

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.: [A_g , E_g , T_g , A_u , E_u , T_u]
 - Spin (s): [0, 1]
- Max. neighbor: 10
- Search cell range: (-2, 3), (-2, 3), (-2, 3)
- Toroidal priority: false

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):
 $a_1 = [1.00000, 0.00000, 0.00000]$
 $a_2 = [0.00000, 1.00000, 0.00000]$
 $a_3 = [0.00000, 0.00000, 1.00000]$

Symmetry Operation

Table 1: Symmetry operation

	# SO	# SO	# SO	# SO	# SO
1	1	2 2 ₀₀₁	3 2 ₀₁₀	4 2 ₁₀₀	5 3 ₁₁₁ ⁺
6	3 ₋₁₁₋₁ ⁺	7 3 ₁₋₁₋₁ ⁺	8 3 ₋₁₋₁₁ ⁺	9 3 ₁₁₁ ⁻	10 3 ₁₋₁₋₁ ⁻

continued ...

Table 1

#	SO	#	SO	#	SO	#	SO	#	SO
11	3^-_{-1-11}	12	3^-_{-11-1}	13	-1	14	m_{001}	15	m_{010}
16	m_{100}	17	-3^+_{111}	18	-3^+_{-11-1}	19	-3^+_{1-1-1}	20	-3^+_{-1-11}
21	-3^-_{111}	22	-3^-_{1-1-1}	23	-3^-_{-1-11}	24	-3^-_{-11-1}		

— Harmonics —

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	-	-	$\sqrt{15}xyz$
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	$-\frac{\sqrt{15}(x^4 - 12x^2y^2 + 6x^2z^2 + y^4 + 6y^2z^2 - 2z^4)}{12}$

continued ...

Table 2

#	symbol	irrep.	rank	X	multiplicity	component	symmetry
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	$\frac{\sqrt{15}x(y-z)(y+z)}{2}$
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	$-\frac{\sqrt{35}xz(x-z)(x+z)}{2}$

continued ...

Table 2

#	symbol	irrep.	rank	X	multiplicity	component	symmetry
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	$\frac{\sqrt{35}yz(y-z)(y+z)}{2}$
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	$-\frac{\sqrt{5}xz(x^2-6y^2+z^2)}{2}$

continued ...

Table 2

#	symbol	irrep.	rank	X	multiplicity	component	symmetry
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)								
1	$ \frac{1}{2}, \frac{1}{2}; p\rangle @A(1)$	2	$ \frac{1}{2}, -\frac{1}{2}; p\rangle @A(1)$	3	$ \frac{3}{2}, \frac{3}{2}; p\rangle @A(1)$	4	$ \frac{3}{2}, \frac{1}{2}; p\rangle @A(1)$	5	$ \frac{3}{2}, -\frac{1}{2}; p\rangle @A(1)$
6	$ \frac{3}{2}, -\frac{3}{2}; p\rangle @A(1)$	7	$ \frac{1}{2}, \frac{1}{2}; p\rangle @A(2)$	8	$ \frac{1}{2}, -\frac{1}{2}; p\rangle @A(2)$	9	$ \frac{3}{2}, \frac{3}{2}; p\rangle @A(2)$	10	$ \frac{3}{2}, \frac{1}{2}; p\rangle @A(2)$
11	$ \frac{3}{2}, -\frac{1}{2}; p\rangle @A(2)$	12	$ \frac{3}{2}, -\frac{3}{2}; p\rangle @A(2)$	13	$ \frac{1}{2}, \frac{1}{2}; p\rangle @A(3)$	14	$ \frac{1}{2}, -\frac{1}{2}; p\rangle @A(3)$	15	$ \frac{3}{2}, \frac{3}{2}; p\rangle @A(3)$
16	$ \frac{3}{2}, \frac{1}{2}; p\rangle @A(3)$	17	$ \frac{3}{2}, -\frac{1}{2}; p\rangle @A(3)$	18	$ \frac{3}{2}, -\frac{3}{2}; p\rangle @A(3)$	19	$ \frac{1}{2}, \frac{1}{2}; p\rangle @A(4)$	20	$ \frac{1}{2}, -\frac{1}{2}; p\rangle @A(4)$
21	$ \frac{3}{2}, \frac{3}{2}; p\rangle @A(4)$	22	$ \frac{3}{2}, \frac{1}{2}; p\rangle @A(4)$	23	$ \frac{3}{2}, -\frac{1}{2}; p\rangle @A(4)$	24	$ \frac{3}{2}, -\frac{3}{2}; p\rangle @A(4)$	25	$ \frac{1}{2}, \frac{1}{2}; p\rangle @A(5)$
26	$ \frac{1}{2}, -\frac{1}{2}; p\rangle @A(5)$	27	$ \frac{3}{2}, \frac{3}{2}; p\rangle @A(5)$	28	$ \frac{3}{2}, \frac{1}{2}; p\rangle @A(5)$	29	$ \frac{3}{2}, -\frac{1}{2}; p\rangle @A(5)$	30	$ \frac{3}{2}, -\frac{3}{2}; p\rangle @A(5)$
31	$ \frac{1}{2}, \frac{1}{2}; p\rangle @A(6)$	32	$ \frac{1}{2}, -\frac{1}{2}; p\rangle @A(6)$	33	$ \frac{3}{2}, \frac{3}{2}; p\rangle @A(6)$	34	$ \frac{3}{2}, \frac{1}{2}; p\rangle @A(6)$	35	$ \frac{3}{2}, -\frac{1}{2}; p\rangle @A(6)$
36	$ \frac{3}{2}, -\frac{3}{2}; p\rangle @A(6)$	37	$ \frac{1}{2}, \frac{1}{2}; p\rangle @A(7)$	38	$ \frac{1}{2}, -\frac{1}{2}; p\rangle @A(7)$	39	$ \frac{3}{2}, \frac{3}{2}; p\rangle @A(7)$	40	$ \frac{3}{2}, \frac{1}{2}; p\rangle @A(7)$
41	$ \frac{3}{2}, -\frac{1}{2}; p\rangle @A(7)$	42	$ \frac{3}{2}, -\frac{3}{2}; p\rangle @A(7)$	43	$ \frac{1}{2}, \frac{1}{2}; p\rangle @A(8)$	44	$ \frac{1}{2}, -\frac{1}{2}; p\rangle @A(8)$	45	$ \frac{3}{2}, \frac{3}{2}; p\rangle @A(8)$

continued ...

Table 3

#	orbital@atom(SL)	#	orbital@atom(SL)	#	orbital@atom(SL)	#	orbital@atom(SL)	#	orbital@atom(SL)
46	$ \frac{3}{2}, \frac{1}{2}; p\rangle @A(8)$	47	$ \frac{3}{2}, -\frac{1}{2}; p\rangle @A(8)$	48	$ \frac{3}{2}, -\frac{3}{2}; p\rangle @A(8)$				

— SAMB —

230 (all 552) SAMBs

- 'A' site-cluster

- * 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

[z1] $\mathbb{Q}_0^{(c)}(A_g, a) = \mathbb{Q}_0^{(a)}(A_g)\mathbb{Q}_0^{(s)}(A_g)$

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

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

[z4] $\mathbb{Q}_0^{(1,1;c)}(A_g) = \mathbb{Q}_0^{(1,1;a)}(A_g)\mathbb{Q}_0^{(s)}(A_g)$

[z5] $\mathbb{Q}_3^{(c)}(A_u, a) = \mathbb{Q}_0^{(a)}(A_g)\mathbb{Q}_3^{(s)}(A_u)$

[z27] $\mathbb{Q}_3^{(c)}(A_u, b) = \frac{\sqrt{3}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{1,1}^{(s)}(T_u)}{3} + \frac{\sqrt{3}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{1,2}^{(s)}(T_u)}{3} + \frac{\sqrt{3}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{1,3}^{(s)}(T_u)}{3}$

[z28] $\mathbb{Q}_3^{(1,-1;c)}(A_u) = \frac{\sqrt{3}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,1}^{(s)}(T_u)}{3} + \frac{\sqrt{3}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,2}^{(s)}(T_u)}{3} + \frac{\sqrt{3}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,3}^{(s)}(T_u)}{3}$

[z29] $\mathbb{Q}_3^{(1,1;c)}(A_u) = \mathbb{Q}_0^{(1,1;a)}(A_g)\mathbb{Q}_3^{(s)}(A_u)$

$$\boxed{\text{z30}} \quad \mathbb{Q}_{2,1}^{(c)}(E_g, a) = \frac{\sqrt{2}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_0^{(s)}(A_g)}{2}$$

$$\boxed{\text{z31}} \quad \mathbb{Q}_{2,2}^{(c)}(E_g, a) = \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_0^{(s)}(A_g)}{2}$$

$$\boxed{\text{z32}} \quad \mathbb{Q}_{2,1}^{(c)}(E_g, b) = \frac{\sqrt{3}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{2,1}^{(s)}(T_g)}{6} + \frac{\sqrt{3}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{2,2}^{(s)}(T_g)}{6} - \frac{\sqrt{3}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{2,3}^{(s)}(T_g)}{3}$$

$$\boxed{\text{z33}} \quad \mathbb{Q}_{2,2}^{(c)}(E_g, b) = -\frac{\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{2,1}^{(s)}(T_g)}{2} + \frac{\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{2,2}^{(s)}(T_g)}{2}$$

$$\boxed{\text{z34}} \quad \mathbb{Q}_{2,1}^{(1,-1;c)}(E_g, a) = \frac{\sqrt{2}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_0^{(s)}(A_g)}{2}$$

$$\boxed{\text{z35}} \quad \mathbb{Q}_{2,2}^{(1,-1;c)}(E_g, a) = \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_0^{(s)}(A_g)}{2}$$

$$\boxed{\text{z36}} \quad \mathbb{Q}_{2,1}^{(1,-1;c)}(E_g, b) = \frac{\sqrt{3}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,1}^{(s)}(T_g)}{6} + \frac{\sqrt{3}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,2}^{(s)}(T_g)}{6} - \frac{\sqrt{3}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,3}^{(s)}(T_g)}{3}$$

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

$$\boxed{\text{z80}} \quad \mathbb{Q}_{2,1}^{(1,0;c)}(E_g) = \frac{\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{2,1}^{(s)}(T_g)}{2} - \frac{\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{2,2}^{(s)}(T_g)}{2}$$

$$\boxed{\text{z81}} \quad \mathbb{Q}_{2,2}^{(1,0;c)}(E_g) = \frac{\sqrt{3}\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{2,1}^{(s)}(T_g)}{6} + \frac{\sqrt{3}\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{2,2}^{(s)}(T_g)}{6} - \frac{\sqrt{3}\mathbb{G}_{1,3}^{(1,0;a)}(T_g)\mathbb{Q}_{2,3}^{(s)}(T_g)}{3}$$

$$\boxed{\text{z82}} \quad \mathbb{Q}_{5,1}^{(c)}(E_u) = \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_3^{(s)}(A_u)}{2}$$

$$\boxed{\text{z83}} \quad \mathbb{Q}_{5,2}^{(c)}(E_u) = -\frac{\sqrt{2}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_3^{(s)}(A_u)}{2}$$

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

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

$$\boxed{\text{z86}} \quad \mathbb{Q}_{2,1}^{(c)}(T_g, a) = \frac{\sqrt{3}\mathbb{Q}_0^{(a)}(A_g)\mathbb{Q}_{2,1}^{(s)}(T_g)}{3}$$

$$\boxed{\text{z87}} \quad \mathbb{Q}_{2,2}^{(c)}(T_g, a) = \frac{\sqrt{3}\mathbb{Q}_0^{(a)}(A_g)\mathbb{Q}_{2,2}^{(s)}(T_g)}{3}$$

$$\boxed{\text{z88}} \quad \mathbb{Q}_{2,3}^{(c)}(T_g, a) = \frac{\sqrt{3}\mathbb{Q}_0^{(a)}(A_g)\mathbb{Q}_{2,3}^{(s)}(T_g)}{3}$$

$$\boxed{\text{z89}} \quad \mathbb{Q}_{2,1}^{(c)}(T_g, b) = \frac{\sqrt{3}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_0^{(s)}(A_g)}{3}$$

$$\boxed{\text{z90}} \quad \mathbb{Q}_{2,2}^{(c)}(T_g, b) = \frac{\sqrt{3}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_0^{(s)}(A_g)}{3}$$

$$\boxed{\text{z91}} \quad \mathbb{Q}_{2,3}^{(c)}(T_g, b) = \frac{\sqrt{3}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_0^{(s)}(A_g)}{3}$$

$$\boxed{\text{z92}} \quad \mathbb{Q}_{2,1}^{(c)}(T_g, c) = \frac{\sqrt{30}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{2,1}^{(s)}(T_g)}{30} - \frac{\sqrt{10}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{2,1}^{(s)}(T_g)}{10} + \frac{\sqrt{10}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{2,3}^{(s)}(T_g)}{10} + \frac{\sqrt{10}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{2,2}^{(s)}(T_g)}{10}$$

$$\boxed{\text{z93}} \quad \mathbb{Q}_{2,2}^{(c)}(T_g, c) = \frac{\sqrt{30}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{2,2}^{(s)}(T_g)}{30} + \frac{\sqrt{10}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{2,3}^{(s)}(T_g)}{10} + \frac{\sqrt{10}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{2,2}^{(s)}(T_g)}{10} + \frac{\sqrt{10}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{2,1}^{(s)}(T_g)}{10}$$

$$\boxed{\text{z94}} \quad \mathbb{Q}_{2,3}^{(c)}(T_g, c) = -\frac{\sqrt{30}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{2,3}^{(s)}(T_g)}{15} + \frac{\sqrt{10}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{2,2}^{(s)}(T_g)}{10} + \frac{\sqrt{10}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{2,1}^{(s)}(T_g)}{10}$$

$$\boxed{\text{z95}} \quad \mathbb{Q}_{4,1}^{(c)}(T_g, 1) = -\frac{\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{2,1}^{(s)}(T_g)}{2} - \frac{\sqrt{3}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{2,1}^{(s)}(T_g)}{6}$$

