\
\text{z453} \quad \mathbb{Q}_{3,3}^{(1,-1;c)}(T_u, 2a) &= -\frac{\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{3} + \frac{\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{1,3}^{(b)}(T_u)}{3} + \frac{\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{3} \\
\text{z454} \quad \mathbb{Q}_{3,1}^{(1,-1;c)}(T_u, 2b) &= \frac{\sqrt{2}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{3} + \frac{\sqrt{6}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{9} - \frac{\sqrt{6}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{18} + \frac{\sqrt{6}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{18}
\end{aligned}$$

$$\begin{aligned}
\boxed{\text{z455}} \quad \mathbb{Q}_{3,2}^{(1,-1;c)}(T_u, 2b) &= -\frac{\sqrt{2}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{3} + \frac{\sqrt{6}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{18} + \frac{\sqrt{6}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{9} - \frac{\sqrt{6}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{18} \\
\boxed{\text{z456}} \quad \mathbb{Q}_{3,3}^{(1,-1;c)}(T_u, 2b) &= -\frac{\sqrt{6}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{18} - \frac{2\sqrt{6}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{9} + \frac{\sqrt{6}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{18} \\
\boxed{\text{z457}} \quad \mathbb{Q}_{3,1}^{(1,-1;c)}(T_u, 2c) &= -\frac{\sqrt{3}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{T}_3^{(b)}(A_u)}{3} \\
\boxed{\text{z458}} \quad \mathbb{Q}_{3,2}^{(1,-1;c)}(T_u, 2c) &= -\frac{\sqrt{3}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_3^{(b)}(A_u)}{3} \\
\boxed{\text{z459}} \quad \mathbb{Q}_{3,3}^{(1,-1;c)}(T_u, 2c) &= -\frac{\sqrt{3}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{T}_3^{(b)}(A_u)}{3} \\
\boxed{\text{z460}} \quad \mathbb{Q}_{3,1}^{(1,-1;c)}(T_u, 2d) &= \frac{\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{2,1}^{(b)}(E_u)}{2} + \frac{\sqrt{3}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{2,2}^{(b)}(E_u)}{6} \\
\boxed{\text{z461}} \quad \mathbb{Q}_{3,2}^{(1,-1;c)}(T_u, 2d) &= -\frac{\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{2,1}^{(b)}(E_u)}{2} + \frac{\sqrt{3}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{2,2}^{(b)}(E_u)}{6} \\
\boxed{\text{z462}} \quad \mathbb{Q}_{3,3}^{(1,-1;c)}(T_u, 2d) &= -\frac{\sqrt{3}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{2,2}^{(b)}(E_u)}{3} \\
\boxed{\text{z463}} \quad \mathbb{Q}_{3,1}^{(1,-1;c)}(T_u, 2e) &= \frac{\sqrt{15}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,3}^{(b)}(T_u)}{12} + \frac{\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,3}^{(b)}(T_u)}{12} + \frac{\sqrt{15}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,2}^{(b)}(T_u)}{12} - \frac{\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,2}^{(b)}(T_u)}{12} + \frac{\mathbb{M}_3^{(1,-1;a)}(A_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{3} \\
\boxed{\text{z464}} \quad \mathbb{Q}_{3,2}^{(1,-1;c)}(T_u, 2e) &= \frac{\sqrt{15}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,3}^{(b)}(T_u)}{12} - \frac{\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,3}^{(b)}(T_u)}{12} + \frac{\sqrt{15}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,1}^{(b)}(T_u)}{12} + \frac{\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,1}^{(b)}(T_u)}{12} + \frac{\mathbb{M}_3^{(1,-1;a)}(A_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{3} \\
\boxed{\text{z465}} \quad \mathbb{Q}_{3,3}^{(1,-1;c)}(T_u, 2e) &= \frac{\sqrt{15}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,2}^{(b)}(T_u)}{12} + \frac{\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,2}^{(b)}(T_u)}{12} + \frac{\sqrt{15}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,1}^{(b)}(T_u)}{12} - \frac{\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,1}^{(b)}(T_u)}{12} + \frac{\mathbb{M}_3^{(1,-1;a)}(A_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{3} \\
\boxed{\text{z466}} \quad \mathbb{Q}_{3,1}^{(1,-1;c)}(T_u, 2f) &= -\frac{\sqrt{3}\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{T}_3^{(b)}(A_u)}{3} \\
\boxed{\text{z467}} \quad \mathbb{Q}_{3,2}^{(1,-1;c)}(T_u, 2f) &= -\frac{\sqrt{3}\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{T}_3^{(b)}(A_u)}{3} \\
\boxed{\text{z468}} \quad \mathbb{Q}_{3,3}^{(1,-1;c)}(T_u, 2f) &= -\frac{\sqrt{3}\mathbb{M}_{1,3}^{(1,-1;a)}(T_g)\mathbb{T}_3^{(b)}(A_u)}{3}
\end{aligned}$$

$$\boxed{\text{z469}} \quad \mathbb{Q}_{3,1}^{(1,-1;c)}(T_u, 2g) = -\frac{\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{M}_{2,1}^{(b)}(E_u)}{2} - \frac{\sqrt{3}\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{M}_{2,2}^{(b)}(E_u)}{6}$$

$$\boxed{\text{z470}} \quad \mathbb{Q}_{3,2}^{(1,-1;c)}(T_u, 2g) = \frac{\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{M}_{2,1}^{(b)}(E_u)}{2} - \frac{\sqrt{3}\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{M}_{2,2}^{(b)}(E_u)}{6}$$

$$\boxed{\text{z471}} \quad \mathbb{Q}_{3,3}^{(1,-1;c)}(T_u, 2g) = \frac{\sqrt{3}\mathbb{M}_{1,3}^{(1,-1;a)}(T_g)\mathbb{M}_{2,2}^{(b)}(E_u)}{3}$$

$$\boxed{\text{z472}} \quad \mathbb{Q}_{5,1}^{(1,-1;c)}(T_u, 3a) = \frac{\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{6} + \frac{\sqrt{3}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{18} + \frac{2\sqrt{3}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{9} - \frac{2\sqrt{3}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{9}$$

$$\boxed{\text{z473}} \quad \mathbb{Q}_{5,2}^{(1,-1;c)}(T_u, 3a) = -\frac{\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{6} - \frac{2\sqrt{3}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{9} + \frac{\sqrt{3}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{18} + \frac{2\sqrt{3}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{9}$$

$$\boxed{\text{z474}} \quad \mathbb{Q}_{5,3}^{(1,-1;c)}(T_u, 3a) = \frac{2\sqrt{3}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{9} - \frac{\sqrt{3}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{9} - \frac{2\sqrt{3}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{9}$$

$$\boxed{\text{z475}} \quad \mathbb{Q}_{5,1}^{(1,-1;c)}(T_u, 3b) = -\frac{\sqrt{3}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{2,1}^{(b)}(E_u)}{6} + \frac{\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{2,2}^{(b)}(E_u)}{2}$$

$$\boxed{\text{z476}} \quad \mathbb{Q}_{5,2}^{(1,-1;c)}(T_u, 3b) = -\frac{\sqrt{3}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{2,1}^{(b)}(E_u)}{6} - \frac{\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{2,2}^{(b)}(E_u)}{2}$$

$$\boxed{\text{z477}} \quad \mathbb{Q}_{5,3}^{(1,-1;c)}(T_u, 3b) = \frac{\sqrt{3}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{2,1}^{(b)}(E_u)}{3}$$

$$\boxed{\text{z478}} \quad \mathbb{Q}_{1,1}^{(1,0;c)}(T_u, a) = \frac{\sqrt{6}\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{1,3}^{(b)}(T_u)}{6} - \frac{\sqrt{6}\mathbb{G}_{1,3}^{(1,0;a)}(T_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z479}} \quad \mathbb{Q}_{1,2}^{(1,0;c)}(T_u, a) = -\frac{\sqrt{6}\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{1,3}^{(b)}(T_u)}{6} + \frac{\sqrt{6}\mathbb{G}_{1,3}^{(1,0;a)}(T_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z480}} \quad \mathbb{Q}_{1,3}^{(1,0;c)}(T_u, a) = \frac{\sqrt{6}\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{6} - \frac{\sqrt{6}\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z481}} \quad \mathbb{Q}_{1,1}^{(1,0;c)}(T_u, b) = \frac{\sqrt{3}\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{T}_3^{(b)}(A_u)}{3}$$

$$\boxed{\text{z482}} \quad \mathbb{Q}_{1,2}^{(1,0;c)}(T_u, b) = \frac{\sqrt{3}\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{T}_3^{(b)}(A_u)}{3}$$