$$\boxed{\text{z96}} \quad \mathbb{Q}_{4,2}^{(c)}(T_g, 1) = \frac{\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{2,2}^{(s)}(T_g)}{2} - \frac{\sqrt{3}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{2,2}^{(s)}(T_g)}{6}$$

$$\boxed{\text{z97}} \quad \mathbb{Q}_{4,3}^{(c)}(T_g, 1) = \frac{\sqrt{3}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{2,3}^{(s)}(T_g)}{3}$$

$$\boxed{\text{z98}} \quad \mathbb{Q}_{4,1}^{(c)}(T_g, 2) = -\frac{\sqrt{5}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{2,1}^{(s)}(T_g)}{10} + \frac{\sqrt{15}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{2,1}^{(s)}(T_g)}{10} + \frac{\sqrt{15}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{2,3}^{(s)}(T_g)}{15} + \frac{\sqrt{15}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{2,2}^{(s)}(T_g)}{15}$$

$$\boxed{\text{z99}} \quad \mathbb{Q}_{4,2}^{(c)}(T_g, 2) = -\frac{\sqrt{5}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{2,2}^{(s)}(T_g)}{10} + \frac{\sqrt{15}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{2,3}^{(s)}(T_g)}{15} - \frac{\sqrt{15}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{2,2}^{(s)}(T_g)}{10} + \frac{\sqrt{15}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{2,1}^{(s)}(T_g)}{15}$$

$$\boxed{\text{z100}} \quad \mathbb{Q}_{4,3}^{(c)}(T_g, 2) = \frac{\sqrt{5}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{2,3}^{(s)}(T_g)}{5} + \frac{\sqrt{15}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{2,2}^{(s)}(T_g)}{15} + \frac{\sqrt{15}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{2,1}^{(s)}(T_g)}{15}$$

$$\boxed{\text{z101}} \quad \mathbb{Q}_{2,1}^{(1,-1;c)}(T_g, a) = \frac{\sqrt{3}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_0^{(s)}(A_g)}{3}$$

$$\boxed{\text{z102}} \quad \mathbb{Q}_{2,2}^{(1,-1;c)}(T_g, a) = \frac{\sqrt{3}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_0^{(s)}(A_g)}{3}$$

$$\boxed{\text{z103}} \quad \mathbb{Q}_{2,3}^{(1,-1;c)}(T_g, a) = \frac{\sqrt{3}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_0^{(s)}(A_g)}{3}$$

$$\boxed{\text{z104}} \quad \mathbb{Q}_{2,1}^{(1,-1;c)}(T_g, b) = \frac{\sqrt{30}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,1}^{(s)}(T_g)}{30} - \frac{\sqrt{10}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,1}^{(s)}(T_g)}{10} + \frac{\sqrt{10}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,3}^{(s)}(T_g)}{10} + \frac{\sqrt{10}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,2}^{(s)}(T_g)}{10}$$

$$\boxed{\text{z105}} \quad \mathbb{Q}_{2,2}^{(1,-1;c)}(T_g, b) = \frac{\sqrt{30}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,2}^{(s)}(T_g)}{30} + \frac{\sqrt{10}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,3}^{(s)}(T_g)}{10} + \frac{\sqrt{10}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,2}^{(s)}(T_g)}{10} + \frac{\sqrt{10}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,1}^{(s)}(T_g)}{10}$$

$$\boxed{\text{z106}} \quad \mathbb{Q}_{2,3}^{(1,-1;c)}(T_g, b) = -\frac{\sqrt{30}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,3}^{(s)}(T_g)}{15} + \frac{\sqrt{10}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,2}^{(s)}(T_g)}{10} + \frac{\sqrt{10}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,1}^{(s)}(T_g)}{10}$$

$$\boxed{\text{z107}} \quad \mathbb{Q}_{4,1}^{(1,-1;c)}(T_g, 1) = -\frac{\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,1}^{(s)}(T_g)}{2} - \frac{\sqrt{3}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,1}^{(s)}(T_g)}{6}$$

$$\boxed{\text{z108}} \quad \mathbb{Q}_{4,2}^{(1,-1;c)}(T_g, 1) = \frac{\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,2}^{(s)}(T_g)}{2} - \frac{\sqrt{3}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,2}^{(s)}(T_g)}{6}$$

$$\boxed{\text{z109}} \quad \mathbb{Q}_{4,3}^{(1,-1;c)}(T_g, 1) = \frac{\sqrt{3}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,3}^{(s)}(T_g)}{3}$$

$$\boxed{\text{z110}} \quad \mathbb{Q}_{4,1}^{(1,-1;c)}(T_g, 2) = -\frac{\sqrt{5}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,1}^{(s)}(T_g)}{10} + \frac{\sqrt{15}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,1}^{(s)}(T_g)}{10} + \frac{\sqrt{15}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,3}^{(s)}(T_g)}{15} + \frac{\sqrt{15}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,2}^{(s)}(T_g)}{15}$$

$$\boxed{\text{z111}} \quad \mathbb{Q}_{4,2}^{(1,-1;c)}(T_g, 2) = -\frac{\sqrt{5}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,2}^{(s)}(T_g)}{10} + \frac{\sqrt{15}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,3}^{(s)}(T_g)}{15} - \frac{\sqrt{15}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,2}^{(s)}(T_g)}{10} + \frac{\sqrt{15}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,1}^{(s)}(T_g)}{15}$$

$$\boxed{\text{z112}} \quad \mathbb{Q}_{4,3}^{(1,-1;c)}(T_g, 2) = \frac{\sqrt{5}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,3}^{(s)}(T_g)}{5} + \frac{\sqrt{15}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,2}^{(s)}(T_g)}{15} + \frac{\sqrt{15}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,1}^{(s)}(T_g)}{15}$$

$$\boxed{\text{z113}} \quad \mathbb{Q}_{2,1}^{(1,0;c)}(T_g) = -\frac{\sqrt{6}\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{2,3}^{(s)}(T_g)}{6} + \frac{\sqrt{6}\mathbb{G}_{1,3}^{(1,0;a)}(T_g)\mathbb{Q}_{2,2}^{(s)}(T_g)}{6}$$

$$\boxed{\text{z114}} \quad \mathbb{Q}_{2,2}^{(1,0;c)}(T_g) = \frac{\sqrt{6}\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{2,3}^{(s)}(T_g)}{6} - \frac{\sqrt{6}\mathbb{G}_{1,3}^{(1,0;a)}(T_g)\mathbb{Q}_{2,1}^{(s)}(T_g)}{6}$$

$$\boxed{\text{z115}} \quad \mathbb{Q}_{2,3}^{(1,0;c)}(T_g) = -\frac{\sqrt{6}\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{2,2}^{(s)}(T_g)}{6} + \frac{\sqrt{6}\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{2,1}^{(s)}(T_g)}{6}$$

$$\boxed{\text{z116}} \quad \mathbb{Q}_{2,1}^{(1,1;c)}(T_g) = \frac{\sqrt{3}\mathbb{Q}_0^{(1,1;a)}(A_g)\mathbb{Q}_{2,1}^{(s)}(T_g)}{3}$$

$$\boxed{\text{z117}} \quad \mathbb{Q}_{2,2}^{(1,1;c)}(T_g) = \frac{\sqrt{3}\mathbb{Q}_0^{(1,1;a)}(A_g)\mathbb{Q}_{2,2}^{(s)}(T_g)}{3}$$

$$\boxed{\text{z118}} \quad \mathbb{Q}_{2,3}^{(1,1;c)}(T_g) = \frac{\sqrt{3}\mathbb{Q}_0^{(1,1;a)}(A_g)\mathbb{Q}_{2,3}^{(s)}(T_g)}{3}$$

$$\boxed{\text{z119}} \quad \mathbb{Q}_{1,1}^{(c)}(T_u, a) = \frac{\sqrt{3}\mathbb{Q}_0^{(a)}(A_g)\mathbb{Q}_{1,1}^{(s)}(T_u)}{3}$$

$$\boxed{\text{z120}} \quad \mathbb{Q}_{1,2}^{(c)}(T_u, a) = \frac{\sqrt{3}\mathbb{Q}_0^{(a)}(A_g)\mathbb{Q}_{1,2}^{(s)}(T_u)}{3}$$

$$\boxed{\text{z121}} \quad \mathbb{Q}_{1,3}^{(c)}(T_u, a) = \frac{\sqrt{3}\mathbb{Q}_0^{(a)}(A_g)\mathbb{Q}_{1,3}^{(s)}(T_u)}{3}$$

$$\boxed{\text{z122}} \quad \mathbb{Q}_{1,1}^{(c)}(T_u, b) = \frac{\sqrt{3}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_3^{(s)}(A_u)}{3}$$

$$\boxed{\text{z123}} \quad \mathbb{Q}_{1,2}^{(c)}(T_u, b) = \frac{\sqrt{3}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_3^{(s)}(A_u)}{3}$$

$$\boxed{\text{z277}} \quad \mathbb{Q}_{1,3}^{(c)}(T_u, b) = \frac{\sqrt{3}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_3^{(s)}(A_u)}{3}$$

$$\boxed{\text{z278}} \quad \mathbb{Q}_{1,1}^{(c)}(T_u, c) = -\frac{\sqrt{30}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{1,1}^{(s)}(T_u)}{30} + \frac{\sqrt{10}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{1,1}^{(s)}(T_u)}{10} + \frac{\sqrt{10}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{1,3}^{(s)}(T_u)}{10} + \frac{\sqrt{10}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{1,2}^{(s)}(T_u)}{10}$$

$$\boxed{\text{z279}} \quad \mathbb{Q}_{1,2}^{(c)}(T_u, c) = -\frac{\sqrt{30}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{1,2}^{(s)}(T_u)}{30} + \frac{\sqrt{10}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{1,3}^{(s)}(T_u)}{10} - \frac{\sqrt{10}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{1,2}^{(s)}(T_u)}{10} + \frac{\sqrt{10}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{1,1}^{(s)}(T_u)}{10}$$

$$\boxed{\text{z280}} \quad \mathbb{Q}_{1,3}^{(c)}(T_u, c) = \frac{\sqrt{30}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{1,3}^{(s)}(T_u)}{15} + \frac{\sqrt{10}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{1,2}^{(s)}(T_u)}{10} + \frac{\sqrt{10}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{1,1}^{(s)}(T_u)}{10}$$

$$\boxed{\text{z281}} \quad \mathbb{Q}_{3,1}^{(c)}(T_u, 1) = -\frac{\sqrt{5}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{1,1}^{(s)}(T_u)}{10} + \frac{\sqrt{15}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{1,1}^{(s)}(T_u)}{10} - \frac{\sqrt{15}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{1,3}^{(s)}(T_u)}{15} - \frac{\sqrt{15}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{1,2}^{(s)}(T_u)}{15}$$

$$\boxed{\text{z297}} \quad \mathbb{Q}_{3,2}^{(c)}(T_u, 1) = -\frac{\sqrt{5}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{1,2}^{(s)}(T_u)}{10} - \frac{\sqrt{15}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{1,3}^{(s)}(T_u)}{15} - \frac{\sqrt{15}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{1,2}^{(s)}(T_u)}{10} - \frac{\sqrt{15}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{1,1}^{(s)}(T_u)}{15}$$

$$\boxed{\text{z298}} \quad \mathbb{Q}_{3,3}^{(c)}(T_u, 1) = \frac{\sqrt{5}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{1,3}^{(s)}(T_u)}{5} - \frac{\sqrt{15}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{1,2}^{(s)}(T_u)}{15} - \frac{\sqrt{15}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{1,1}^{(s)}(T_u)}{15}$$

$$\boxed{\text{z299}} \quad \mathbb{Q}_{3,1}^{(c)}(T_u, 2) = -\frac{\sqrt{3}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{1,1}^{(s)}(T_u)}{6} - \frac{\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{1,1}^{(s)}(T_u)}{6} - \frac{\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{1,3}^{(s)}(T_u)}{3} + \frac{\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{1,2}^{(s)}(T_u)}{3}$$

$$\boxed{\text{z300}} \quad \mathbb{Q}_{3,2}^{(c)}(T_u, 2) = \frac{\sqrt{3}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{1,2}^{(s)}(T_u)}{6} + \frac{\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{1,3}^{(s)}(T_u)}{3} - \frac{\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{1,2}^{(s)}(T_u)}{6} - \frac{\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{1,1}^{(s)}(T_u)}{3}$$

$$\boxed{\text{z301}} \quad \mathbb{Q}_{3,3}^{(c)}(T_u, 2) = -\frac{\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{1,2}^{(s)}(T_u)}{3} + \frac{\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{1,3}^{(s)}(T_u)}{3} + \frac{\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{1,1}^{(s)}(T_u)}{3}$$

$$\boxed{\text{z302}} \quad \mathbb{Q}_{1,1}^{(1,-1;c)}(T_u, a) = \frac{\sqrt{3}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_3^{(s)}(A_u)}{3}$$

$$\boxed{\text{z303}} \quad \mathbb{Q}_{1,2}^{(1,-1;c)}(T_u, a) = \frac{\sqrt{3}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_3^{(s)}(A_u)}{3}$$

$$\boxed{\text{z304}} \quad \mathbb{Q}_{1,3}^{(1,-1;c)}(T_u, a) = \frac{\sqrt{3}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_3^{(s)}(A_u)}{3}$$

$$\boxed{\text{z305}} \quad \mathbb{Q}_{1,1}^{(1,-1;c)}(T_u, b) = -\frac{\sqrt{30}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{1,1}^{(s)}(T_u)}{30} + \frac{\sqrt{10}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{1,1}^{(s)}(T_u)}{10} + \frac{\sqrt{10}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,3}^{(s)}(T_u)}{10} + \frac{\sqrt{10}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,2}^{(s)}(T_u)}{10}$$

$$\boxed{\text{z306}} \quad \mathbb{Q}_{1,2}^{(1,-1;c)}(T_u, b) = -\frac{\sqrt{30}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{1,2}^{(s)}(T_u)}{30} + \frac{\sqrt{10}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,3}^{(s)}(T_u)}{10} - \frac{\sqrt{10}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{1,2}^{(s)}(T_u)}{10} + \frac{\sqrt{10}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,1}^{(s)}(T_u)}{10}$$

$$\boxed{\text{z337}} \quad \mathbb{Q}_{1,3}^{(1,-1;c)}(T_u, b) = \frac{\sqrt{30}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{1,3}^{(s)}(T_u)}{15} + \frac{\sqrt{10}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,2}^{(s)}(T_u)}{10} + \frac{\sqrt{10}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,1}^{(s)}(T_u)}{10}$$

$$\boxed{\text{z338}} \quad \mathbb{Q}_{3,1}^{(1,-1;c)}(T_u, 1) = -\frac{\sqrt{5}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{1,1}^{(s)}(T_u)}{10} + \frac{\sqrt{15}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{1,1}^{(s)}(T_u)}{10} - \frac{\sqrt{15}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,3}^{(s)}(T_u)}{15} - \frac{\sqrt{15}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,2}^{(s)}(T_u)}{15}$$

$$\boxed{\text{z339}} \quad \mathbb{Q}_{3,2}^{(1,-1;c)}(T_u, 1) = -\frac{\sqrt{5}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{1,2}^{(s)}(T_u)}{10} - \frac{\sqrt{15}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,3}^{(s)}(T_u)}{15} - \frac{\sqrt{15}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{1,2}^{(s)}(T_u)}{10} - \frac{\sqrt{15}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,1}^{(s)}(T_u)}{15}$$

$$\boxed{\text{z340}} \quad \mathbb{Q}_{3,3}^{(1,-1;c)}(T_u, 1) = \frac{\sqrt{5}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{1,3}^{(s)}(T_u)}{5} - \frac{\sqrt{15}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,2}^{(s)}(T_u)}{15} - \frac{\sqrt{15}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,1}^{(s)}(T_u)}{15}$$

$$\boxed{\text{z341}} \quad \mathbb{Q}_{3,1}^{(1,-1;c)}(T_u, 2) = -\frac{\sqrt{3}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{1,1}^{(s)}(T_u)}{6} - \frac{\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{1,1}^{(s)}(T_u)}{6} - \frac{\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,3}^{(s)}(T_u)}{3} + \frac{\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,2}^{(s)}(T_u)}{3}$$

$$\boxed{\text{z342}} \quad \mathbb{Q}_{3,2}^{(1,-1;c)}(T_u, 2) = \frac{\sqrt{3}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{1,2}^{(s)}(T_u)}{6} + \frac{\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,3}^{(s)}(T_u)}{3} - \frac{\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{1,2}^{(s)}(T_u)}{6} - \frac{\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,1}^{(s)}(T_u)}{3}$$

$$\boxed{\text{z343}} \quad \mathbb{Q}_{3,3}^{(1,-1;c)}(T_u, 2) = -\frac{\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,2}^{(s)}(T_u)}{3} + \frac{\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{1,3}^{(s)}(T_u)}{3} + \frac{\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,1}^{(s)}(T_u)}{3}$$

$$\boxed{\text{z344}} \quad \mathbb{Q}_{1,1}^{(1,0;c)}(T_u) = \frac{\sqrt{6}\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{1,3}^{(s)}(T_u)}{6} - \frac{\sqrt{6}\mathbb{G}_{1,3}^{(1,0;a)}(T_g)\mathbb{Q}_{1,2}^{(s)}(T_u)}{6}$$

$$\boxed{\text{z345}} \quad \mathbb{Q}_{1,2}^{(1,0;c)}(T_u) = -\frac{\sqrt{6}\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{1,3}^{(s)}(T_u)}{6} + \frac{\sqrt{6}\mathbb{G}_{1,3}^{(1,0;a)}(T_g)\mathbb{Q}_{1,1}^{(s)}(T_u)}{6}$$

$$\boxed{\text{z346}} \quad \mathbb{Q}_{1,3}^{(1,0;c)}(T_u) = \frac{\sqrt{6}\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{1,2}^{(s)}(T_u)}{6} - \frac{\sqrt{6}\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{1,1}^{(s)}(T_u)}{6}$$

$$\boxed{\text{z347}} \quad \mathbb{Q}_{3,1}^{(1,0;c)}(T_u, 2) = -\frac{\sqrt{3}\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_3^{(s)}(A_u)}{3}$$

$$\boxed{\text{z348}} \quad \mathbb{Q}_{3,2}^{(1,0;c)}(T_u, 2) = -\frac{\sqrt{3}\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_3^{(s)}(A_u)}{3}$$

$$\boxed{\text{z349}} \quad \mathbb{Q}_{3,3}^{(1,0;c)}(T_u, 2) = -\frac{\sqrt{3}\mathbb{G}_{1,3}^{(1,0;a)}(T_g)\mathbb{Q}_3^{(s)}(A_u)}{3}$$

$$\boxed{\text{z350}} \quad \mathbb{Q}_{1,1}^{(1,1;c)}(T_u) = \frac{\sqrt{3}\mathbb{Q}_0^{(1,1;a)}(A_g)\mathbb{Q}_{1,1}^{(s)}(T_u)}{3}$$

$$\boxed{\text{z351}} \quad \mathbb{Q}_{1,2}^{(1,1;c)}(T_u) = \frac{\sqrt{3}\mathbb{Q}_0^{(1,1;a)}(A_g)\mathbb{Q}_{1,2}^{(s)}(T_u)}{3}$$

$$\boxed{\text{z352}} \quad \mathbb{Q}_{1,3}^{(1,1;c)}(T_u) = \frac{\sqrt{3}\mathbb{Q}_0^{(1,1;a)}(A_g)\mathbb{Q}_{1,3}^{(s)}(T_u)}{3}$$

$$\boxed{\text{z353}} \quad \mathbb{G}_3^{(1,0;c)}(A_g) = \frac{\sqrt{3}\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{2,1}^{(s)}(T_g)}{3} + \frac{\sqrt{3}\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{2,2}^{(s)}(T_g)}{3} + \frac{\sqrt{3}\mathbb{G}_{1,3}^{(1,0;a)}(T_g)\mathbb{Q}_{2,3}^{(s)}(T_g)}{3}$$

$$\boxed{\text{z354}} \quad \mathbb{G}_0^{(1,0;c)}(A_u) = \frac{\sqrt{3}\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{1,1}^{(s)}(T_u)}{3} + \frac{\sqrt{3}\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{1,2}^{(s)}(T_u)}{3} + \frac{\sqrt{3}\mathbb{G}_{1,3}^{(1,0;a)}(T_g)\mathbb{Q}_{1,3}^{(s)}(T_u)}{3}$$

$$\boxed{\text{z355}} \quad \mathbb{G}_{2,1}^{(c)}(E_u) = -\frac{\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{1,1}^{(s)}(T_u)}{2} + \frac{\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{1,2}^{(s)}(T_u)}{2}$$

$$\boxed{\text{z356}} \quad \mathbb{G}_{2,2}^{(c)}(E_u) = -\frac{\sqrt{3}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{1,1}^{(s)}(T_u)}{6} - \frac{\sqrt{3}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{1,2}^{(s)}(T_u)}{6} + \frac{\sqrt{3}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{1,3}^{(s)}(T_u)}{3}$$

$$\boxed{\text{z357}} \quad \mathbb{G}_{2,1}^{(1,-1;c)}(E_u) = -\frac{\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,1}^{(s)}(T_u)}{2} + \frac{\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,2}^{(s)}(T_u)}{2}$$

$$\boxed{\text{z358}} \quad \mathbb{G}_{2,2}^{(1,-1;c)}(E_u) = -\frac{\sqrt{3}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,1}^{(s)}(T_u)}{6} - \frac{\sqrt{3}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,2}^{(s)}(T_u)}{6} + \frac{\sqrt{3}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,3}^{(s)}(T_u)}{3}$$

$$\boxed{\text{z359}} \quad \mathbb{G}_{2,1}^{(1,0;c)}(E_u) = -\frac{\sqrt{3}\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{1,1}^{(s)}(T_u)}{6} - \frac{\sqrt{3}\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{1,2}^{(s)}(T_u)}{6} + \frac{\sqrt{3}\mathbb{G}_{1,3}^{(1,0;a)}(T_g)\mathbb{Q}_{1,3}^{(s)}(T_u)}{3}$$

$$\boxed{\text{z360}} \quad \mathbb{G}_{2,2}^{(1,0;c)}(E_u) = \frac{\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{1,1}^{(s)}(T_u)}{2} - \frac{\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{1,2}^{(s)}(T_u)}{2}$$

$$\boxed{\text{z361}} \quad \mathbb{G}_{1,1}^{(c)}(T_g) = -\frac{\sqrt{6}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{2,3}^{(s)}(T_g)}{6} + \frac{\sqrt{6}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{2,2}^{(s)}(T_g)}{6}$$

$$\boxed{\text{z362}} \quad \mathbb{G}_{1,2}^{(c)}(T_g) = \frac{\sqrt{6}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{2,3}^{(s)}(T_g)}{6} - \frac{\sqrt{6}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{2,1}^{(s)}(T_g)}{6}$$

$$\boxed{\text{z363}} \quad \mathbb{G}_{1,3}^{(c)}(T_g) = -\frac{\sqrt{6}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{2,2}^{(s)}(T_g)}{6} + \frac{\sqrt{6}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{2,1}^{(s)}(T_g)}{6}$$

$$\boxed{\text{z364}} \quad \mathbb{G}_{1,1}^{(1,-1;c)}(T_g) = -\frac{\sqrt{6}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,3}^{(s)}(T_g)}{6} + \frac{\sqrt{6}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,2}^{(s)}(T_g)}{6}$$

$$\boxed{\text{z365}} \quad \mathbb{G}_{1,2}^{(1,-1;c)}(T_g) = \frac{\sqrt{6}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,3}^{(s)}(T_g)}{6} - \frac{\sqrt{6}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,1}^{(s)}(T_g)}{6}$$

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

$$\boxed{\text{z367}} \quad \mathbb{G}_{1,1}^{(1,0;c)}(T_g, a) = \frac{\sqrt{3}\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_0^{(s)}(A_g)}{3}$$

$$\boxed{\text{z368}} \quad \mathbb{G}_{1,2}^{(1,0;c)}(T_g, a) = \frac{\sqrt{3}\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_0^{(s)}(A_g)}{3}$$

$$\boxed{\text{z369}} \quad \mathbb{G}_{1,3}^{(1,0;c)}(T_g, a) = \frac{\sqrt{3}\mathbb{G}_{1,3}^{(1,0;a)}(T_g)\mathbb{Q}_0^{(s)}(A_g)}{3}$$

$$\boxed{\text{z370}} \quad \mathbb{G}_{1,1}^{(1,0;c)}(T_g, b) = \frac{\sqrt{6}\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{2,3}^{(s)}(T_g)}{6} + \frac{\sqrt{6}\mathbb{G}_{1,3}^{(1,0;a)}(T_g)\mathbb{Q}_{2,2}^{(s)}(T_g)}{6}$$

$$\boxed{\text{z371}} \quad \mathbb{G}_{1,2}^{(1,0;c)}(T_g, b) = \frac{\sqrt{6}\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{2,3}^{(s)}(T_g)}{6} + \frac{\sqrt{6}\mathbb{G}_{1,3}^{(1,0;a)}(T_g)\mathbb{Q}_{2,1}^{(s)}(T_g)}{6}$$

$$\boxed{\text{z372}} \quad \mathbb{G}_{1,3}^{(1,0;c)}(T_g, b) = \frac{\sqrt{6}\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{2,2}^{(s)}(T_g)}{6} + \frac{\sqrt{6}\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{2,1}^{(s)}(T_g)}{6}$$

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

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

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

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

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

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

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

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

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

- 'A'-A' bond-cluster

* 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

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

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

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

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

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

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

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

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

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

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

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

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

$$[z18] \quad \mathbb{Q}_3^{(c)}(A_u, a) = \frac{\sqrt{3}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{3} + \frac{\sqrt{3}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{3} + \frac{\sqrt{3}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{1,3}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z19}} \quad \mathbb{Q}_3^{(c)}(A_u, b) = -\frac{\sqrt{3}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{3} - \frac{\sqrt{3}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{3} - \frac{\sqrt{3}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{3}$$

$$\boxed{\text{z20}} \quad \mathbb{Q}_3^{(1,-1;c)}(A_u, a) = \frac{\sqrt{3}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{3} + \frac{\sqrt{3}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{3} + \frac{\sqrt{3}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,3}^{(b)}(T_u)}{3}$$

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

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

$$\boxed{\text{z23}} \quad \mathbb{Q}_3^{(1,0;c)}(A_u, a) = \frac{\sqrt{2}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{M}_{2,2}^{(b)}(E_u)}{2} - \frac{\sqrt{2}\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{M}_{2,1}^{(b)}(E_u)}{2}$$