$$\begin{aligned}
\text{z483} \quad \mathbb{Q}_{1,3}^{(1,0;c)}(T_u, b) &= \frac{\sqrt{3}\mathbb{T}_{2,3}^{(1,0;a)}(T_g)\mathbb{T}_3^{(b)}(A_u)}{3} \\
\text{z484} \quad \mathbb{Q}_{1,1}^{(1,0;c)}(T_u, c) &= \frac{\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{M}_{2,1}^{(b)}(E_u)}{2} + \frac{\sqrt{3}\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{M}_{2,2}^{(b)}(E_u)}{6} \\
\text{z485} \quad \mathbb{Q}_{1,2}^{(1,0;c)}(T_u, c) &= -\frac{\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{M}_{2,1}^{(b)}(E_u)}{2} + \frac{\sqrt{3}\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{M}_{2,2}^{(b)}(E_u)}{6} \\
\text{z486} \quad \mathbb{Q}_{1,3}^{(1,0;c)}(T_u, c) &= -\frac{\sqrt{3}\mathbb{T}_{2,3}^{(1,0;a)}(T_g)\mathbb{M}_{2,2}^{(b)}(E_u)}{3} \\
\text{z487} \quad \mathbb{Q}_{1,1}^{(1,0;c)}(T_u, d) &= -\frac{\sqrt{30}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{30} + \frac{\sqrt{10}\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{10} + \frac{\sqrt{10}\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{10} + \frac{\sqrt{10}\mathbb{T}_{2,3}^{(1,0;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{10} \\
\text{z488} \quad \mathbb{Q}_{1,2}^{(1,0;c)}(T_u, d) &= -\frac{\sqrt{30}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{30} + \frac{\sqrt{10}\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{10} - \frac{\sqrt{10}\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{10} + \frac{\sqrt{10}\mathbb{T}_{2,3}^{(1,0;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{10} \\
\text{z489} \quad \mathbb{Q}_{1,3}^{(1,0;c)}(T_u, d) &= \frac{\sqrt{30}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{15} + \frac{\sqrt{10}\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{10} + \frac{\sqrt{10}\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{10} \\
\text{z490} \quad \mathbb{Q}_{3,1}^{(1,0;c)}(T_u, 1a) &= -\frac{\sqrt{6}\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{6} + \frac{\sqrt{6}\mathbb{G}_{1,3}^{(1,0;a)}(T_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{6} \\
\text{z491} \quad \mathbb{Q}_{3,2}^{(1,0;c)}(T_u, 1a) &= \frac{\sqrt{6}\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{6} - \frac{\sqrt{6}\mathbb{G}_{1,3}^{(1,0;a)}(T_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{6} \\
\text{z492} \quad \mathbb{Q}_{3,3}^{(1,0;c)}(T_u, 1a) &= -\frac{\sqrt{6}\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{6} + \frac{\sqrt{6}\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{6} \\
\text{z493} \quad \mathbb{Q}_{3,1}^{(1,0;c)}(T_u, 1b) &= -\frac{\sqrt{5}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{10} + \frac{\sqrt{15}\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{10} - \frac{\sqrt{15}\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{15} - \frac{\sqrt{15}\mathbb{T}_{2,3}^{(1,0;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{15} \\
\text{z494} \quad \mathbb{Q}_{3,2}^{(1,0;c)}(T_u, 1b) &= -\frac{\sqrt{5}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{10} - \frac{\sqrt{15}\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{15} - \frac{\sqrt{15}\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{10} - \frac{\sqrt{15}\mathbb{T}_{2,3}^{(1,0;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{15} \\
\text{z495} \quad \mathbb{Q}_{3,3}^{(1,0;c)}(T_u, 1b) &= \frac{\sqrt{5}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{5} - \frac{\sqrt{15}\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{15} - \frac{\sqrt{15}\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{15} \\
\text{z496} \quad \mathbb{Q}_{3,1}^{(1,0;c)}(T_u, 2a) &= -\frac{\sqrt{6}\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{6} - \frac{\sqrt{6}\mathbb{G}_{1,3}^{(1,0;a)}(T_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{6}
\end{aligned}$$

$$\begin{aligned}
\boxed{\text{z497}} \quad \mathbb{Q}_{3,2}^{(1,0;c)}(T_u, 2a) &= -\frac{\sqrt{6}\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{6} - \frac{\sqrt{6}\mathbb{G}_{1,3}^{(1,0;a)}(T_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{6} \\
\boxed{\text{z498}} \quad \mathbb{Q}_{3,3}^{(1,0;c)}(T_u, 2a) &= -\frac{\sqrt{6}\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{6} - \frac{\sqrt{6}\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{6} \\
\boxed{\text{z499}} \quad \mathbb{Q}_{3,1}^{(1,0;c)}(T_u, 2b) &= -\frac{\sqrt{3}\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{M}_{2,1}^{(b)}(E_u)}{6} + \frac{\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{M}_{2,2}^{(b)}(E_u)}{2} \\
\boxed{\text{z500}} \quad \mathbb{Q}_{3,2}^{(1,0;c)}(T_u, 2b) &= -\frac{\sqrt{3}\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{M}_{2,1}^{(b)}(E_u)}{6} - \frac{\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{M}_{2,2}^{(b)}(E_u)}{2} \\
\boxed{\text{z501}} \quad \mathbb{Q}_{3,3}^{(1,0;c)}(T_u, 2b) &= \frac{\sqrt{3}\mathbb{T}_{2,3}^{(1,0;a)}(T_g)\mathbb{M}_{2,1}^{(b)}(E_u)}{3} \\
\boxed{\text{z502}} \quad \mathbb{Q}_{3,1}^{(1,0;c)}(T_u, 2c) &= -\frac{\sqrt{3}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{6} - \frac{\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{6} - \frac{\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{3} + \frac{\mathbb{T}_{2,3}^{(1,0;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{3} \\
\boxed{\text{z503}} \quad \mathbb{Q}_{3,2}^{(1,0;c)}(T_u, 2c) &= \frac{\sqrt{3}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{6} + \frac{\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{3} - \frac{\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{6} - \frac{\mathbb{T}_{2,3}^{(1,0;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{3} \\
\boxed{\text{z504}} \quad \mathbb{Q}_{3,3}^{(1,0;c)}(T_u, 2c) &= -\frac{\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{3} + \frac{\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{3} + \frac{\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{3} \\
\boxed{\text{z505}} \quad \mathbb{Q}_{1,1}^{(1,1;c)}(T_u, a) &= \frac{\sqrt{3}\mathbb{Q}_0^{(1,1;a)}(A_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{3} \\
\boxed{\text{z506}} \quad \mathbb{Q}_{1,2}^{(1,1;c)}(T_u, a) &= \frac{\sqrt{3}\mathbb{Q}_0^{(1,1;a)}(A_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{3} \\
\boxed{\text{z507}} \quad \mathbb{Q}_{1,3}^{(1,1;c)}(T_u, a) &= \frac{\sqrt{3}\mathbb{Q}_0^{(1,1;a)}(A_g)\mathbb{Q}_{1,3}^{(b)}(T_u)}{3} \\
\boxed{\text{z508}} \quad \mathbb{Q}_{1,1}^{(1,1;c)}(T_u, b) &= -\frac{\sqrt{3}\mathbb{M}_{1,1}^{(1,1;a)}(T_g)\mathbb{M}_{2,1}^{(b)}(E_u)}{6} + \frac{\mathbb{M}_{1,1}^{(1,1;a)}(T_g)\mathbb{M}_{2,2}^{(b)}(E_u)}{2} \\
\boxed{\text{z509}} \quad \mathbb{Q}_{1,2}^{(1,1;c)}(T_u, b) &= -\frac{\sqrt{3}\mathbb{M}_{1,2}^{(1,1;a)}(T_g)\mathbb{M}_{2,1}^{(b)}(E_u)}{6} - \frac{\mathbb{M}_{1,2}^{(1,1;a)}(T_g)\mathbb{M}_{2,2}^{(b)}(E_u)}{2} \\
\boxed{\text{z510}} \quad \mathbb{Q}_{1,3}^{(1,1;c)}(T_u, b) &= \frac{\sqrt{3}\mathbb{M}_{1,3}^{(1,1;a)}(T_g)\mathbb{M}_{2,1}^{(b)}(E_u)}{3}
\end{aligned}$$

$$\boxed{\text{z511}} \quad \mathbb{Q}_{1,1}^{(1,1;c)}(T_u, c) = \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,1;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{6} - \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z512}} \quad \mathbb{Q}_{1,2}^{(1,1;c)}(T_u, c) = -\frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,1;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z513}} \quad \mathbb{Q}_{1,3}^{(1,1;c)}(T_u, c) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{6} - \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z514}} \quad \mathbb{Q}_{3,1}^{(1,1;c)}(T_u, 1) = \frac{\sqrt{3}\mathbb{Q}_0^{(1,1;a)}(A_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{3}$$

$$\boxed{\text{z515}} \quad \mathbb{Q}_{3,2}^{(1,1;c)}(T_u, 1) = \frac{\sqrt{3}\mathbb{Q}_0^{(1,1;a)}(A_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{3}$$