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

$$\boxed{\text{z25}} \quad \mathbb{Q}_{2,1}^{(c)}(E_g, a) = \frac{\sqrt{2}\mathbb{Q}_0^{(a)}(A_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z26}} \quad \mathbb{Q}_{2,2}^{(c)}(E_g, a) = \frac{\sqrt{2}\mathbb{Q}_0^{(a)}(A_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z37}} \quad \mathbb{Q}_{2,1}^{(c)}(E_g, b) = \frac{\sqrt{2}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_0^{(b)}(A_g)}{2}$$

$$\boxed{\text{z38}} \quad \mathbb{Q}_{2,2}^{(c)}(E_g, b) = \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_0^{(b)}(A_g)}{2}$$

$$\boxed{\text{z39}} \quad \mathbb{Q}_{2,1}^{(c)}(E_g, c) = \frac{\sqrt{7}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{7} + \frac{\sqrt{7}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{14} - \frac{\sqrt{7}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{7} + \frac{\sqrt{7}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{14} - \frac{\sqrt{7}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{7}$$

$$\boxed{\text{z40}} \quad \mathbb{Q}_{2,2}^{(c)}(E_g, c) = -\frac{\sqrt{7}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{7} - \frac{\sqrt{21}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{14} - \frac{\sqrt{7}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{7} + \frac{\sqrt{21}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{14}$$

$$\boxed{\text{z41}} \quad \mathbb{Q}_{2,1}^{(c)}(E_g, d) = -\frac{\sqrt{3}\mathbb{M}_{1,1}^{(a)}(T_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{6} - \frac{\sqrt{3}\mathbb{M}_{1,2}^{(a)}(T_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{6} + \frac{\sqrt{3}\mathbb{M}_{1,3}^{(a)}(T_g)\mathbb{M}_{1,3}^{(b)}(T_g)}{3}$$

$$\boxed{\text{z42}} \quad \mathbb{Q}_{2,2}^{(c)}(E_g, d) = \frac{\mathbb{M}_{1,1}^{(a)}(T_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{2} - \frac{\mathbb{M}_{1,2}^{(a)}(T_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{2}$$

$$\boxed{\text{z43}} \quad \mathbb{Q}_{2,1}^{(c)}(E_g, e) = \frac{\mathbb{M}_{1,1}^{(a)}(T_g)\mathbb{T}_{2,1}^{(b)}(T_g)}{2} - \frac{\mathbb{M}_{1,2}^{(a)}(T_g)\mathbb{T}_{2,2}^{(b)}(T_g)}{2}$$

$$\boxed{\text{z44}} \quad \mathbb{Q}_{2,2}^{(c)}(E_g, e) = \frac{\sqrt{3}\mathbb{M}_{1,1}^{(a)}(T_g)\mathbb{T}_{2,1}^{(b)}(T_g)}{6} + \frac{\sqrt{3}\mathbb{M}_{1,2}^{(a)}(T_g)\mathbb{T}_{2,2}^{(b)}(T_g)}{6} - \frac{\sqrt{3}\mathbb{M}_{1,3}^{(a)}(T_g)\mathbb{T}_{2,3}^{(b)}(T_g)}{3}$$

$$\boxed{\text{z45}} \quad \mathbb{Q}_{4,1}^{(c)}(E_g) = \frac{\sqrt{21}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{14} - \frac{\sqrt{21}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{21} - \frac{\sqrt{21}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{14} - \frac{\sqrt{21}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{21} + \frac{2\sqrt{21}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{21}$$

$$\boxed{\text{z46}} \quad \mathbb{Q}_{4,2}^{(c)}(E_g) = -\frac{\sqrt{21}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{14} + \frac{\sqrt{7}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{7} - \frac{\sqrt{21}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{14} - \frac{\sqrt{7}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{7}$$

$$\boxed{\text{z47}} \quad \mathbb{Q}_{2,1}^{(1,-1;c)}(E_g, a) = \frac{\sqrt{2}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_0^{(b)}(A_g)}{2}$$

$$\boxed{\text{z48}} \quad \mathbb{Q}_{2,2}^{(1,-1;c)}(E_g, a) = \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_0^{(b)}(A_g)}{2}$$

$$\boxed{\text{z49}} \quad \mathbb{Q}_{2,1}^{(1,-1;c)}(E_g, b) = \frac{\sqrt{7}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{7} + \frac{\sqrt{7}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{14} - \frac{\sqrt{7}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{7} + \frac{\sqrt{7}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{14} - \frac{\sqrt{7}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{7}$$

$$\boxed{\text{z50}} \quad \mathbb{Q}_{2,2}^{(1,-1;c)}(E_g, b) = -\frac{\sqrt{7}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{7} - \frac{\sqrt{21}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{14} - \frac{\sqrt{7}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{7} + \frac{\sqrt{21}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{14}$$

$$\boxed{\text{z51}} \quad \mathbb{Q}_{2,1}^{(1,-1;c)}(E_g, c) = -\frac{\sqrt{42}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,1}^{(b)}(T_g)}{28} - \frac{\sqrt{70}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,1}^{(b)}(T_g)}{28} - \frac{\sqrt{42}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,2}^{(b)}(T_g)}{28} + \frac{\sqrt{70}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,2}^{(b)}(T_g)}{28} + \frac{\sqrt{42}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,3}^{(b)}(T_g)}{14}$$

$$\boxed{\text{z52}} \quad \mathbb{Q}_{2,2}^{(1,-1;c)}(E_g, c) = \frac{3\sqrt{14}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,1}^{(b)}(T_g)}{28} - \frac{\sqrt{210}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,1}^{(b)}(T_g)}{84} - \frac{3\sqrt{14}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,2}^{(b)}(T_g)}{28} - \frac{\sqrt{210}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,2}^{(b)}(T_g)}{84} \\ + \frac{\sqrt{210}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,3}^{(b)}(T_g)}{42}$$

$$\boxed{\text{z53}} \quad \mathbb{Q}_{2,1}^{(1,-1;c)}(E_g, d) = -\frac{\sqrt{6}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{2,1}^{(b)}(T_g)}{12} - \frac{\sqrt{10}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{2,1}^{(b)}(T_g)}{12} + \frac{\sqrt{6}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{2,2}^{(b)}(T_g)}{12} - \frac{\sqrt{10}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{2,2}^{(b)}(T_g)}{12} + \frac{\sqrt{10}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{2,3}^{(b)}(T_g)}{6}$$

$$\boxed{\text{z54}} \quad \mathbb{Q}_{2,2}^{(1,-1;c)}(E_g, d) = -\frac{\sqrt{2}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{2,1}^{(b)}(T_g)}{12} + \frac{\sqrt{30}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{2,1}^{(b)}(T_g)}{12} - \frac{\sqrt{2}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{2,2}^{(b)}(T_g)}{12} - \frac{\sqrt{30}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{2,2}^{(b)}(T_g)}{12} + \frac{\sqrt{2}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{2,3}^{(b)}(T_g)}{6}$$

$$\boxed{\text{z55}} \quad \mathbb{Q}_{2,1}^{(1,-1;c)}(E_g, e) = -\frac{\sqrt{3}\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{6} - \frac{\sqrt{3}\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{6} + \frac{\sqrt{3}\mathbb{M}_{1,3}^{(1,-1;a)}(T_g)\mathbb{M}_{1,3}^{(b)}(T_g)}{3}$$

$$\boxed{\text{z56}} \quad \mathbb{Q}_{2,2}^{(1,-1;c)}(E_g, e) = \frac{\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{2} - \frac{\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{2}$$

$$\boxed{\text{z57}} \quad \mathbb{Q}_{2,1}^{(1,-1;c)}(E_g, f) = \frac{\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{T}_{2,1}^{(b)}(T_g)}{2} - \frac{\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{T}_{2,2}^{(b)}(T_g)}{2}$$

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

$$\boxed{\text{z59}} \quad \mathbb{Q}_{4,1}^{(1,-1;c)}(E_g, a) = \frac{\sqrt{21}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{14} - \frac{\sqrt{21}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{21} - \frac{\sqrt{21}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{14} - \frac{\sqrt{21}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{21} + \frac{2\sqrt{21}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{21}$$

$$\boxed{\text{z60}} \quad \mathbb{Q}_{4,2}^{(1,-1;c)}(E_g, a) = -\frac{\sqrt{21}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{14} + \frac{\sqrt{7}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{7} - \frac{\sqrt{21}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{14} - \frac{\sqrt{7}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{7}$$

$$\begin{aligned} \boxed{\text{z61}} \quad \mathbb{Q}_{4,1}^{(1,-1;c)}(E_g, b) = & -\frac{\sqrt{210}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,1}^{(b)}(T_g)}{84} + \frac{3\sqrt{14}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,1}^{(b)}(T_g)}{28} - \frac{\sqrt{210}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,2}^{(b)}(T_g)}{84} \\ & - \frac{3\sqrt{14}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,2}^{(b)}(T_g)}{28} + \frac{\sqrt{210}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,3}^{(b)}(T_g)}{42} \end{aligned}$$

$$\boxed{\text{z62}} \quad \mathbb{Q}_{4,2}^{(1,-1;c)}(E_g, b) = \frac{\sqrt{70}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,1}^{(b)}(T_g)}{28} + \frac{\sqrt{42}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,1}^{(b)}(T_g)}{28} - \frac{\sqrt{70}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,2}^{(b)}(T_g)}{28} + \frac{\sqrt{42}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,2}^{(b)}(T_g)}{28} - \frac{\sqrt{42}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,3}^{(b)}(T_g)}{14}$$

$$\boxed{\text{z63}} \quad \mathbb{Q}_{4,1}^{(1,-1;c)}(E_g, c) = -\frac{\sqrt{30}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{2,1}^{(b)}(T_g)}{12} + \frac{\sqrt{2}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{2,1}^{(b)}(T_g)}{12} + \frac{\sqrt{30}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{2,2}^{(b)}(T_g)}{12} + \frac{\sqrt{2}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{2,2}^{(b)}(T_g)}{12} - \frac{\sqrt{2}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{2,3}^{(b)}(T_g)}{6}$$

$$\boxed{\text{z64}} \quad \mathbb{Q}_{4,2}^{(1,-1;c)}(E_g, c) = -\frac{\sqrt{10}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{2,1}^{(b)}(T_g)}{12} - \frac{\sqrt{6}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{2,1}^{(b)}(T_g)}{12} - \frac{\sqrt{10}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{2,2}^{(b)}(T_g)}{12} + \frac{\sqrt{6}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{2,2}^{(b)}(T_g)}{12} + \frac{\sqrt{10}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{2,3}^{(b)}(T_g)}{6}$$

$$\boxed{\text{z65}} \quad \mathbb{Q}_{2,1}^{(1,0;c)}(E_g, a) = \frac{\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{2} - \frac{\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{2}$$

$$\boxed{\text{z66}} \quad \mathbb{Q}_{2,2}^{(1,0;c)}(E_g, a) = \frac{\sqrt{3}\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{6} + \frac{\sqrt{3}\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{6} - \frac{\sqrt{3}\mathbb{G}_{1,3}^{(1,0;a)}(T_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{3}$$

$$\boxed{\text{z67}} \quad \mathbb{Q}_{2,1}^{(1,0;c)}(E_g, b) = -\frac{\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{2} + \frac{\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{2}$$

$$\boxed{\text{z68}} \quad \mathbb{Q}_{2,2}^{(1,0;c)}(E_g, b) = -\frac{\sqrt{3}\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{6} - \frac{\sqrt{3}\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{6} + \frac{\sqrt{3}\mathbb{T}_{2,3}^{(1,0;a)}(T_g)\mathbb{M}_{1,3}^{(b)}(T_g)}{3}$$

$$\boxed{\text{z69}} \quad \mathbb{Q}_{2,1}^{(1,0;c)}(E_g, c) = \frac{\sqrt{3}\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{T}_{2,1}^{(b)}(T_g)}{6} + \frac{\sqrt{3}\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{T}_{2,2}^{(b)}(T_g)}{6} - \frac{\sqrt{3}\mathbb{T}_{2,3}^{(1,0;a)}(T_g)\mathbb{T}_{2,3}^{(b)}(T_g)}{3}$$

$$\boxed{\text{z70}} \quad \mathbb{Q}_{2,2}^{(1,0;c)}(E_g, c) = -\frac{\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{T}_{2,1}^{(b)}(T_g)}{2} + \frac{\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{T}_{2,2}^{(b)}(T_g)}{2}$$

$$\boxed{\text{z71}} \quad \mathbb{Q}_{2,1}^{(1,1;c)}(E_g, a) = \frac{\sqrt{2}\mathbb{Q}_0^{(1,1;a)}(A_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z72}} \quad \mathbb{Q}_{2,2}^{(1,1;c)}(E_g, a) = \frac{\sqrt{2}\mathbb{Q}_0^{(1,1;a)}(A_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z73}} \quad \mathbb{Q}_{2,1}^{(1,1;c)}(E_g, b) = -\frac{\sqrt{3}\mathbb{M}_{1,1}^{(1,1;a)}(T_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{6} - \frac{\sqrt{3}\mathbb{M}_{1,2}^{(1,1;a)}(T_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{6} + \frac{\sqrt{3}\mathbb{M}_{1,3}^{(1,1;a)}(T_g)\mathbb{M}_{1,3}^{(b)}(T_g)}{3}$$

$$\boxed{\text{z74}} \quad \mathbb{Q}_{2,2}^{(1,1;c)}(E_g, b) = \frac{\mathbb{M}_{1,1}^{(1,1;a)}(T_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{2} - \frac{\mathbb{M}_{1,2}^{(1,1;a)}(T_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{2}$$

$$\boxed{\text{z75}} \quad \mathbb{Q}_{2,1}^{(1,1;c)}(E_g, c) = \frac{\mathbb{M}_{1,1}^{(1,1;a)}(T_g)\mathbb{T}_{2,1}^{(b)}(T_g)}{2} - \frac{\mathbb{M}_{1,2}^{(1,1;a)}(T_g)\mathbb{T}_{2,2}^{(b)}(T_g)}{2}$$

$$\boxed{\text{z76}} \quad \mathbb{Q}_{2,2}^{(1,1;c)}(E_g, c) = \frac{\sqrt{3}\mathbb{M}_{1,1}^{(1,1;a)}(T_g)\mathbb{T}_{2,1}^{(b)}(T_g)}{6} + \frac{\sqrt{3}\mathbb{M}_{1,2}^{(1,1;a)}(T_g)\mathbb{T}_{2,2}^{(b)}(T_g)}{6} - \frac{\sqrt{3}\mathbb{M}_{1,3}^{(1,1;a)}(T_g)\mathbb{T}_{2,3}^{(b)}(T_g)}{3}$$

$$\boxed{\text{z77}} \quad \mathbb{Q}_{5,1}^{(c)}(E_u) = \frac{\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{2} - \frac{\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{2}$$

$$\boxed{\text{z78}} \quad \mathbb{Q}_{5,2}^{(c)}(E_u) = \frac{\sqrt{3}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{6} + \frac{\sqrt{3}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{6} - \frac{\sqrt{3}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{3}$$

$$\boxed{\text{z124}} \quad \mathbb{Q}_{5,1}^{(1,-1;c)}(E_u, a) = \frac{\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{2} - \frac{\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{2}$$

$$\boxed{\text{z125}} \quad \mathbb{Q}_{5,2}^{(1,-1;c)}(E_u, a) = \frac{\sqrt{3}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{6} + \frac{\sqrt{3}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{6} - \frac{\sqrt{3}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{3}$$

$$\boxed{\text{z126}} \quad \mathbb{Q}_{5,1}^{(1,-1;c)}(E_u, b) = \frac{\sqrt{2}\mathbb{M}_3^{(1,-1;a)}(A_g)\mathbb{M}_{2,2}^{(b)}(E_u)}{2}$$

$$\boxed{\text{z127}} \quad \mathbb{Q}_{5,2}^{(1,-1;c)}(E_u, b) = -\frac{\sqrt{2}\mathbb{M}_3^{(1,-1;a)}(A_g)\mathbb{M}_{2,1}^{(b)}(E_u)}{2}$$

$$\boxed{\text{z128}} \quad \mathbb{Q}_{5,1}^{(1,0;c)}(E_u) = \frac{\sqrt{2}\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{T}_3^{(b)}(A_u)}{2}$$

$$\boxed{\text{z129}} \quad \mathbb{Q}_{5,2}^{(1,0;c)}(E_u) = -\frac{\sqrt{2}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{T}_3^{(b)}(A_u)}{2}$$

$$\boxed{\text{z130}} \quad \mathbb{Q}_{2,1}^{(c)}(T_g, a) = \frac{\sqrt{3}\mathbb{Q}_0^{(a)}(A_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{3}$$

$$\boxed{\text{z131}} \quad \mathbb{Q}_{2,2}^{(c)}(T_g, a) = \frac{\sqrt{3}\mathbb{Q}_0^{(a)}(A_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{3}$$

$$\boxed{\text{z132}} \quad \mathbb{Q}_{2,3}^{(c)}(T_g, a) = \frac{\sqrt{3}\mathbb{Q}_0^{(a)}(A_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{3}$$

$$\boxed{\text{z133}} \quad \mathbb{Q}_{2,1}^{(c)}(T_g, b) = \frac{\sqrt{3}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_0^{(b)}(A_g)}{3}$$

$$\boxed{\text{z134}} \quad \mathbb{Q}_{2,2}^{(c)}(T_g, b) = \frac{\sqrt{3}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_0^{(b)}(A_g)}{3}$$

$$\boxed{\text{z135}} \quad \mathbb{Q}_{2,3}^{(c)}(T_g, b) = \frac{\sqrt{3}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_0^{(b)}(A_g)}{3}$$

$$\boxed{\text{z136}} \quad \mathbb{Q}_{2,1}^{(c)}(T_g, c) = \frac{\sqrt{42}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{42} + \frac{\sqrt{42}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{42} - \frac{\sqrt{14}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{14} - \frac{\sqrt{14}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{14} + \frac{\sqrt{14}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{14} + \frac{\sqrt{14}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{14}$$

$$\boxed{\text{z137}} \quad \mathbb{Q}_{2,2}^{(c)}(T_g, c) = \frac{\sqrt{42}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{42} + \frac{\sqrt{14}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{14} + \frac{\sqrt{14}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{14} + \frac{\sqrt{42}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{42} + \frac{\sqrt{14}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{14} + \frac{\sqrt{14}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{14}$$

$$\boxed{\text{z138}} \quad \mathbb{Q}_{2,3}^{(c)}(T_g, c) = -\frac{\sqrt{42}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{21} + \frac{\sqrt{14}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{14} + \frac{\sqrt{14}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{14} - \frac{\sqrt{42}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{21}$$

$$\boxed{\text{z139}} \quad \mathbb{Q}_{2,1}^{(c)}(T_g, d) = \frac{\sqrt{6}\mathbb{M}_{1,2}^{(a)}(T_g)\mathbb{M}_{1,3}^{(b)}(T_g)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(a)}(T_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{6}$$

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

$$\boxed{\text{z141}} \quad \mathbb{Q}_{2,3}^{(c)}(T_g, d) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(a)}(T_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,2}^{(a)}(T_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{6}$$

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

$$\boxed{\text{z143}} \quad \mathbb{Q}_{2,2}^{(c)}(T_g, e) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(a)}(T_g)\mathbb{T}_{2,3}^{(b)}(T_g)}{6} - \frac{\sqrt{6}\mathbb{M}_{1,3}^{(a)}(T_g)\mathbb{T}_{2,1}^{(b)}(T_g)}{6}$$

$$\boxed{\text{z144}} \quad \mathbb{Q}_{2,3}^{(c)}(T_g, e) = -\frac{\sqrt{6}\mathbb{M}_{1,1}^{(a)}(T_g)\mathbb{T}_{2,2}^{(b)}(T_g)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,2}^{(a)}(T_g)\mathbb{T}_{2,1}^{(b)}(T_g)}{6}$$

$$\boxed{\text{z145}} \quad \mathbb{Q}_{4,1}^{(c)}(T_g, 1) = -\frac{\sqrt{2}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{4} - \frac{\sqrt{2}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{4} - \frac{\sqrt{6}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{12} - \frac{\sqrt{6}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{12}$$

$$\boxed{\text{z146}} \quad \mathbb{Q}_{4,2}^{(c)}(T_g, 1) = \frac{\sqrt{2}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{4} - \frac{\sqrt{6}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{12} + \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{4} - \frac{\sqrt{6}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{12}$$

$$\boxed{\text{z147}} \quad \mathbb{Q}_{4,3}^{(c)}(T_g, 1) = \frac{\sqrt{6}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{6} + \frac{\sqrt{6}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{6}$$

$$\boxed{\text{z148}} \quad \mathbb{Q}_{4,1}^{(c)}(T_g, 2) = -\frac{\sqrt{14}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{28} - \frac{\sqrt{14}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{28} + \frac{\sqrt{42}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{28} + \frac{\sqrt{42}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{28} + \frac{\sqrt{42}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{21} + \frac{\sqrt{42}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{21}$$

$$\boxed{\text{z149}} \quad \mathbb{Q}_{4,2}^{(c)}(T_g, 2) = -\frac{\sqrt{14}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{28} + \frac{\sqrt{42}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{21} - \frac{\sqrt{42}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{28} - \frac{\sqrt{14}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{28} - \frac{\sqrt{42}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{28} + \frac{\sqrt{42}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{21}$$

$$\boxed{\text{z150}} \quad \mathbb{Q}_{4,3}^{(c)}(T_g, 2) = \frac{\sqrt{14}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{14} + \frac{\sqrt{42}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{21} + \frac{\sqrt{42}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{21} + \frac{\sqrt{14}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{14}$$

$$\boxed{\text{z151}} \quad \mathbb{Q}_{2,1}^{(1,-1;c)}(T_g, a) = \frac{\sqrt{3}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_0^{(b)}(A_g)}{3}$$

$$\boxed{\text{z152}} \quad \mathbb{Q}_{2,2}^{(1,-1;c)}(T_g, a) = \frac{\sqrt{3}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_0^{(b)}(A_g)}{3}$$

$$\boxed{\text{z153}} \quad \mathbb{Q}_{2,3}^{(1,-1;c)}(T_g, a) = \frac{\sqrt{3}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_0^{(b)}(A_g)}{3}$$

$$\boxed{\text{z154}} \quad \begin{aligned} \mathbb{Q}_{2,1}^{(1,-1;c)}(T_g, b) &= \frac{\sqrt{42}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{42} + \frac{\sqrt{42}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{42} - \frac{\sqrt{14}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{14} \\ &\quad - \frac{\sqrt{14}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{14} + \frac{\sqrt{14}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{14} + \frac{\sqrt{14}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{14} \end{aligned}$$

$$\boxed{\text{z155}} \quad \mathbb{Q}_{2,2}^{(1,-1;c)}(T_g, b) = \frac{\sqrt{42}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{42} + \frac{\sqrt{14}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{14} + \frac{\sqrt{14}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{14} \\ + \frac{\sqrt{42}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{42} + \frac{\sqrt{14}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{14} + \frac{\sqrt{14}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{14}$$

$$\boxed{\text{z156}} \quad \mathbb{Q}_{2,3}^{(1,-1;c)}(T_g, b) = -\frac{\sqrt{42}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{21} + \frac{\sqrt{14}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{14} + \frac{\sqrt{14}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{14} - \frac{\sqrt{42}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{21}$$

$$\boxed{\text{z157}} \quad \mathbb{Q}_{2,1}^{(1,-1;c)}(T_g, c) = -\frac{\sqrt{21}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,3}^{(b)}(T_g)}{21} + \frac{\sqrt{35}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,3}^{(b)}(T_g)}{21} - \frac{\sqrt{21}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,2}^{(b)}(T_g)}{21} - \frac{\sqrt{35}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,2}^{(b)}(T_g)}{21} + \frac{\sqrt{35}\mathbb{M}_3^{(1,-1;a)}(A_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{21}$$

$$\boxed{\text{z158}} \quad \mathbb{Q}_{2,2}^{(1,-1;c)}(T_g, c) = -\frac{\sqrt{21}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,3}^{(b)}(T_g)}{21} - \frac{\sqrt{35}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,3}^{(b)}(T_g)}{21} - \frac{\sqrt{21}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,1}^{(b)}(T_g)}{21} + \frac{\sqrt{35}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,1}^{(b)}(T_g)}{21} + \frac{\sqrt{35}\mathbb{M}_3^{(1,-1;a)}(A_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{21}$$

$$\boxed{\text{z159}} \quad \mathbb{Q}_{2,3}^{(1,-1;c)}(T_g, c) = -\frac{\sqrt{21}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,2}^{(b)}(T_g)}{21} + \frac{\sqrt{35}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,2}^{(b)}(T_g)}{21} - \frac{\sqrt{21}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,1}^{(b)}(T_g)}{21} - \frac{\sqrt{35}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,1}^{(b)}(T_g)}{21} + \frac{\sqrt{35}\mathbb{M}_3^{(1,-1;a)}(A_g)\mathbb{M}_{1,3}^{(b)}(T_g)}{21}$$

$$\boxed{\text{z160}} \quad \mathbb{Q}_{2,1}^{(1,-1;c)}(T_g, d) = -\frac{\sqrt{6}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{2,3}^{(b)}(T_g)}{6} + \frac{\sqrt{6}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{2,2}^{(b)}(T_g)}{6}$$

$$\boxed{\text{z161}} \quad \mathbb{Q}_{2,2}^{(1,-1;c)}(T_g, d) = \frac{\sqrt{6}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{2,3}^{(b)}(T_g)}{6} - \frac{\sqrt{6}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{2,1}^{(b)}(T_g)}{6}$$

$$\boxed{\text{z162}} \quad \mathbb{Q}_{2,3}^{(1,-1;c)}(T_g, d) = -\frac{\sqrt{6}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{2,2}^{(b)}(T_g)}{6} + \frac{\sqrt{6}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{2,1}^{(b)}(T_g)}{6}$$

$$\boxed{\text{z163}} \quad \mathbb{Q}_{2,1}^{(1,-1;c)}(T_g, e) = \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{M}_{1,3}^{(b)}(T_g)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,-1;a)}(T_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{6}$$

$$\boxed{\text{z164}} \quad \mathbb{Q}_{2,2}^{(1,-1;c)}(T_g, e) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{M}_{1,3}^{(b)}(T_g)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,-1;a)}(T_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{6}$$

$$\boxed{\text{z165}} \quad \mathbb{Q}_{2,3}^{(1,-1;c)}(T_g, e) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{6}$$

$$\boxed{\text{z166}} \quad \mathbb{Q}_{2,1}^{(1,-1;c)}(T_g, f) = -\frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{T}_{2,3}^{(b)}(T_g)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,-1;a)}(T_g)\mathbb{T}_{2,2}^{(b)}(T_g)}{6}$$

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

$$\boxed{\text{z168}} \quad \mathbb{Q}_{2,3}^{(1,-1;c)}(T_g, f) = -\frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{T}_{2,2}^{(b)}(T_g)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{T}_{2,1}^{(b)}(T_g)}{6}$$

$$\boxed{\text{z169}} \quad \mathbb{Q}_{4,1}^{(1,-1;c)}(T_g, 1a) = -\frac{\sqrt{2}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{4} - \frac{\sqrt{2}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{4} - \frac{\sqrt{6}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{12} - \frac{\sqrt{6}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{12}$$

$$\boxed{\text{z170}} \quad \mathbb{Q}_{4,2}^{(1,-1;c)}(T_g, 1a) = \frac{\sqrt{2}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{4} - \frac{\sqrt{6}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{12} + \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{4} - \frac{\sqrt{6}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{12}$$

$$\boxed{\text{z171}} \quad \mathbb{Q}_{4,3}^{(1,-1;c)}(T_g, 1a) = \frac{\sqrt{6}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{6} + \frac{\sqrt{6}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{6}$$

$$\boxed{\text{z172}} \quad \mathbb{Q}_{4,1}^{(1,-1;c)}(T_g, 1b) = \frac{\sqrt{15}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,3}^{(b)}(T_g)}{12} - \frac{\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,3}^{(b)}(T_g)}{4} - \frac{\sqrt{15}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,2}^{(b)}(T_g)}{12} - \frac{\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,2}^{(b)}(T_g)}{4}$$

$$\boxed{\text{z173}} \quad \mathbb{Q}_{4,2}^{(1,-1;c)}(T_g, 1b) = -\frac{\sqrt{15}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,3}^{(b)}(T_g)}{12} - \frac{\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,3}^{(b)}(T_g)}{4} + \frac{\sqrt{15}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,1}^{(b)}(T_g)}{12} - \frac{\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,1}^{(b)}(T_g)}{4}$$

$$\boxed{\text{z174}} \quad \mathbb{Q}_{4,3}^{(1,-1;c)}(T_g, 1b) = \frac{\sqrt{15}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,2}^{(b)}(T_g)}{12} - \frac{\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,2}^{(b)}(T_g)}{4} - \frac{\sqrt{15}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,1}^{(b)}(T_g)}{12} - \frac{\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,1}^{(b)}(T_g)}{4}$$

$$\boxed{\text{z175}} \quad \mathbb{Q}_{4,1}^{(1,-1;c)}(T_g, 1c) = -\frac{\sqrt{5}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{2,3}^{(b)}(T_g)}{8} + \frac{\sqrt{3}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{2,3}^{(b)}(T_g)}{8} - \frac{\sqrt{5}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{2,2}^{(b)}(T_g)}{8} - \frac{\sqrt{3}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{2,2}^{(b)}(T_g)}{8} - \frac{\sqrt{3}\mathbb{M}_3^{(1,-1;a)}(A_g)\mathbb{T}_{2,1}^{(b)}(T_g)}{6}$$