$$\boxed{\text{z516}} \quad \mathbb{Q}_{3,3}^{(1,1;c)}(T_u, 1) = \frac{\sqrt{3}\mathbb{Q}_0^{(1,1;a)}(A_g)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{3}$$

$$\boxed{\text{z517}} \quad \mathbb{Q}_{3,1}^{(1,1;c)}(T_u, 2a) = -\frac{\sqrt{3}\mathbb{M}_{1,1}^{(1,1;a)}(T_g)\mathbb{T}_3^{(b)}(A_u)}{3}$$

$$\boxed{\text{z518}} \quad \mathbb{Q}_{3,2}^{(1,1;c)}(T_u, 2a) = -\frac{\sqrt{3}\mathbb{M}_{1,2}^{(1,1;a)}(T_g)\mathbb{T}_3^{(b)}(A_u)}{3}$$

$$\boxed{\text{z519}} \quad \mathbb{Q}_{3,3}^{(1,1;c)}(T_u, 2a) = -\frac{\sqrt{3}\mathbb{M}_{1,3}^{(1,1;a)}(T_g)\mathbb{T}_3^{(b)}(A_u)}{3}$$

$$\boxed{\text{z520}} \quad \mathbb{Q}_{3,1}^{(1,1;c)}(T_u, 2b) = -\frac{\mathbb{M}_{1,1}^{(1,1;a)}(T_g)\mathbb{M}_{2,1}^{(b)}(E_u)}{2} - \frac{\sqrt{3}\mathbb{M}_{1,1}^{(1,1;a)}(T_g)\mathbb{M}_{2,2}^{(b)}(E_u)}{6}$$

$$\boxed{\text{z521}} \quad \mathbb{Q}_{3,2}^{(1,1;c)}(T_u, 2b) = \frac{\mathbb{M}_{1,2}^{(1,1;a)}(T_g)\mathbb{M}_{2,1}^{(b)}(E_u)}{2} - \frac{\sqrt{3}\mathbb{M}_{1,2}^{(1,1;a)}(T_g)\mathbb{M}_{2,2}^{(b)}(E_u)}{6}$$

$$\boxed{\text{z522}} \quad \mathbb{Q}_{3,3}^{(1,1;c)}(T_u, 2b) = \frac{\sqrt{3}\mathbb{M}_{1,3}^{(1,1;a)}(T_g)\mathbb{M}_{2,2}^{(b)}(E_u)}{3}$$

$$\boxed{\text{z523}} \quad \mathbb{G}_{2,1}^{(c)}(T_u, a) = \frac{\sqrt{6}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{6} + \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{6} - \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{1,3}^{(b)}(T_u)}{6} + \frac{\sqrt{2}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z524}} \quad \mathbb{G}_{2,2}^{(c)}(T_u, a) = -\frac{\sqrt{6}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{6} + \frac{\sqrt{2}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{1,3}^{(b)}(T_u)}{6} + \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{6} - \frac{\sqrt{2}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{6}$$

$$\begin{aligned}
\boxed{\text{z525}} \quad \mathbb{G}_{2,3}^{(c)}(T_u, a) &= -\frac{\sqrt{2}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{6} - \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{1,3}^{(b)}(T_u)}{3} + \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{6} \\
\boxed{\text{z526}} \quad \mathbb{G}_{2,1}^{(c)}(T_u, b) &= \frac{\sqrt{6}\mathbb{M}_{1,2}^{(a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{6} \\
\boxed{\text{z527}} \quad \mathbb{G}_{2,2}^{(c)}(T_u, b) &= \frac{\sqrt{6}\mathbb{M}_{1,1}^{(a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{6} \\
\boxed{\text{z528}} \quad \mathbb{G}_{2,3}^{(c)}(T_u, b) &= \frac{\sqrt{6}\mathbb{M}_{1,1}^{(a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,2}^{(a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{6} \\
\boxed{\text{z529}} \quad \mathbb{G}_{2,1}^{(1,-1;c)}(T_u, a) &= \frac{\sqrt{6}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{6} + \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{6} - \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,3}^{(b)}(T_u)}{6} + \frac{\sqrt{2}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{6} \\
\boxed{\text{z530}} \quad \mathbb{G}_{2,2}^{(1,-1;c)}(T_u, a) &= -\frac{\sqrt{6}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{6} + \frac{\sqrt{2}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,3}^{(b)}(T_u)}{6} + \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{6} - \frac{\sqrt{2}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{6} \\
\boxed{\text{z531}} \quad \mathbb{G}_{2,3}^{(1,-1;c)}(T_u, a) &= -\frac{\sqrt{2}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{6} - \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{1,3}^{(b)}(T_u)}{3} + \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{6} \\
\boxed{\text{z532}} \quad \mathbb{G}_{2,1}^{(1,-1;c)}(T_u, b) &= -\frac{\sqrt{21}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,3}^{(b)}(T_u)}{21} + \frac{\sqrt{35}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,3}^{(b)}(T_u)}{21} - \frac{\sqrt{21}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,2}^{(b)}(T_u)}{21} - \frac{\sqrt{35}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,2}^{(b)}(T_u)}{21} + \frac{\sqrt{35}\mathbb{M}_3^{(1,-1;a)}(A_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{21} \\
\boxed{\text{z533}} \quad \mathbb{G}_{2,2}^{(1,-1;c)}(T_u, b) &= -\frac{\sqrt{21}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,3}^{(b)}(T_u)}{21} - \frac{\sqrt{35}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,3}^{(b)}(T_u)}{21} - \frac{\sqrt{21}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,1}^{(b)}(T_u)}{21} + \frac{\sqrt{35}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,1}^{(b)}(T_u)}{21} + \frac{\sqrt{35}\mathbb{M}_3^{(1,-1;a)}(A_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{21} \\
\boxed{\text{z534}} \quad \mathbb{G}_{2,3}^{(1,-1;c)}(T_u, b) &= -\frac{\sqrt{21}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,2}^{(b)}(T_u)}{21} + \frac{\sqrt{35}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,2}^{(b)}(T_u)}{21} - \frac{\sqrt{21}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,1}^{(b)}(T_u)}{21} - \frac{\sqrt{35}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,1}^{(b)}(T_u)}{21} + \frac{\sqrt{35}\mathbb{M}_3^{(1,-1;a)}(A_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{21} \\
\boxed{\text{z535}} \quad \mathbb{G}_{2,1}^{(1,-1;c)}(T_u, c) &= \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,-1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{6} \\
\boxed{\text{z536}} \quad \mathbb{G}_{2,2}^{(1,-1;c)}(T_u, c) &= \frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,-1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{6} \\
\boxed{\text{z537}} \quad \mathbb{G}_{2,3}^{(1,-1;c)}(T_u, c) &= \frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{6} \\
\boxed{\text{z538}} \quad \mathbb{G}_{4,1}^{(1,-1;c)}(T_u, 1) &= \frac{\sqrt{15}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,3}^{(b)}(T_u)}{12} - \frac{\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,3}^{(b)}(T_u)}{4} - \frac{\sqrt{15}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,2}^{(b)}(T_u)}{12} - \frac{\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,2}^{(b)}(T_u)}{4}
\end{aligned}$$