$$\boxed{\text{z176}} \quad \mathbb{Q}_{4,2}^{(1,-1;c)}(T_g, 1c) = -\frac{\sqrt{5}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{2,3}^{(b)}(T_g)}{8} - \frac{\sqrt{3}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{2,3}^{(b)}(T_g)}{8} - \frac{\sqrt{5}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{2,1}^{(b)}(T_g)}{8} + \frac{\sqrt{3}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{2,1}^{(b)}(T_g)}{8} - \frac{\sqrt{3}\mathbb{M}_3^{(1,-1;a)}(A_g)\mathbb{T}_{2,2}^{(b)}(T_g)}{6}$$

$$\boxed{\text{z177}} \quad \mathbb{Q}_{4,3}^{(1,-1;c)}(T_g, 1c) = -\frac{\sqrt{5}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{2,2}^{(b)}(T_g)}{8} + \frac{\sqrt{3}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{2,2}^{(b)}(T_g)}{8} - \frac{\sqrt{5}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{2,1}^{(b)}(T_g)}{8} - \frac{\sqrt{3}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{2,1}^{(b)}(T_g)}{8} - \frac{\sqrt{3}\mathbb{M}_3^{(1,-1;a)}(A_g)\mathbb{T}_{2,3}^{(b)}(T_g)}{6}$$

$$\begin{aligned} \boxed{\text{z178}} \quad \mathbb{Q}_{4,1}^{(1,-1;c)}(T_g, 2a) &= -\frac{\sqrt{14}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{28} - \frac{\sqrt{14}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{28} + \frac{\sqrt{42}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{28} \\ &\quad + \frac{\sqrt{42}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{28} + \frac{\sqrt{42}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{21} + \frac{\sqrt{42}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{21} \end{aligned}$$

$$\begin{aligned} \boxed{\text{z179}} \quad \mathbb{Q}_{4,2}^{(1,-1;c)}(T_g, 2a) &= -\frac{\sqrt{14}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{28} + \frac{\sqrt{42}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{21} - \frac{\sqrt{42}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{28} \\ &\quad - \frac{\sqrt{14}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{28} - \frac{\sqrt{42}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{28} + \frac{\sqrt{42}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{21} \end{aligned}$$

- [z180] $\mathbb{Q}_{4,3}^{(1,-1;c)}(T_g, 2a) = \frac{\sqrt{14}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{14} + \frac{\sqrt{42}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{21} + \frac{\sqrt{42}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{21} + \frac{\sqrt{14}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{14}$
- [z181] $\mathbb{Q}_{4,1}^{(1,-1;c)}(T_g, 2b) = -\frac{\sqrt{105}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,3}^{(b)}(T_g)}{84} - \frac{3\sqrt{7}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,3}^{(b)}(T_g)}{28} - \frac{\sqrt{105}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,2}^{(b)}(T_g)}{84} + \frac{3\sqrt{7}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,2}^{(b)}(T_g)}{28} + \frac{\sqrt{7}\mathbb{M}_3^{(1,-1;a)}(A_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{7}$
- [z182] $\mathbb{Q}_{4,2}^{(1,-1;c)}(T_g, 2b) = -\frac{\sqrt{105}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,3}^{(b)}(T_g)}{84} + \frac{3\sqrt{7}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,3}^{(b)}(T_g)}{28} - \frac{\sqrt{105}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,1}^{(b)}(T_g)}{84} - \frac{3\sqrt{7}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,1}^{(b)}(T_g)}{28} + \frac{\sqrt{7}\mathbb{M}_3^{(1,-1;a)}(A_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{7}$
- [z183] $\mathbb{Q}_{4,3}^{(1,-1;c)}(T_g, 2b) = -\frac{\sqrt{105}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,2}^{(b)}(T_g)}{84} - \frac{3\sqrt{7}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,2}^{(b)}(T_g)}{28} - \frac{\sqrt{105}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,1}^{(b)}(T_g)}{84} + \frac{3\sqrt{7}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,1}^{(b)}(T_g)}{28} + \frac{\sqrt{7}\mathbb{M}_3^{(1,-1;a)}(A_g)\mathbb{M}_{1,3}^{(b)}(T_g)}{7}$
- [z184] $\mathbb{Q}_{4,1}^{(1,-1;c)}(T_g, 2c) = -\frac{\sqrt{6}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{2,3}^{(b)}(T_g)}{6} - \frac{\sqrt{6}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{2,2}^{(b)}(T_g)}{6}$
- [z185] $\mathbb{Q}_{4,2}^{(1,-1;c)}(T_g, 2c) = -\frac{\sqrt{6}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{2,3}^{(b)}(T_g)}{6} - \frac{\sqrt{6}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{2,1}^{(b)}(T_g)}{6}$
- [z186] $\mathbb{Q}_{4,3}^{(1,-1;c)}(T_g, 2c) = -\frac{\sqrt{6}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{2,2}^{(b)}(T_g)}{6} - \frac{\sqrt{6}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{2,1}^{(b)}(T_g)}{6}$
- [z187] $\mathbb{Q}_{2,1}^{(1,0;c)}(T_g, a) = -\frac{\sqrt{6}\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{6} - \frac{\sqrt{2}\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{6} - \frac{\sqrt{2}\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{6} + \frac{\sqrt{2}\mathbb{G}_{1,3}^{(1,0;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{6}$
- [z188] $\mathbb{Q}_{2,2}^{(1,0;c)}(T_g, a) = \frac{\sqrt{2}\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{6} + \frac{\sqrt{6}\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{6} - \frac{\sqrt{2}\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{6} - \frac{\sqrt{2}\mathbb{G}_{1,3}^{(1,0;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{6}$
- [z189] $\mathbb{Q}_{2,3}^{(1,0;c)}(T_g, a) = -\frac{\sqrt{2}\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{6} + \frac{\sqrt{2}\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{6} + \frac{\sqrt{2}\mathbb{G}_{1,3}^{(1,0;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{3}$
- [z190] $\mathbb{Q}_{2,1}^{(1,0;c)}(T_g, b) = \frac{\sqrt{6}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{6} + \frac{\sqrt{2}\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{6} - \frac{\sqrt{2}\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{M}_{1,3}^{(b)}(T_g)}{6} + \frac{\sqrt{2}\mathbb{T}_{2,3}^{(1,0;a)}(T_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{6}$
- [z191] $\mathbb{Q}_{2,2}^{(1,0;c)}(T_g, b) = -\frac{\sqrt{6}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{6} + \frac{\sqrt{2}\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{M}_{1,3}^{(b)}(T_g)}{6} + \frac{\sqrt{2}\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{6} - \frac{\sqrt{2}\mathbb{T}_{2,3}^{(1,0;a)}(T_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{6}$
- [z192] $\mathbb{Q}_{2,3}^{(1,0;c)}(T_g, b) = -\frac{\sqrt{2}\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{6} - \frac{\sqrt{2}\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{M}_{1,3}^{(b)}(T_g)}{3} + \frac{\sqrt{2}\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{6}$
- [z193] $\mathbb{Q}_{2,1}^{(1,0;c)}(T_g, c) = \frac{\sqrt{30}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{T}_{2,1}^{(b)}(T_g)}{30} - \frac{\sqrt{10}\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{T}_{2,1}^{(b)}(T_g)}{10} + \frac{\sqrt{10}\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{T}_{2,3}^{(b)}(T_g)}{10} + \frac{\sqrt{10}\mathbb{T}_{2,3}^{(1,0;a)}(T_g)\mathbb{T}_{2,2}^{(b)}(T_g)}{10}$

$$\boxed{\text{z194}} \quad \mathbb{Q}_{2,2}^{(1,0;c)}(T_g, c) = \frac{\sqrt{30}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{T}_{2,2}^{(b)}(T_g)}{30} + \frac{\sqrt{10}\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{T}_{2,3}^{(b)}(T_g)}{10} + \frac{\sqrt{10}\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{T}_{2,2}^{(b)}(T_g)}{10} + \frac{\sqrt{10}\mathbb{T}_{2,3}^{(1,0;a)}(T_g)\mathbb{T}_{2,1}^{(b)}(T_g)}{10}$$

$$\boxed{\text{z195}} \quad \mathbb{Q}_{2,3}^{(1,0;c)}(T_g, c) = -\frac{\sqrt{30}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{T}_{2,3}^{(b)}(T_g)}{15} + \frac{\sqrt{10}\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{T}_{2,2}^{(b)}(T_g)}{10} + \frac{\sqrt{10}\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{T}_{2,1}^{(b)}(T_g)}{10}$$

$$\boxed{\text{z196}} \quad \mathbb{Q}_{4,1}^{(1,0;c)}(T_g, 1) = -\frac{\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{T}_{2,1}^{(b)}(T_g)}{2} - \frac{\sqrt{3}\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{T}_{2,1}^{(b)}(T_g)}{6}$$

$$\boxed{\text{z197}} \quad \mathbb{Q}_{4,2}^{(1,0;c)}(T_g, 1) = \frac{\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{T}_{2,2}^{(b)}(T_g)}{2} - \frac{\sqrt{3}\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{T}_{2,2}^{(b)}(T_g)}{6}$$

$$\boxed{\text{z198}} \quad \mathbb{Q}_{4,3}^{(1,0;c)}(T_g, 1) = \frac{\sqrt{3}\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{T}_{2,3}^{(b)}(T_g)}{3}$$

$$\boxed{\text{z199}} \quad \mathbb{Q}_{4,1}^{(1,0;c)}(T_g, 2) = -\frac{\sqrt{5}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{T}_{2,1}^{(b)}(T_g)}{10} + \frac{\sqrt{15}\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{T}_{2,1}^{(b)}(T_g)}{10} + \frac{\sqrt{15}\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{T}_{2,3}^{(b)}(T_g)}{15} + \frac{\sqrt{15}\mathbb{T}_{2,3}^{(1,0;a)}(T_g)\mathbb{T}_{2,2}^{(b)}(T_g)}{15}$$

$$\boxed{\text{z200}} \quad \mathbb{Q}_{4,2}^{(1,0;c)}(T_g, 2) = -\frac{\sqrt{5}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{T}_{2,2}^{(b)}(T_g)}{10} + \frac{\sqrt{15}\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{T}_{2,3}^{(b)}(T_g)}{15} - \frac{\sqrt{15}\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{T}_{2,2}^{(b)}(T_g)}{10} + \frac{\sqrt{15}\mathbb{T}_{2,3}^{(1,0;a)}(T_g)\mathbb{T}_{2,1}^{(b)}(T_g)}{15}$$

$$\boxed{\text{z201}} \quad \mathbb{Q}_{4,3}^{(1,0;c)}(T_g, 2) = \frac{\sqrt{5}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{T}_{2,3}^{(b)}(T_g)}{5} + \frac{\sqrt{15}\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{T}_{2,2}^{(b)}(T_g)}{15} + \frac{\sqrt{15}\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{T}_{2,1}^{(b)}(T_g)}{15}$$

$$\boxed{\text{z202}} \quad \mathbb{Q}_{2,1}^{(1,1;c)}(T_g, a) = \frac{\sqrt{3}\mathbb{Q}_0^{(1,1;a)}(A_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{3}$$

$$\boxed{\text{z203}} \quad \mathbb{Q}_{2,2}^{(1,1;c)}(T_g, a) = \frac{\sqrt{3}\mathbb{Q}_0^{(1,1;a)}(A_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{3}$$

$$\boxed{\text{z204}} \quad \mathbb{Q}_{2,3}^{(1,1;c)}(T_g, a) = \frac{\sqrt{3}\mathbb{Q}_0^{(1,1;a)}(A_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{3}$$

$$\boxed{\text{z205}} \quad \mathbb{Q}_{2,1}^{(1,1;c)}(T_g, b) = \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,1;a)}(T_g)\mathbb{M}_{1,3}^{(b)}(T_g)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,1;a)}(T_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{6}$$

$$\boxed{\text{z206}} \quad \mathbb{Q}_{2,2}^{(1,1;c)}(T_g, b) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,1;a)}(T_g)\mathbb{M}_{1,3}^{(b)}(T_g)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,1;a)}(T_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{6}$$

$$\boxed{\text{z207}} \quad \mathbb{Q}_{2,3}^{(1,1;c)}(T_g, b) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,1;a)}(T_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,1;a)}(T_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{6}$$

$$\boxed{\text{z208}} \quad \mathbb{Q}_{2,1}^{(1,1;c)}(T_g, c) = -\frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,1;a)}(T_g)\mathbb{T}_{2,3}^{(b)}(T_g)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,1;a)}(T_g)\mathbb{T}_{2,2}^{(b)}(T_g)}{6}$$

$$\boxed{\text{z209}} \quad \mathbb{Q}_{2,2}^{(1,1;c)}(T_g, c) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,1;a)}(T_g)\mathbb{T}_{2,3}^{(b)}(T_g)}{6} - \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,1;a)}(T_g)\mathbb{T}_{2,1}^{(b)}(T_g)}{6}$$

$$\boxed{\text{z210}} \quad \mathbb{Q}_{2,3}^{(1,1;c)}(T_g, c) = -\frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,1;a)}(T_g)\mathbb{T}_{2,2}^{(b)}(T_g)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,1;a)}(T_g)\mathbb{T}_{2,1}^{(b)}(T_g)}{6}$$

$$\boxed{\text{z211}} \quad \mathbb{Q}_{1,1}^{(c)}(T_u, a) = \frac{\sqrt{3}\mathbb{Q}_0^{(a)}(A_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z212}} \quad \mathbb{Q}_{1,2}^{(c)}(T_u, a) = \frac{\sqrt{3}\mathbb{Q}_0^{(a)}(A_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z213}} \quad \mathbb{Q}_{1,3}^{(c)}(T_u, a) = \frac{\sqrt{3}\mathbb{Q}_0^{(a)}(A_g)\mathbb{Q}_{1,3}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z214}} \quad \mathbb{Q}_{1,1}^{(c)}(T_u, b) = -\frac{\sqrt{30}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{30} + \frac{\sqrt{10}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{10} + \frac{\sqrt{10}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{1,3}^{(b)}(T_u)}{10} + \frac{\sqrt{10}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{10}$$