$$\begin{aligned}
\boxed{\text{z539}} \quad \mathbb{G}_{4,2}^{(1,-1;c)}(T_u, 1) &= -\frac{\sqrt{15}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,3}^{(b)}(T_u)}{12} - \frac{\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,3}^{(b)}(T_u)}{4} + \frac{\sqrt{15}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,1}^{(b)}(T_u)}{12} - \frac{\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,1}^{(b)}(T_u)}{4} \\
\boxed{\text{z540}} \quad \mathbb{G}_{4,3}^{(1,-1;c)}(T_u, 1) &= \frac{\sqrt{15}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,2}^{(b)}(T_u)}{12} - \frac{\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,2}^{(b)}(T_u)}{4} - \frac{\sqrt{15}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,1}^{(b)}(T_u)}{12} - \frac{\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,1}^{(b)}(T_u)}{4} \\
\boxed{\text{z541}} \quad \mathbb{G}_{4,1}^{(1,-1;c)}(T_u, 2) &= -\frac{\sqrt{105}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,3}^{(b)}(T_u)}{84} - \frac{3\sqrt{7}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,3}^{(b)}(T_u)}{28} - \frac{\sqrt{105}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,2}^{(b)}(T_u)}{84} + \frac{3\sqrt{7}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,2}^{(b)}(T_u)}{28} + \frac{\sqrt{7}\mathbb{M}_3^{(1,-1;a)}(A_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{7} \\
\boxed{\text{z542}} \quad \mathbb{G}_{4,2}^{(1,-1;c)}(T_u, 2) &= -\frac{\sqrt{105}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,3}^{(b)}(T_u)}{84} + \frac{3\sqrt{7}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,3}^{(b)}(T_u)}{28} - \frac{\sqrt{105}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,1}^{(b)}(T_u)}{84} - \frac{3\sqrt{7}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,1}^{(b)}(T_u)}{28} + \frac{\sqrt{7}\mathbb{M}_3^{(1,-1;a)}(A_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{7} \\
\boxed{\text{z543}} \quad \mathbb{G}_{4,3}^{(1,-1;c)}(T_u, 2) &= -\frac{\sqrt{105}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,2}^{(b)}(T_u)}{84} - \frac{3\sqrt{7}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,2}^{(b)}(T_u)}{28} - \frac{\sqrt{105}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,1}^{(b)}(T_u)}{84} + \frac{3\sqrt{7}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,1}^{(b)}(T_u)}{28} + \frac{\sqrt{7}\mathbb{M}_3^{(1,-1;a)}(A_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{7} \\
\boxed{\text{z544}} \quad \mathbb{G}_{2,1}^{(1,0;c)}(T_u, a) &= \frac{\sqrt{6}\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{1,3}^{(b)}(T_u)}{6} + \frac{\sqrt{6}\mathbb{G}_{1,3}^{(1,0;a)}(T_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{6} \\
\boxed{\text{z545}} \quad \mathbb{G}_{2,2}^{(1,0;c)}(T_u, a) &= \frac{\sqrt{6}\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{1,3}^{(b)}(T_u)}{6} + \frac{\sqrt{6}\mathbb{G}_{1,3}^{(1,0;a)}(T_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{6} \\
\boxed{\text{z546}} \quad \mathbb{G}_{2,3}^{(1,0;c)}(T_u, a) &= \frac{\sqrt{6}\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{6} + \frac{\sqrt{6}\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{6} \\
\boxed{\text{z547}} \quad \mathbb{G}_{2,1}^{(1,0;c)}(T_u, b) &= \frac{\sqrt{6}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{6} + \frac{\sqrt{2}\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{6} - \frac{\sqrt{2}\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{6} + \frac{\sqrt{2}\mathbb{T}_{2,3}^{(1,0;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{6} \\
\boxed{\text{z548}} \quad \mathbb{G}_{2,2}^{(1,0;c)}(T_u, b) &= -\frac{\sqrt{6}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{6} + \frac{\sqrt{2}\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{6} + \frac{\sqrt{2}\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{6} - \frac{\sqrt{2}\mathbb{T}_{2,3}^{(1,0;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{6} \\
\boxed{\text{z549}} \quad \mathbb{G}_{2,3}^{(1,0;c)}(T_u, b) &= -\frac{\sqrt{2}\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{6} - \frac{\sqrt{2}\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{3} + \frac{\sqrt{2}\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{6} \\
\boxed{\text{z550}} \quad \mathbb{G}_{2,1}^{(1,1;c)}(T_u) &= \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,1;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{6} \\
\boxed{\text{z551}} \quad \mathbb{G}_{2,2}^{(1,1;c)}(T_u) &= \frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,1;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{6} \\
\boxed{\text{z552}} \quad \mathbb{G}_{2,3}^{(1,1;c)}(T_u) &= \frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{6}
\end{aligned}$$

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

$$\boxed{\text{x1}} \quad \mathbb{Q}_0^{(a)}(A_g) = \begin{bmatrix} \frac{\sqrt{6}}{6} & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{6}}{6} & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{6}}{6} & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{6}}{6} & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{6} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{6} \end{bmatrix}$$

$$\boxed{\text{x2}} \quad \mathbb{Q}_{2,1}^{(a)}(E_g) = \begin{bmatrix} 0 & 0 & 0 & -\frac{\sqrt{6}}{6} & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{6} & 0 \\ 0 & 0 & -\frac{\sqrt{3}}{6} & 0 & 0 & 0 \\ -\frac{\sqrt{6}}{6} & 0 & 0 & \frac{\sqrt{3}}{6} & 0 & 0 \\ 0 & \frac{\sqrt{6}}{6} & 0 & 0 & \frac{\sqrt{3}}{6} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{6} \end{bmatrix}$$

$$\boxed{\text{x3}} \quad \mathbb{Q}_{2,2}^{(a)}(E_g) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{6} \\ 0 & 0 & \frac{\sqrt{6}}{6} & 0 & 0 & 0 \\ 0 & \frac{\sqrt{6}}{6} & 0 & 0 & -\frac{\sqrt{3}}{6} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{6} \\ 0 & 0 & -\frac{\sqrt{3}}{6} & 0 & 0 & 0 \\ -\frac{\sqrt{6}}{6} & 0 & 0 & -\frac{\sqrt{3}}{6} & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x4}} \quad \mathbb{Q}_{2,1}^{(a)}(T_g) = \begin{bmatrix} 0 & 0 & \frac{\sqrt{6}i}{12} & 0 & \frac{\sqrt{2}i}{4} & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{2}i}{4} & 0 & -\frac{\sqrt{6}i}{12} \\ -\frac{\sqrt{6}i}{12} & 0 & 0 & \frac{\sqrt{3}i}{6} & 0 & 0 \\ 0 & \frac{\sqrt{2}i}{4} & -\frac{\sqrt{3}i}{6} & 0 & 0 & 0 \\ -\frac{\sqrt{2}i}{4} & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{6} \\ 0 & \frac{\sqrt{6}i}{12} & 0 & 0 & \frac{\sqrt{3}i}{6} & 0 \end{bmatrix}$$

$$\boxed{\text{x5}} \quad \mathbb{Q}_{2,2}^{(a)}(T_g) = \begin{bmatrix} 0 & 0 & \frac{\sqrt{6}}{12} & 0 & -\frac{\sqrt{2}}{4} & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{2}}{4} & 0 & \frac{\sqrt{6}}{12} \\ \frac{\sqrt{6}}{12} & 0 & 0 & -\frac{\sqrt{3}}{6} & 0 & 0 \\ 0 & -\frac{\sqrt{2}}{4} & -\frac{\sqrt{3}}{6} & 0 & 0 & 0 \\ -\frac{\sqrt{2}}{4} & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{6} \\ 0 & \frac{\sqrt{6}}{12} & 0 & 0 & \frac{\sqrt{3}}{6} & 0 \end{bmatrix}$$

$$\boxed{\text{x6}} \quad \mathbb{Q}_{2,3}^{(a)}(T_g) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}i}{6} \\ 0 & 0 & \frac{\sqrt{6}i}{6} & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{6}i}{6} & 0 & 0 & \frac{\sqrt{3}i}{6} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{6} \\ 0 & 0 & -\frac{\sqrt{3}i}{6} & 0 & 0 & 0 \\ -\frac{\sqrt{6}i}{6} & 0 & 0 & -\frac{\sqrt{3}i}{6} & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x7}} \quad \mathbb{Q}_{2,1}^{(1,-1;a)}(E_g) = \begin{bmatrix} 0 & 0 & 0 & -\frac{\sqrt{3}}{6} & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{6} & 0 \\ 0 & 0 & \frac{\sqrt{6}}{6} & 0 & 0 & 0 \\ -\frac{\sqrt{3}}{6} & 0 & 0 & -\frac{\sqrt{6}}{6} & 0 & 0 \\ 0 & \frac{\sqrt{3}}{6} & 0 & 0 & -\frac{\sqrt{6}}{6} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{6} \end{bmatrix}$$

$$\boxed{\text{x8}} \quad \mathbb{Q}_{2,2}^{(1,-1;a)}(E_g) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{6} \\ 0 & 0 & \frac{\sqrt{3}}{6} & 0 & 0 & 0 \\ 0 & \frac{\sqrt{3}}{6} & 0 & 0 & \frac{\sqrt{6}}{6} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{6} \\ 0 & 0 & \frac{\sqrt{6}}{6} & 0 & 0 & 0 \\ -\frac{\sqrt{3}}{6} & 0 & 0 & \frac{\sqrt{6}}{6} & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x9}} \quad \mathbb{Q}_{2,1}^{(1,-1;a)}(T_g) = \begin{bmatrix} 0 & 0 & \frac{\sqrt{3}i}{12} & 0 & \frac{i}{4} & 0 \\ 0 & 0 & 0 & -\frac{i}{4} & 0 & -\frac{\sqrt{3}i}{12} \\ -\frac{\sqrt{3}i}{12} & 0 & 0 & -\frac{\sqrt{6}i}{6} & 0 & 0 \\ 0 & \frac{i}{4} & \frac{\sqrt{6}i}{6} & 0 & 0 & 0 \\ -\frac{i}{4} & 0 & 0 & 0 & 0 & \frac{\sqrt{6}i}{6} \\ 0 & \frac{\sqrt{3}i}{12} & 0 & 0 & -\frac{\sqrt{6}i}{6} & 0 \end{bmatrix}$$

$$\boxed{\text{x10}} \quad \mathbb{Q}_{2,2}^{(1,-1;a)}(T_g) = \begin{bmatrix} 0 & 0 & \frac{\sqrt{3}}{12} & 0 & -\frac{1}{4} & 0 \\ 0 & 0 & 0 & -\frac{1}{4} & 0 & \frac{\sqrt{3}}{12} \\ \frac{\sqrt{3}}{12} & 0 & 0 & \frac{\sqrt{6}}{6} & 0 & 0 \\ 0 & -\frac{1}{4} & \frac{\sqrt{6}}{6} & 0 & 0 & 0 \\ -\frac{1}{4} & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{6} \\ 0 & \frac{\sqrt{3}}{12} & 0 & 0 & -\frac{\sqrt{6}}{6} & 0 \end{bmatrix}$$

$$\boxed{\text{x11}} \quad \mathbb{Q}_{2,3}^{(1,-1;a)}(T_g) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{6} \\ 0 & 0 & \frac{\sqrt{3}i}{6} & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{3}i}{6} & 0 & 0 & -\frac{\sqrt{6}i}{6} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}i}{6} \\ 0 & 0 & \frac{\sqrt{6}i}{6} & 0 & 0 & 0 \\ -\frac{\sqrt{3}i}{6} & 0 & 0 & \frac{\sqrt{6}i}{6} & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x12}} \quad \mathbb{Q}_0^{(1,1;a)}(A_g) = \begin{bmatrix} -\frac{\sqrt{3}}{3} & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{3}}{3} & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{3}}{6} & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{3}}{6} & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{6} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{6} \end{bmatrix}$$

$$\boxed{\text{x13}} \quad \mathbb{G}_{1,1}^{(1,0;a)}(T_g) = \begin{bmatrix} 0 & 0 & \frac{\sqrt{3}i}{4} & 0 & -\frac{i}{4} & 0 \\ 0 & 0 & 0 & \frac{i}{4} & 0 & -\frac{\sqrt{3}i}{4} \\ -\frac{\sqrt{3}i}{4} & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{i}{4} & 0 & 0 & 0 & 0 \\ \frac{i}{4} & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{3}i}{4} & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x14}} \quad \mathbb{G}_{1,2}^{(1,0;a)}(T_g) = \begin{bmatrix} 0 & 0 & -\frac{\sqrt{3}}{4} & 0 & -\frac{1}{4} & 0 \\ 0 & 0 & 0 & -\frac{1}{4} & 0 & -\frac{\sqrt{3}}{4} \\ -\frac{\sqrt{3}}{4} & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{1}{4} & 0 & 0 & 0 & 0 \\ -\frac{1}{4} & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{3}}{4} & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x15}} \quad \mathbb{G}_{1,3}^{(1,0;a)}(T_g) = \begin{bmatrix} 0 & 0 & 0 & -\frac{i}{2} & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{i}{2} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{i}{2} & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{i}{2} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x16}} \quad \mathbb{M}_{1,1}^{(a)}(T_g) = \begin{bmatrix} 0 & \frac{1}{3} & -\frac{\sqrt{6}}{12} & 0 & \frac{\sqrt{2}}{12} & 0 \\ \frac{1}{3} & 0 & 0 & -\frac{\sqrt{2}}{12} & 0 & \frac{\sqrt{6}}{12} \\ -\frac{\sqrt{6}}{12} & 0 & 0 & \frac{\sqrt{3}}{6} & 0 & 0 \\ 0 & -\frac{\sqrt{2}}{12} & \frac{\sqrt{3}}{6} & 0 & \frac{1}{3} & 0 \\ \frac{\sqrt{2}}{12} & 0 & 0 & \frac{1}{3} & 0 & \frac{\sqrt{3}}{6} \\ 0 & \frac{\sqrt{6}}{12} & 0 & 0 & \frac{\sqrt{3}}{6} & 0 \end{bmatrix}$$

$$\boxed{\text{x17}} \quad \mathbb{M}_{1,2}^{(a)}(T_g) = \begin{bmatrix} 0 & -\frac{i}{3} & -\frac{\sqrt{6}i}{12} & 0 & -\frac{\sqrt{2}i}{12} & 0 \\ \frac{i}{3} & 0 & 0 & -\frac{\sqrt{2}i}{12} & 0 & -\frac{\sqrt{6}i}{12} \\ \frac{\sqrt{6}i}{12} & 0 & 0 & -\frac{\sqrt{3}i}{6} & 0 & 0 \\ 0 & \frac{\sqrt{2}i}{12} & \frac{\sqrt{3}i}{6} & 0 & -\frac{i}{3} & 0 \\ \frac{\sqrt{2}i}{12} & 0 & 0 & \frac{i}{3} & 0 & -\frac{\sqrt{3}i}{6} \\ 0 & \frac{\sqrt{6}i}{12} & 0 & 0 & \frac{\sqrt{3}i}{6} & 0 \end{bmatrix}$$

$$\boxed{\text{x18}} \quad \mathbb{M}_{1,3}^{(a)}(T_g) = \begin{bmatrix} \frac{1}{3} & 0 & 0 & \frac{\sqrt{2}}{6} & 0 & 0 \\ 0 & -\frac{1}{3} & 0 & 0 & \frac{\sqrt{2}}{6} & 0 \\ 0 & 0 & \frac{1}{2} & 0 & 0 & 0 \\ \frac{\sqrt{2}}{6} & 0 & 0 & \frac{1}{6} & 0 & 0 \\ 0 & \frac{\sqrt{2}}{6} & 0 & 0 & -\frac{1}{6} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{1}{2} \end{bmatrix}$$

$$\boxed{\text{x19}} \quad \mathbb{M}_3^{(1,-1;a)}(A_g) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{i}{2} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{i}{2} \\ 0 & 0 & -\frac{i}{2} & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{i}{2} & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x20}} \quad \mathbb{M}_{1,1}^{(1,-1;a)}(T_g) = \begin{bmatrix} 0 & -\frac{\sqrt{6}}{18} & \frac{1}{3} & 0 & -\frac{\sqrt{3}}{9} & 0 \\ -\frac{\sqrt{6}}{18} & 0 & 0 & \frac{\sqrt{3}}{9} & 0 & -\frac{1}{3} \\ \frac{1}{3} & 0 & 0 & \frac{\sqrt{2}}{6} & 0 & 0 \\ 0 & \frac{\sqrt{3}}{9} & \frac{\sqrt{2}}{6} & 0 & \frac{\sqrt{6}}{9} & 0 \\ -\frac{\sqrt{3}}{9} & 0 & 0 & \frac{\sqrt{6}}{9} & 0 & \frac{\sqrt{2}}{6} \\ 0 & -\frac{1}{3} & 0 & 0 & \frac{\sqrt{2}}{6} & 0 \end{bmatrix}$$

$$\boxed{\text{x21}} \quad \mathbb{M}_{1,2}^{(1,-1;a)}(T_g) = \begin{bmatrix} 0 & \frac{\sqrt{6}i}{18} & \frac{i}{3} & 0 & \frac{\sqrt{3}i}{9} & 0 \\ -\frac{\sqrt{6}i}{18} & 0 & 0 & \frac{\sqrt{3}i}{9} & 0 & \frac{i}{3} \\ -\frac{i}{3} & 0 & 0 & -\frac{\sqrt{2}i}{6} & 0 & 0 \\ 0 & -\frac{\sqrt{3}i}{9} & \frac{\sqrt{2}i}{6} & 0 & -\frac{\sqrt{6}i}{9} & 0 \\ -\frac{\sqrt{3}i}{9} & 0 & 0 & \frac{\sqrt{6}i}{9} & 0 & -\frac{\sqrt{2}i}{6} \\ 0 & -\frac{i}{3} & 0 & 0 & \frac{\sqrt{2}i}{6} & 0 \end{bmatrix}$$

$$\boxed{\text{x22}} \quad \mathbb{M}_{1,3}^{(1,-1;a)}(T_g) = \begin{bmatrix} -\frac{\sqrt{6}}{18} & 0 & 0 & -\frac{2\sqrt{3}}{9} & 0 & 0 \\ 0 & \frac{\sqrt{6}}{18} & 0 & 0 & -\frac{2\sqrt{3}}{9} & 0 \\ 0 & 0 & \frac{\sqrt{6}}{6} & 0 & 0 & 0 \\ -\frac{2\sqrt{3}}{9} & 0 & 0 & \frac{\sqrt{6}}{18} & 0 & 0 \\ 0 & -\frac{2\sqrt{3}}{9} & 0 & 0 & -\frac{\sqrt{6}}{18} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{6} \end{bmatrix}$$

$$\boxed{\text{x23}} \quad \mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{15}}{20} & 0 & -\frac{\sqrt{5}}{4} \\ 0 & 0 & \frac{\sqrt{15}}{20} & 0 & -\frac{3\sqrt{5}}{20} & 0 \\ 0 & 0 & 0 & -\frac{3\sqrt{5}}{20} & 0 & \frac{\sqrt{15}}{20} \\ 0 & 0 & -\frac{\sqrt{5}}{4} & 0 & \frac{\sqrt{15}}{20} & 0 \end{bmatrix}$$