$$\boxed{\text{z215}} \quad \mathbb{Q}_{1,2}^{(c)}(T_u, b) = -\frac{\sqrt{30}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{30} + \frac{\sqrt{10}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{1,3}^{(b)}(T_u)}{10} - \frac{\sqrt{10}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{10} + \frac{\sqrt{10}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{10}$$

$$\boxed{\text{z216}} \quad \mathbb{Q}_{1,3}^{(c)}(T_u, b) = \frac{\sqrt{30}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{1,3}^{(b)}(T_u)}{15} + \frac{\sqrt{10}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{10} + \frac{\sqrt{10}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{10}$$

$$\boxed{\text{z217}} \quad \mathbb{Q}_{1,1}^{(c)}(T_u, c) = -\frac{\sqrt{5}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{10} + \frac{\sqrt{15}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{10} - \frac{\sqrt{15}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{15} - \frac{\sqrt{15}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{15}$$

$$\boxed{\text{z218}} \quad \mathbb{Q}_{1,2}^{(c)}(T_u, c) = -\frac{\sqrt{5}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{10} - \frac{\sqrt{15}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{15} - \frac{\sqrt{15}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{10} - \frac{\sqrt{15}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{15}$$

$$\boxed{\text{z219}} \quad \mathbb{Q}_{1,3}^{(c)}(T_u, c) = \frac{\sqrt{5}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{5} - \frac{\sqrt{15}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{15} - \frac{\sqrt{15}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{15}$$

$$\boxed{\text{z220}} \quad \mathbb{Q}_{1,1}^{(c)}(T_u, d) = -\frac{\sqrt{3}\mathbb{M}_{1,1}^{(a)}(T_g)\mathbb{M}_{2,1}^{(b)}(E_u)}{6} + \frac{\mathbb{M}_{1,1}^{(a)}(T_g)\mathbb{M}_{2,2}^{(b)}(E_u)}{2}$$

$$\boxed{\text{z221}} \quad \mathbb{Q}_{1,2}^{(c)}(T_u, d) = -\frac{\sqrt{3}\mathbb{M}_{1,2}^{(a)}(T_g)\mathbb{M}_{2,1}^{(b)}(E_u)}{6} - \frac{\mathbb{M}_{1,2}^{(a)}(T_g)\mathbb{M}_{2,2}^{(b)}(E_u)}{2}$$

$$\boxed{\text{z222}} \quad \mathbb{Q}_{1,3}^{(c)}(T_u, d) = \frac{\sqrt{3}\mathbb{M}_{1,3}^{(a)}(T_g)\mathbb{M}_{2,1}^{(b)}(E_u)}{3}$$

$$\boxed{\text{z223}} \quad \mathbb{Q}_{1,1}^{(c)}(T_u, e) = \frac{\sqrt{6}\mathbb{M}_{1,2}^{(a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{6} - \frac{\sqrt{6}\mathbb{M}_{1,3}^{(a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z224}} \quad \mathbb{Q}_{1,2}^{(c)}(T_u, e) = -\frac{\sqrt{6}\mathbb{M}_{1,1}^{(a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z225}} \quad \mathbb{Q}_{1,3}^{(c)}(T_u, e) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{6} - \frac{\sqrt{6}\mathbb{M}_{1,2}^{(a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z226}} \quad \mathbb{Q}_{3,1}^{(c)}(T_u, 1a) = \frac{\sqrt{3}\mathbb{Q}_0^{(a)}(A_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{3}$$

$$\boxed{\text{z227}} \quad \mathbb{Q}_{3,2}^{(c)}(T_u, 1a) = \frac{\sqrt{3}\mathbb{Q}_0^{(a)}(A_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{3}$$

$$\boxed{\text{z228}} \quad \mathbb{Q}_{3,3}^{(c)}(T_u, 1a) = \frac{\sqrt{3}\mathbb{Q}_0^{(a)}(A_g)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{3}$$

$$\boxed{\text{z229}} \quad \mathbb{Q}_{3,1}^{(c)}(T_u, 1b) = -\frac{\sqrt{5}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{10} + \frac{\sqrt{15}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{10} - \frac{\sqrt{15}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{1,3}^{(b)}(T_u)}{15} - \frac{\sqrt{15}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{15}$$

$$\boxed{\text{z230}} \quad \mathbb{Q}_{3,2}^{(c)}(T_u, 1b) = -\frac{\sqrt{5}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{10} - \frac{\sqrt{15}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{1,3}^{(b)}(T_u)}{15} - \frac{\sqrt{15}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{10} - \frac{\sqrt{15}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{15}$$

$$\boxed{\text{z231}} \quad \mathbb{Q}_{3,3}^{(c)}(T_u, 1b) = \frac{\sqrt{5}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{1,3}^{(b)}(T_u)}{5} - \frac{\sqrt{15}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{15} - \frac{\sqrt{15}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{15}$$

$$\boxed{\text{z232}} \quad \mathbb{Q}_{3,1}^{(c)}(T_u, 1c) = -\frac{\sqrt{30}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{30} + \frac{\sqrt{10}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{10} + \frac{\sqrt{10}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{10} + \frac{\sqrt{10}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{10}$$

$$\boxed{\text{z233}} \quad \mathbb{Q}_{3,2}^{(c)}(T_u, 1c) = -\frac{\sqrt{30}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{30} + \frac{\sqrt{10}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{10} - \frac{\sqrt{10}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{10} + \frac{\sqrt{10}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{10}$$

$$\boxed{\text{z234}} \quad \mathbb{Q}_{3,3}^{(c)}(T_u, 1c) = \frac{\sqrt{30}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{15} + \frac{\sqrt{10}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{10} + \frac{\sqrt{10}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{10}$$

$$\boxed{\text{z235}} \quad \mathbb{Q}_{3,1}^{(c)}(T_u, 2a) = -\frac{\sqrt{3}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{6} - \frac{\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{6} - \frac{\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{1,3}^{(b)}(T_u)}{3} + \frac{\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z236}} \quad \mathbb{Q}_{3,2}^{(c)}(T_u, 2a) = \frac{\sqrt{3}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{6} + \frac{\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{1,3}^{(b)}(T_u)}{3} - \frac{\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{6} - \frac{\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z237}} \quad \mathbb{Q}_{3,3}^{(c)}(T_u, 2a) = -\frac{\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{3} + \frac{\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{1,3}^{(b)}(T_u)}{3} + \frac{\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z238}} \quad \mathbb{Q}_{3,1}^{(c)}(T_u, 2b) = \frac{\sqrt{2}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{3} + \frac{\sqrt{6}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{9} - \frac{\sqrt{6}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{18} + \frac{\sqrt{6}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{18}$$

$$\boxed{\text{z239}} \quad \mathbb{Q}_{3,2}^{(c)}(T_u, 2b) = -\frac{\sqrt{2}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{3} + \frac{\sqrt{6}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{18} + \frac{\sqrt{6}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{9} - \frac{\sqrt{6}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{18}$$

$$\boxed{\text{z240}} \quad \mathbb{Q}_{3,3}^{(c)}(T_u, 2b) = -\frac{\sqrt{6}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{18} - \frac{2\sqrt{6}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{9} + \frac{\sqrt{6}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{18}$$

$$\boxed{\text{z241}} \quad \mathbb{Q}_{3,1}^{(c)}(T_u, 2c) = -\frac{\sqrt{3}\mathbb{M}_{1,1}^{(a)}(T_g)\mathbb{T}_3^{(b)}(A_u)}{3}$$

$$\boxed{\text{z242}} \quad \mathbb{Q}_{3,2}^{(c)}(T_u, 2c) = -\frac{\sqrt{3}\mathbb{M}_{1,2}^{(a)}(T_g)\mathbb{T}_3^{(b)}(A_u)}{3}$$

$$\boxed{\text{z243}} \quad \mathbb{Q}_{3,3}^{(c)}(T_u, 2c) = -\frac{\sqrt{3}\mathbb{M}_{1,3}^{(a)}(T_g)\mathbb{T}_3^{(b)}(A_u)}{3}$$

$$\boxed{\text{z244}} \quad \mathbb{Q}_{3,1}^{(c)}(T_u, 2d) = -\frac{\mathbb{M}_{1,1}^{(a)}(T_g)\mathbb{M}_{2,1}^{(b)}(E_u)}{2} - \frac{\sqrt{3}\mathbb{M}_{1,1}^{(a)}(T_g)\mathbb{M}_{2,2}^{(b)}(E_u)}{6}$$

$$\boxed{\text{z245}} \quad \mathbb{Q}_{3,2}^{(c)}(T_u, 2d) = \frac{\mathbb{M}_{1,2}^{(a)}(T_g)\mathbb{M}_{2,1}^{(b)}(E_u)}{2} - \frac{\sqrt{3}\mathbb{M}_{1,2}^{(a)}(T_g)\mathbb{M}_{2,2}^{(b)}(E_u)}{6}$$

$$\boxed{\text{z246}} \quad \mathbb{Q}_{3,3}^{(c)}(T_u, 2d) = \frac{\sqrt{3}\mathbb{M}_{1,3}^{(a)}(T_g)\mathbb{M}_{2,2}^{(b)}(E_u)}{3}$$

$$\boxed{\text{z247}} \quad \mathbb{Q}_{5,1}^{(c)}(T_u, 3) = \frac{\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{6} + \frac{\sqrt{3}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{18} + \frac{2\sqrt{3}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{9} - \frac{2\sqrt{3}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{9}$$

$$\boxed{\text{z248}} \quad \mathbb{Q}_{5,2}^{(c)}(T_u, 3) = -\frac{\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{6} - \frac{2\sqrt{3}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{9} + \frac{\sqrt{3}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{18} + \frac{2\sqrt{3}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{9}$$

$$\boxed{\text{z249}} \quad \mathbb{Q}_{5,3}^{(c)}(T_u, 3) = \frac{2\sqrt{3}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{9} - \frac{\sqrt{3}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{9} - \frac{2\sqrt{3}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{9}$$

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

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

$$\boxed{\text{z252}} \quad \mathbb{Q}_{1,3}^{(1,-1;c)}(T_u, a) = \frac{\sqrt{30}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{1,3}^{(b)}(T_u)}{15} + \frac{\sqrt{10}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{10} + \frac{\sqrt{10}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{10}$$

$$\boxed{\text{z253}} \quad \mathbb{Q}_{1,1}^{(1,-1;c)}(T_u, b) = -\frac{\sqrt{5}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{10} + \frac{\sqrt{15}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{10} - \frac{\sqrt{15}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{15} - \frac{\sqrt{15}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{15}$$

$$\boxed{\text{z254}} \quad \mathbb{Q}_{1,2}^{(1,-1;c)}(T_u, b) = -\frac{\sqrt{5}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{10} - \frac{\sqrt{15}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{15} - \frac{\sqrt{15}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{10} - \frac{\sqrt{15}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{15}$$

$$\boxed{\text{z255}} \quad \mathbb{Q}_{1,3}^{(1,-1;c)}(T_u, b) = \frac{\sqrt{5}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{5} - \frac{\sqrt{15}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{15} - \frac{\sqrt{15}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{15}$$

$$\boxed{\text{z256}} \quad \mathbb{Q}_{1,1}^{(1,-1;c)}(T_u, c) = \frac{\sqrt{3}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_3^{(b)}(A_u)}{3}$$

$$\boxed{\text{z257}} \quad \mathbb{Q}_{1,2}^{(1,-1;c)}(T_u, c) = \frac{\sqrt{3}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_3^{(b)}(A_u)}{3}$$

$$\boxed{\text{z258}} \quad \mathbb{Q}_{1,3}^{(1,-1;c)}(T_u, c) = \frac{\sqrt{3}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{T}_3^{(b)}(A_u)}{3}$$

$$\boxed{\text{z259}} \quad \mathbb{Q}_{1,1}^{(1,-1;c)}(T_u, d) = -\frac{\sqrt{42}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{2,1}^{(b)}(E_u)}{28} + \frac{3\sqrt{14}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{2,2}^{(b)}(E_u)}{28} - \frac{\sqrt{70}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{2,1}^{(b)}(E_u)}{28} - \frac{\sqrt{210}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{2,2}^{(b)}(E_u)}{84}$$

$$\boxed{\text{z260}} \quad \mathbb{Q}_{1,2}^{(1,-1;c)}(T_u, d) = -\frac{\sqrt{42}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{2,1}^{(b)}(E_u)}{28} - \frac{3\sqrt{14}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{2,2}^{(b)}(E_u)}{28} + \frac{\sqrt{70}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{2,1}^{(b)}(E_u)}{28} - \frac{\sqrt{210}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{2,2}^{(b)}(E_u)}{84}$$

$$\boxed{\text{z261}} \quad \mathbb{Q}_{1,3}^{(1,-1;c)}(T_u, d) = \frac{\sqrt{42}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{2,1}^{(b)}(E_u)}{14} + \frac{\sqrt{210}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{2,2}^{(b)}(E_u)}{42}$$

$$\boxed{\text{z262}} \quad \mathbb{Q}_{1,1}^{(1,-1;c)}(T_u, e) = -\frac{\sqrt{3}\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{M}_{2,1}^{(b)}(E_u)}{6} + \frac{\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{M}_{2,2}^{(b)}(E_u)}{2}$$

$$\boxed{\text{z263}} \quad \mathbb{Q}_{1,2}^{(1,-1;c)}(T_u, e) = -\frac{\sqrt{3}\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{M}_{2,1}^{(b)}(E_u)}{6} - \frac{\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{M}_{2,2}^{(b)}(E_u)}{2}$$

$$\boxed{\text{z264}} \quad \mathbb{Q}_{1,3}^{(1,-1;c)}(T_u, e) = \frac{\sqrt{3}\mathbb{M}_{1,3}^{(1,-1;a)}(T_g)\mathbb{M}_{2,1}^{(b)}(E_u)}{3}$$