$$\boxed{\text{x24}} \quad \mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{15}i}{20} & 0 & -\frac{\sqrt{5}i}{4} \\ 0 & 0 & \frac{\sqrt{15}i}{20} & 0 & \frac{3\sqrt{5}i}{20} & 0 \\ 0 & 0 & 0 & -\frac{3\sqrt{5}i}{20} & 0 & -\frac{\sqrt{15}i}{20} \\ 0 & 0 & \frac{\sqrt{5}i}{4} & 0 & \frac{\sqrt{15}i}{20} & 0 \end{bmatrix}$$

$$\boxed{\text{x25}} \quad \mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{5}}{10} & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{3\sqrt{5}}{10} & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{3\sqrt{5}}{10} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}}{10} \end{bmatrix}$$

$$\boxed{\text{x26}} \quad \mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{1}{4} & 0 & \frac{\sqrt{3}}{4} \\ 0 & 0 & \frac{1}{4} & 0 & -\frac{\sqrt{3}}{4} & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{3}}{4} & 0 & \frac{1}{4} \\ 0 & 0 & \frac{\sqrt{3}}{4} & 0 & \frac{1}{4} & 0 \end{bmatrix}$$

$$\boxed{\text{x27}} \quad \mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{i}{4} & 0 & -\frac{\sqrt{3}i}{4} \\ 0 & 0 & -\frac{i}{4} & 0 & -\frac{\sqrt{3}i}{4} & 0 \\ 0 & 0 & 0 & \frac{\sqrt{3}i}{4} & 0 & \frac{i}{4} \\ 0 & 0 & \frac{\sqrt{3}i}{4} & 0 & -\frac{i}{4} & 0 \end{bmatrix}$$

$$\boxed{\text{x28}} \quad \mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{1}{2} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{1}{2} \\ 0 & 0 & -\frac{1}{2} & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{1}{2} & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x29}} \quad \mathbb{M}_{1,1}^{(1,1;a)}(T_g) = \begin{bmatrix} 0 & \frac{\sqrt{30}}{9} & \frac{\sqrt{5}}{12} & 0 & -\frac{\sqrt{15}}{36} & 0 \\ \frac{\sqrt{30}}{9} & 0 & 0 & \frac{\sqrt{15}}{36} & 0 & -\frac{\sqrt{5}}{12} \\ \frac{\sqrt{5}}{12} & 0 & 0 & -\frac{\sqrt{10}}{30} & 0 & 0 \\ 0 & \frac{\sqrt{15}}{36} & -\frac{\sqrt{10}}{30} & 0 & -\frac{\sqrt{30}}{45} & 0 \\ -\frac{\sqrt{15}}{36} & 0 & 0 & -\frac{\sqrt{30}}{45} & 0 & -\frac{\sqrt{10}}{30} \\ 0 & -\frac{\sqrt{5}}{12} & 0 & 0 & -\frac{\sqrt{10}}{30} & 0 \end{bmatrix}$$

$$\boxed{\text{x30}} \quad \mathbb{M}_{1,2}^{(1,1;a)}(T_g) = \begin{bmatrix} 0 & -\frac{\sqrt{30}i}{9} & \frac{\sqrt{5}i}{12} & 0 & \frac{\sqrt{15}i}{36} & 0 \\ \frac{\sqrt{30}i}{9} & 0 & 0 & \frac{\sqrt{15}i}{36} & 0 & \frac{\sqrt{5}i}{12} \\ -\frac{\sqrt{5}i}{12} & 0 & 0 & \frac{\sqrt{10}i}{30} & 0 & 0 \\ 0 & -\frac{\sqrt{15}i}{36} & -\frac{\sqrt{10}i}{30} & 0 & \frac{\sqrt{30}i}{45} & 0 \\ -\frac{\sqrt{15}i}{36} & 0 & 0 & -\frac{\sqrt{30}i}{45} & 0 & \frac{\sqrt{10}i}{30} \\ 0 & -\frac{\sqrt{5}i}{12} & 0 & 0 & -\frac{\sqrt{10}i}{30} & 0 \end{bmatrix}$$

$$\boxed{\text{x31}} \quad \mathbb{M}_{1,3}^{(1,1;a)}(T_g) = \begin{bmatrix} \frac{\sqrt{30}}{9} & 0 & 0 & -\frac{\sqrt{15}}{18} & 0 & 0 \\ 0 & -\frac{\sqrt{30}}{9} & 0 & 0 & -\frac{\sqrt{15}}{18} & 0 \\ 0 & 0 & -\frac{\sqrt{30}}{30} & 0 & 0 & 0 \\ -\frac{\sqrt{15}}{18} & 0 & 0 & -\frac{\sqrt{30}}{90} & 0 & 0 \\ 0 & -\frac{\sqrt{15}}{18} & 0 & 0 & \frac{\sqrt{30}}{90} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{30} \end{bmatrix}$$

$$\boxed{\text{x32}} \quad \mathbb{T}_{2,1}^{(1,0;a)}(E_g) = \begin{bmatrix} 0 & 0 & 0 & \frac{i}{2} & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{i}{2} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{i}{2} & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{i}{2} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x33}} \quad \mathbb{T}_{2,2}^{(1,0;a)}(E_g) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & \frac{i}{2} \\ 0 & 0 & -\frac{i}{2} & 0 & 0 & 0 \\ 0 & \frac{i}{2} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{i}{2} & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x34}} \quad \mathbb{T}_{2,1}^{(1,0;a)}(T_g) = \begin{bmatrix} 0 & 0 & \frac{1}{4} & 0 & \frac{\sqrt{3}}{4} & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{3}}{4} & 0 & -\frac{1}{4} \\ \frac{1}{4} & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{3}}{4} & 0 & 0 & 0 & 0 \\ \frac{\sqrt{3}}{4} & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{1}{4} & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x35}} \quad \mathbb{T}_{2,2}^{(1,0;a)}(T_g) = \begin{bmatrix} 0 & 0 & -\frac{i}{4} & 0 & \frac{\sqrt{3}i}{4} & 0 \\ 0 & 0 & 0 & \frac{\sqrt{3}i}{4} & 0 & -\frac{i}{4} \\ \frac{i}{4} & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{3}i}{4} & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{3}i}{4} & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{i}{4} & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{\text{x36}} \quad \mathbb{T}_{2,3}^{(1,0;a)}(T_g) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & \frac{1}{2} \\ 0 & 0 & \frac{1}{2} & 0 & 0 & 0 \\ 0 & \frac{1}{2} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{1}{2} & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

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Cluster SAMB

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• Site cluster

\*\* Wyckoff: 8b

$$\boxed{\text{y1}} \quad \mathbb{Q}_0^{(s)}(A_g) = \left[ \frac{\sqrt{2}}{4}, \frac{\sqrt{2}}{4}, \frac{\sqrt{2}}{4}, \frac{\sqrt{2}}{4}, \frac{\sqrt{2}}{4}, \frac{\sqrt{2}}{4}, \frac{\sqrt{2}}{4}, \frac{\sqrt{2}}{4} \right]$$

$$\boxed{\text{y2}} \quad \mathbb{Q}_3^{(s)}(A_u) = \left[ \frac{\sqrt{2}}{4}, \frac{\sqrt{2}}{4}, \frac{\sqrt{2}}{4}, \frac{\sqrt{2}}{4}, -\frac{\sqrt{2}}{4}, -\frac{\sqrt{2}}{4}, -\frac{\sqrt{2}}{4}, -\frac{\sqrt{2}}{4} \right]$$

$$\boxed{\text{y3}} \quad \mathbb{Q}_{2,1}^{(s)}(T_g) = \left[ \frac{\sqrt{2}}{4}, -\frac{\sqrt{2}}{4}, -\frac{\sqrt{2}}{4}, \frac{\sqrt{2}}{4}, \frac{\sqrt{2}}{4}, -\frac{\sqrt{2}}{4}, -\frac{\sqrt{2}}{4}, \frac{\sqrt{2}}{4} \right]$$

$$\boxed{\text{y4}} \quad \mathbb{Q}_{2,2}^{(s)}(T_g) = \left[ \frac{\sqrt{2}}{4}, -\frac{\sqrt{2}}{4}, \frac{\sqrt{2}}{4}, -\frac{\sqrt{2}}{4}, \frac{\sqrt{2}}{4}, -\frac{\sqrt{2}}{4}, \frac{\sqrt{2}}{4}, -\frac{\sqrt{2}}{4} \right]$$

$$\boxed{\text{y5}} \quad \mathbb{Q}_{2,3}^{(s)}(T_g) = \left[ \frac{\sqrt{2}}{4}, \frac{\sqrt{2}}{4}, -\frac{\sqrt{2}}{4}, -\frac{\sqrt{2}}{4}, \frac{\sqrt{2}}{4}, \frac{\sqrt{2}}{4}, -\frac{\sqrt{2}}{4}, -\frac{\sqrt{2}}{4} \right]$$

$$\boxed{\text{y6}} \quad \mathbb{Q}_{1,1}^{(s)}(T_u) = \left[ \frac{\sqrt{2}}{4}, -\frac{\sqrt{2}}{4}, -\frac{\sqrt{2}}{4}, \frac{\sqrt{2}}{4}, -\frac{\sqrt{2}}{4}, \frac{\sqrt{2}}{4}, \frac{\sqrt{2}}{4}, -\frac{\sqrt{2}}{4} \right]$$

$$\boxed{\text{y7}} \quad \mathbb{Q}_{1,2}^{(s)}(T_u) = \left[ \frac{\sqrt{2}}{4}, -\frac{\sqrt{2}}{4}, \frac{\sqrt{2}}{4}, -\frac{\sqrt{2}}{4}, -\frac{\sqrt{2}}{4}, \frac{\sqrt{2}}{4}, -\frac{\sqrt{2}}{4}, \frac{\sqrt{2}}{4} \right]$$

$$\boxed{\text{y8}} \quad \mathbb{Q}_{1,3}^{(s)}(T_u) = \left[ \frac{\sqrt{2}}{4}, \frac{\sqrt{2}}{4}, -\frac{\sqrt{2}}{4}, -\frac{\sqrt{2}}{4}, -\frac{\sqrt{2}}{4}, -\frac{\sqrt{2}}{4}, \frac{\sqrt{2}}{4}, \frac{\sqrt{2}}{4} \right]$$

• Bond cluster

\*\* Wyckoff: 12b@12c

$$\boxed{\text{y9}} \quad \mathbb{Q}_0^{(s)}(A_g) = \left[ \frac{\sqrt{3}}{6}, \frac{\sqrt{3}}{6}, \frac{\sqrt{3}}{6}, \frac{\sqrt{3}}{6}, \frac{\sqrt{3}}{6}, \frac{\sqrt{3}}{6}, \frac{\sqrt{3}}{6}, \frac{\sqrt{3}}{6}, \frac{\sqrt{3}}{6}, \frac{\sqrt{3}}{6}, \frac{\sqrt{3}}{6}, \frac{\sqrt{3}}{6} \right]$$

$$\boxed{\text{y10}} \quad \mathbb{T}_3^{(s)}(A_u) = \left[ \frac{\sqrt{3}i}{6}, \frac{\sqrt{3}i}{6}, \frac{\sqrt{3}i}{6}, \frac{\sqrt{3}i}{6}, \frac{\sqrt{3}i}{6}, \frac{\sqrt{3}i}{6}, \frac{\sqrt{3}i}{6}, \frac{\sqrt{3}i}{6}, \frac{\sqrt{3}i}{6}, \frac{\sqrt{3}i}{6}, \frac{\sqrt{3}i}{6}, \frac{\sqrt{3}i}{6} \right]$$

$$\begin{aligned}
\boxed{\text{y11}} \quad \mathbb{Q}_{2,1}^{(s)}(E_g) &= \left[ -\frac{5\sqrt{2778}}{1389}, -\frac{5\sqrt{2778}}{1389}, -\frac{5\sqrt{2778}}{1389}, -\frac{5\sqrt{2778}}{1389}, -\frac{23\sqrt{2778}}{5556}, -\frac{23\sqrt{2778}}{5556}, -\frac{23\sqrt{2778}}{5556}, -\frac{23\sqrt{2778}}{5556}, \frac{43\sqrt{2778}}{5556}, \frac{43\sqrt{2778}}{5556}, \frac{43\sqrt{2778}}{5556}, \frac{43\sqrt{2778}}{5556} \right] \\
\boxed{\text{y12}} \quad \mathbb{Q}_{2,2}^{(s)}(E_g) &= \left[ \frac{11\sqrt{926}}{926}, \frac{11\sqrt{926}}{926}, \frac{11\sqrt{926}}{926}, \frac{11\sqrt{926}}{926}, -\frac{21\sqrt{926}}{1852}, -\frac{21\sqrt{926}}{1852}, -\frac{21\sqrt{926}}{1852}, -\frac{21\sqrt{926}}{1852}, -\frac{\sqrt{926}}{1852}, -\frac{\sqrt{926}}{1852}, -\frac{\sqrt{926}}{1852}, -\frac{\sqrt{926}}{1852} \right] \\
\boxed{\text{y13}} \quad \mathbb{M}_{2,1}^{(s)}(E_u) &= \left[ \frac{11\sqrt{926}i}{926}, \frac{11\sqrt{926}i}{926}, \frac{11\sqrt{926}i}{926}, \frac{11\sqrt{926}i}{926}, -\frac{21\sqrt{926}i}{1852}, -\frac{21\sqrt{926}i}{1852}, -\frac{21\sqrt{926}i}{1852}, -\frac{21\sqrt{926}i}{1852}, -\frac{\sqrt{926}i}{1852}, -\frac{\sqrt{926}i}{1852}, -\frac{\sqrt{926}i}{1852}, -\frac{\sqrt{926}i}{1852} \right] \\
\boxed{\text{y14}} \quad \mathbb{M}_{2,2}^{(s)}(E_u) &= \left[ \frac{5\sqrt{2778}i}{1389}, \frac{5\sqrt{2778}i}{1389}, \frac{5\sqrt{2778}i}{1389}, \frac{5\sqrt{2778}i}{1389}, \frac{23\sqrt{2778}i}{5556}, \frac{23\sqrt{2778}i}{5556}, \frac{23\sqrt{2778}i}{5556}, \frac{23\sqrt{2778}i}{5556}, -\frac{43\sqrt{2778}i}{5556}, -\frac{43\sqrt{2778}i}{5556}, -\frac{43\sqrt{2778}i}{5556}, -\frac{43\sqrt{2778}i}{5556} \right] \\
\boxed{\text{y15}} \quad \mathbb{M}_{1,1}^{(s)}(T_g) &= \left[ 0, 0, 0, 0, \frac{\sqrt{21}i}{14}, \frac{\sqrt{21}i}{14}, -\frac{\sqrt{21}i}{14}, -\frac{\sqrt{21}i}{14}, \frac{\sqrt{7}i}{7}, -\frac{\sqrt{7}i}{7}, \frac{\sqrt{7}i}{7}, -\frac{\sqrt{7}i}{7} \right] \\
\boxed{\text{y16}} \quad \mathbb{M}_{1,2}^{(s)}(T_g) &= \left[ \frac{\sqrt{7}i}{7}, -\frac{\sqrt{7}i}{7}, \frac{\sqrt{7}i}{7}, -\frac{\sqrt{7}i}{7}, 0, 0, 0, 0, \frac{\sqrt{21}i}{14}, \frac{\sqrt{21}i}{14}, -\frac{\sqrt{21}i}{14}, -\frac{\sqrt{21}i}{14} \right] \\
\boxed{\text{y17}} \quad \mathbb{M}_{1,3}^{(s)}(T_g) &= \left[ \frac{\sqrt{21}i}{14}, \frac{\sqrt{21}i}{14}, -\frac{\sqrt{21}i}{14}, -\frac{\sqrt{21}i}{14}, \frac{\sqrt{7}i}{7}, -\frac{\sqrt{7}i}{7}, \frac{\sqrt{7}i}{7}, -\frac{\sqrt{7}i}{7}, 0, 0, 0, 0 \right] \\
\boxed{\text{y18}} \quad \mathbb{Q}_{2,1}^{(s)}(T_g) &= \left[ \frac{1}{2}, -\frac{1}{2}, -\frac{1}{2}, \frac{1}{2}, 0, 0, 0, 0, 0, 0, 0, 0 \right] \\
\boxed{\text{y19}} \quad \mathbb{Q}_{2,2}^{(s)}(T_g) &= \left[ 0, 0, 0, 0, \frac{1}{2}, -\frac{1}{2}, -\frac{1}{2}, \frac{1}{2}, 0, 0, 0, 0 \right] \\
\boxed{\text{y20}} \quad \mathbb{Q}_{2,3}^{(s)}(T_g) &= \left[ 0, 0, 0, 0, 0, 0, 0, 0, \frac{1}{2}, -\frac{1}{2}, -\frac{1}{2}, \frac{1}{2} \right] \\
\boxed{\text{y21}} \quad \mathbb{T}_{2,1}^{(s)}(T_g) &= \left[ 0, 0, 0, 0, \frac{\sqrt{7}i}{7}, \frac{\sqrt{7}i}{7}, -\frac{\sqrt{7}i}{7}, -\frac{\sqrt{7}i}{7}, -\frac{\sqrt{21}i}{14}, \frac{\sqrt{21}i}{14}, -\frac{\sqrt{21}i}{14}, \frac{\sqrt{21}i}{14} \right] \\
\boxed{\text{y22}} \quad \mathbb{T}_{2,2}^{(s)}(T_g) &= \left[ -\frac{\sqrt{21}i}{14}, \frac{\sqrt{21}i}{14}, -\frac{\sqrt{21}i}{14}, \frac{\sqrt{21}i}{14}, 0, 0, 0, 0, \frac{\sqrt{7}i}{7}, \frac{\sqrt{7}i}{7}, -\frac{\sqrt{7}i}{7}, -\frac{\sqrt{7}i}{7} \right] \\
\boxed{\text{y23}} \quad \mathbb{T}_{2,3}^{(s)}(T_g) &= \left[ \frac{\sqrt{7}i}{7}, \frac{\sqrt{7}i}{7}, -\frac{\sqrt{7}i}{7}, -\frac{\sqrt{7}i}{7}, -\frac{\sqrt{21}i}{14}, \frac{\sqrt{21}i}{14}, -\frac{\sqrt{21}i}{14}, \frac{\sqrt{21}i}{14}, 0, 0, 0, 0 \right]
\end{aligned}$$

$$\boxed{\text{y24}} \quad \mathbb{Q}_{1,1}^{(s)}(T_u) = \left[ 0, 0, 0, 0, \frac{\sqrt{7}}{7}, \frac{\sqrt{7}}{7}, -\frac{\sqrt{7}}{7}, -\frac{\sqrt{7}}{7}, \frac{\sqrt{21}}{14}, -\frac{\sqrt{21}}{14}, \frac{\sqrt{21}}{14}, -\frac{\sqrt{21}}{14} \right]$$

$$\boxed{\text{y25}} \quad \mathbb{Q}_{1,2}^{(s)}(T_u) = \left[ \frac{\sqrt{21}}{14}, -\frac{\sqrt{21}}{14}, \frac{\sqrt{21}}{14}, -\frac{\sqrt{21}}{14}, 0, 0, 0, 0, \frac{\sqrt{7}}{7}, \frac{\sqrt{7}}{7}, -\frac{\sqrt{7}}{7}, -\frac{\sqrt{7}}{7} \right]$$

$$\boxed{\text{y26}} \quad \mathbb{Q}_{1,3}^{(s)}(T_u) = \left[ \frac{\sqrt{7}}{7}, \frac{\sqrt{7}}{7}, -\frac{\sqrt{7}}{7}, -\frac{\sqrt{7}}{7}, \frac{\sqrt{21}}{14}, -\frac{\sqrt{21}}{14}, \frac{\sqrt{21}}{14}, -\frac{\sqrt{21}}{14}, 0, 0, 0, 0 \right]$$

$$\boxed{\text{y27}} \quad \mathbb{T}_{1,1}^{(s)}(T_u) = \left[ \frac{i}{2}, -\frac{i}{2}, -\frac{i}{2}, \frac{i}{2}, 0, 0, 0, 0, 0, 0, 0, 0 \right]$$

$$\boxed{\text{y28}} \quad \mathbb{T}_{1,2}^{(s)}(T_u) = \left[ 0, 0, 0, 0, \frac{i}{2}, -\frac{i}{2}, -\frac{i}{2}, \frac{i}{2}, 0, 0, 0, 0 \right]$$

$$\boxed{\text{y29}} \quad \mathbb{T}_{1,3}^{(s)}(T_u) = \left[ 0, 0, 0, 0, 0, 0, 0, 0, \frac{i}{2}, -\frac{i}{2}, -\frac{i}{2}, \frac{i}{2} \right]$$

$$\boxed{\text{y30}} \quad \mathbb{Q}_{3,1}^{(s)}(T_u, 1) = \left[ 0, 0, 0, 0, \frac{\sqrt{21}}{14}, \frac{\sqrt{21}}{14}, -\frac{\sqrt{21}}{14}, -\frac{\sqrt{21}}{14}, -\frac{\sqrt{7}}{7}, \frac{\sqrt{7}}{7}, -\frac{\sqrt{7}}{7}, \frac{\sqrt{7}}{7} \right]$$

$$\boxed{\text{y31}} \quad \mathbb{Q}_{3,2}^{(s)}(T_u, 1) = \left[ -\frac{\sqrt{7}}{7}, \frac{\sqrt{7}}{7}, -\frac{\sqrt{7}}{7}, \frac{\sqrt{7}}{7}, 0, 0, 0, 0, \frac{\sqrt{21}}{14}, \frac{\sqrt{21}}{14}, -\frac{\sqrt{21}}{14}, -\frac{\sqrt{21}}{14} \right]$$

$$\boxed{\text{y32}} \quad \mathbb{Q}_{3,3}^{(s)}(T_u, 1) = \left[ \frac{\sqrt{21}}{14}, \frac{\sqrt{21}}{14}, -\frac{\sqrt{21}}{14}, -\frac{\sqrt{21}}{14}, -\frac{\sqrt{7}}{7}, \frac{\sqrt{7}}{7}, -\frac{\sqrt{7}}{7}, \frac{\sqrt{7}}{7}, 0, 0, 0, 0 \right]$$

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**Site and Bond**

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Table 4: Orbital of each site

#	site	orbital
1	<b>A</b>	$ \frac{1}{2}, \frac{1}{2}; p\rangle,  \frac{1}{2}, -\frac{1}{2}; p\rangle,  \frac{3}{2}, \frac{3}{2}; p\rangle,  \frac{3}{2}, \frac{1}{2}; p\rangle,  \frac{3}{2}, -\frac{1}{2}; p\rangle,  \frac{3}{2}, -\frac{3}{2}; p\rangle$

Table 5: Neighbor and bra-ket of each bond

#	head	tail	neighbor	head (bra)	tail (ket)
1	A	A	[1]	[p]	[p]

## Site in Unit Cell

Sites in (conventional) cell (no plus set), SL = sublattice

Table 6: 'A' (#1) site cluster (8b), .3.

SL	position ( <b>s</b> )	mapping
1	[ 1.00000, 1.00000, 1.00000]	[1,5,9]
2	[-1.00000,-1.00000, 1.00000]	[2,7,12]
3	[-1.00000, 1.00000,-1.00000]	[3,8,10]
4	[ 1.00000,-1.00000,-1.00000]	[4,6,11]
5	[-1.00000,-1.00000,-1.00000]	[13,17,21]
6	[ 1.00000, 1.00000,-1.00000]	[14,19,24]
7	[ 1.00000,-1.00000, 1.00000]	[15,20,22]
8	[-1.00000, 1.00000, 1.00000]	[16,18,23]

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 'A'-'A' [1] (#1) bond cluster (12b@12c), ND,  $|\mathbf{v}|=2.0$  (cartesian)

SL	vector ( $\mathbf{v}$ )	center ( $\mathbf{c}$ )	mapping	head	tail	$\mathbf{R}$ (primitive)
1	[-2.00000, 0.00000, 0.00000]	[ 0.00000, 1.00000, 1.00000]	[1,-16]	(8,1)	(1,1)	[0,0,0]
2	[ 2.00000, 0.00000, 0.00000]	[ 0.00000,-1.00000, 1.00000]	[2,-15]	(7,1)	(2,1)	[0,0,0]
3	[ 2.00000, 0.00000, 0.00000]	[ 0.00000, 1.00000,-1.00000]	[3,-14]	(6,1)	(3,1)	[0,0,0]
4	[-2.00000, 0.00000, 0.00000]	[ 0.00000,-1.00000,-1.00000]	[4,-13]	(5,1)	(4,1)	[0,0,0]
5	[ 0.00000,-2.00000, 0.00000]	[ 1.00000, 0.00000, 1.00000]	[5,-20]	(7,1)	(1,1)	[0,0,0]
6	[ 0.00000, 2.00000, 0.00000]	[ 1.00000, 0.00000,-1.00000]	[6,-19]	(6,1)	(4,1)	[0,0,0]
7	[ 0.00000, 2.00000, 0.00000]	[-1.00000, 0.00000, 1.00000]	[7,-18]	(8,1)	(2,1)	[0,0,0]
8	[ 0.00000,-2.00000, 0.00000]	[-1.00000, 0.00000,-1.00000]	[8,-17]	(5,1)	(3,1)	[0,0,0]
9	[ 0.00000, 0.00000,-2.00000]	[ 1.00000, 1.00000, 0.00000]	[9,-24]	(6,1)	(1,1)	[0,0,0]
10	[ 0.00000, 0.00000, 2.00000]	[-1.00000, 1.00000, 0.00000]	[10,-23]	(8,1)	(3,1)	[0,0,0]
11	[ 0.00000, 0.00000, 2.00000]	[ 1.00000,-1.00000, 0.00000]	[11,-22]	(7,1)	(4,1)	[0,0,0]
12	[ 0.00000, 0.00000,-2.00000]	[-1.00000,-1.00000, 0.00000]	[12,-21]	(5,1)	(2,1)	[0,0,0]