$$\boxed{\text{z265}} \quad \mathbb{Q}_{1,1}^{(1,-1;c)}(T_u, f) = \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{6} - \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,-1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z266}} \quad \mathbb{Q}_{1,2}^{(1,-1;c)}(T_u, f) = -\frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,-1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z267}} \quad \mathbb{Q}_{1,3}^{(1,-1;c)}(T_u, f) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{6} - \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z268}} \quad \mathbb{Q}_{3,1}^{(1,-1;c)}(T_u, 1a) = -\frac{\sqrt{5}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{10} + \frac{\sqrt{15}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{10} - \frac{\sqrt{15}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,3}^{(b)}(T_u)}{15} - \frac{\sqrt{15}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{15}$$

$$\boxed{\text{z269}} \quad \mathbb{Q}_{3,2}^{(1,-1;c)}(T_u, 1a) = -\frac{\sqrt{5}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{10} - \frac{\sqrt{15}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,3}^{(b)}(T_u)}{15} - \frac{\sqrt{15}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{10} - \frac{\sqrt{15}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{15}$$

$$\boxed{\text{z270}} \quad \mathbb{Q}_{3,3}^{(1,-1;c)}(T_u, 1a) = \frac{\sqrt{5}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{1,3}^{(b)}(T_u)}{5} - \frac{\sqrt{15}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{15} - \frac{\sqrt{15}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{15}$$

$$\boxed{\text{z271}} \quad \mathbb{Q}_{3,1}^{(1,-1;c)}(T_u, 1b) = -\frac{\sqrt{30}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{30} + \frac{\sqrt{10}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{10} + \frac{\sqrt{10}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{10} + \frac{\sqrt{10}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{10}$$

$$\boxed{\text{z272}} \quad \mathbb{Q}_{3,2}^{(1,-1;c)}(T_u, 1b) = -\frac{\sqrt{30}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{30} + \frac{\sqrt{10}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{10} - \frac{\sqrt{10}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{10} + \frac{\sqrt{10}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{10}$$

$$\boxed{\text{z273}} \quad \mathbb{Q}_{3,3}^{(1,-1;c)}(T_u, 1b) = \frac{\sqrt{30}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{15} + \frac{\sqrt{10}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{10} + \frac{\sqrt{10}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{10}$$

$$\boxed{\text{z274}} \quad \mathbb{Q}_{3,1}^{(1,-1;c)}(T_u, 1c) = -\frac{\sqrt{210}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{2,1}^{(b)}(E_u)}{84} + \frac{\sqrt{70}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{2,2}^{(b)}(E_u)}{28} + \frac{3\sqrt{14}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{2,1}^{(b)}(E_u)}{28} + \frac{\sqrt{42}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{2,2}^{(b)}(E_u)}{28}$$

$$\boxed{\text{z275}} \quad \mathbb{Q}_{3,2}^{(1,-1;c)}(T_u, 1c) = -\frac{\sqrt{210}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{2,1}^{(b)}(E_u)}{84} - \frac{\sqrt{70}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{2,2}^{(b)}(E_u)}{28} - \frac{3\sqrt{14}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{2,1}^{(b)}(E_u)}{28} + \frac{\sqrt{42}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{2,2}^{(b)}(E_u)}{28}$$

$$\boxed{\text{z276}} \quad \mathbb{Q}_{3,3}^{(1,-1;c)}(T_u, 1c) = \frac{\sqrt{210}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{2,1}^{(b)}(E_u)}{42} - \frac{\sqrt{42}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{2,2}^{(b)}(E_u)}{14}$$

$$\boxed{\text{z282}} \quad \mathbb{Q}_{3,1}^{(1,-1;c)}(T_u, 1d) = -\frac{\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,3}^{(b)}(T_u)}{4} - \frac{\sqrt{15}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,3}^{(b)}(T_u)}{12} + \frac{\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,2}^{(b)}(T_u)}{4} - \frac{\sqrt{15}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,2}^{(b)}(T_u)}{12}$$

$$\boxed{\text{z283}} \quad \mathbb{Q}_{3,2}^{(1,-1;c)}(T_u, 1d) = \frac{\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,3}^{(b)}(T_u)}{4} - \frac{\sqrt{15}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,3}^{(b)}(T_u)}{12} - \frac{\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,1}^{(b)}(T_u)}{4} - \frac{\sqrt{15}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,1}^{(b)}(T_u)}{12}$$

$$\boxed{\text{z284}} \quad \mathbb{Q}_{3,3}^{(1,-1;c)}(T_u, 1d) = -\frac{\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,2}^{(b)}(T_u)}{4} - \frac{\sqrt{15}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,2}^{(b)}(T_u)}{12} + \frac{\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,1}^{(b)}(T_u)}{4} - \frac{\sqrt{15}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,1}^{(b)}(T_u)}{12}$$

$$\boxed{\text{z285}} \quad \mathbb{Q}_{3,1}^{(1,-1;c)}(T_u, 2a) = -\frac{\sqrt{3}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{6} - \frac{\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{6} - \frac{\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,3}^{(b)}(T_u)}{3} + \frac{\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z286}} \quad \mathbb{Q}_{3,2}^{(1,-1;c)}(T_u, 2a) = \frac{\sqrt{3}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{6} + \frac{\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,3}^{(b)}(T_u)}{3} - \frac{\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{6} - \frac{\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z287}} \quad \mathbb{Q}_{3,3}^{(1,-1;c)}(T_u, 2a) = -\frac{\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{3} + \frac{\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{1,3}^{(b)}(T_u)}{3} + \frac{\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z288}} \quad \mathbb{Q}_{3,1}^{(1,-1;c)}(T_u, 2b) = \frac{\sqrt{2}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{3} + \frac{\sqrt{6}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{9} - \frac{\sqrt{6}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{18} + \frac{\sqrt{6}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{18}$$

$$\boxed{\text{z289}} \quad \mathbb{Q}_{3,2}^{(1,-1;c)}(T_u, 2b) = -\frac{\sqrt{2}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{3} + \frac{\sqrt{6}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{18} + \frac{\sqrt{6}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{9} - \frac{\sqrt{6}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{18}$$

$$\boxed{\text{z290}} \quad \mathbb{Q}_{3,3}^{(1,-1;c)}(T_u, 2b) = -\frac{\sqrt{6}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{18} - \frac{2\sqrt{6}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{9} + \frac{\sqrt{6}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{18}$$

$$\boxed{\text{z291}} \quad \mathbb{Q}_{3,1}^{(1,-1;c)}(T_u, 2c) = -\frac{\sqrt{3}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{T}_3^{(b)}(A_u)}{3}$$

$$\boxed{\text{z292}} \quad \mathbb{Q}_{3,2}^{(1,-1;c)}(T_u, 2c) = -\frac{\sqrt{3}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_3^{(b)}(A_u)}{3}$$

$$\boxed{\text{z293}} \quad \mathbb{Q}_{3,3}^{(1,-1;c)}(T_u, 2c) = -\frac{\sqrt{3}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{T}_3^{(b)}(A_u)}{3}$$

$$\boxed{\text{z294}} \quad \mathbb{Q}_{3,1}^{(1,-1;c)}(T_u, 2d) = \frac{\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{2,1}^{(b)}(E_u)}{2} + \frac{\sqrt{3}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{2,2}^{(b)}(E_u)}{6}$$

$$\boxed{\text{z295}} \quad \mathbb{Q}_{3,2}^{(1,-1;c)}(T_u, 2d) = -\frac{\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{2,1}^{(b)}(E_u)}{2} + \frac{\sqrt{3}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{2,2}^{(b)}(E_u)}{6}$$

$$\boxed{\text{z296}} \quad \mathbb{Q}_{3,3}^{(1,-1;c)}(T_u, 2d) = -\frac{\sqrt{3}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{2,2}^{(b)}(E_u)}{3}$$

$$\boxed{\text{z307}} \quad \mathbb{Q}_{3,1}^{(1,-1;c)}(T_u, 2e) = \frac{\sqrt{15}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,3}^{(b)}(T_u)}{12} + \frac{\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,3}^{(b)}(T_u)}{12} + \frac{\sqrt{15}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,2}^{(b)}(T_u)}{12} - \frac{\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,2}^{(b)}(T_u)}{12} + \frac{\mathbb{M}_3^{(1,-1;a)}(A_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z308}} \quad \mathbb{Q}_{3,2}^{(1,-1;c)}(T_u, 2e) = \frac{\sqrt{15}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,3}^{(b)}(T_u)}{12} - \frac{\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,3}^{(b)}(T_u)}{12} + \frac{\sqrt{15}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,1}^{(b)}(T_u)}{12} + \frac{\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,1}^{(b)}(T_u)}{12} + \frac{\mathbb{M}_3^{(1,-1;a)}(A_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z309}} \quad \mathbb{Q}_{3,3}^{(1,-1;c)}(T_u, 2e) = \frac{\sqrt{15}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,2}^{(b)}(T_u)}{12} + \frac{\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,2}^{(b)}(T_u)}{12} + \frac{\sqrt{15}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,1}^{(b)}(T_u)}{12} - \frac{\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,1}^{(b)}(T_u)}{12} + \frac{\mathbb{M}_3^{(1,-1;a)}(A_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z310}} \quad \mathbb{Q}_{3,1}^{(1,-1;c)}(T_u, 2f) = -\frac{\sqrt{3}\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{T}_3^{(b)}(A_u)}{3}$$

$$\boxed{\text{z311}} \quad \mathbb{Q}_{3,2}^{(1,-1;c)}(T_u, 2f) = -\frac{\sqrt{3}\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{T}_3^{(b)}(A_u)}{3}$$

$$\boxed{\text{z312}} \quad \mathbb{Q}_{3,3}^{(1,-1;c)}(T_u, 2f) = -\frac{\sqrt{3}\mathbb{M}_{1,3}^{(1,-1;a)}(T_g)\mathbb{T}_3^{(b)}(A_u)}{3}$$

$$\boxed{\text{z313}} \quad \mathbb{Q}_{3,1}^{(1,-1;c)}(T_u, 2g) = -\frac{\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{M}_{2,1}^{(b)}(E_u)}{2} - \frac{\sqrt{3}\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{M}_{2,2}^{(b)}(E_u)}{6}$$

$$\boxed{\text{z314}} \quad \mathbb{Q}_{3,2}^{(1,-1;c)}(T_u, 2g) = \frac{\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{M}_{2,1}^{(b)}(E_u)}{2} - \frac{\sqrt{3}\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{M}_{2,2}^{(b)}(E_u)}{6}$$

$$\boxed{\text{z315}} \quad \mathbb{Q}_{3,3}^{(1,-1;c)}(T_u, 2g) = \frac{\sqrt{3}\mathbb{M}_{1,3}^{(1,-1;a)}(T_g)\mathbb{M}_{2,2}^{(b)}(E_u)}{3}$$

$$\boxed{\text{z316}} \quad \mathbb{Q}_{5,1}^{(1,-1;c)}(T_u, 3a) = \frac{\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{6} + \frac{\sqrt{3}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{18} + \frac{2\sqrt{3}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{9} - \frac{2\sqrt{3}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{9}$$

$$\boxed{\text{z317}} \quad \mathbb{Q}_{5,2}^{(1,-1;c)}(T_u, 3a) = -\frac{\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{6} - \frac{2\sqrt{3}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{9} + \frac{\sqrt{3}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{18} + \frac{2\sqrt{3}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{9}$$

$$\boxed{\text{z318}} \quad \mathbb{Q}_{5,3}^{(1,-1;c)}(T_u, 3a) = \frac{2\sqrt{3}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{9} - \frac{\sqrt{3}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{9} - \frac{2\sqrt{3}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{9}$$

$$\boxed{\text{z319}} \quad \mathbb{Q}_{5,1}^{(1,-1;c)}(T_u, 3b) = -\frac{\sqrt{3}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{2,1}^{(b)}(E_u)}{6} + \frac{\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{2,2}^{(b)}(E_u)}{2}$$

$$\boxed{\text{z320}} \quad \mathbb{Q}_{5,2}^{(1,-1;c)}(T_u, 3b) = -\frac{\sqrt{3}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{2,1}^{(b)}(E_u)}{6} - \frac{\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{2,2}^{(b)}(E_u)}{2}$$

$$\boxed{\text{z321}} \quad \mathbb{Q}_{5,3}^{(1,-1;c)}(T_u, 3b) = \frac{\sqrt{3}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{2,1}^{(b)}(E_u)}{3}$$

$$\boxed{\text{z322}} \quad \mathbb{Q}_{1,1}^{(1,0;c)}(T_u, a) = \frac{\sqrt{6}\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{1,3}^{(b)}(T_u)}{6} - \frac{\sqrt{6}\mathbb{G}_{1,3}^{(1,0;a)}(T_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z323}} \quad \mathbb{Q}_{1,2}^{(1,0;c)}(T_u, a) = -\frac{\sqrt{6}\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{1,3}^{(b)}(T_u)}{6} + \frac{\sqrt{6}\mathbb{G}_{1,3}^{(1,0;a)}(T_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z324}} \quad \mathbb{Q}_{1,3}^{(1,0;c)}(T_u, a) = \frac{\sqrt{6}\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{6} - \frac{\sqrt{6}\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z325}} \quad \mathbb{Q}_{1,1}^{(1,0;c)}(T_u, b) = \frac{\sqrt{3}\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{T}_3^{(b)}(A_u)}{3}$$

$$\boxed{\text{z326}} \quad \mathbb{Q}_{1,2}^{(1,0;c)}(T_u, b) = \frac{\sqrt{3}\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{T}_3^{(b)}(A_u)}{3}$$

$$\boxed{\text{z327}} \quad \mathbb{Q}_{1,3}^{(1,0;c)}(T_u, b) = \frac{\sqrt{3}\mathbb{T}_{2,3}^{(1,0;a)}(T_g)\mathbb{T}_3^{(b)}(A_u)}{3}$$

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

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

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

$$\boxed{\text{z331}} \quad \mathbb{Q}_{1,1}^{(1,0;c)}(T_u, d) = -\frac{\sqrt{30}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{30} + \frac{\sqrt{10}\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{10} + \frac{\sqrt{10}\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{10} + \frac{\sqrt{10}\mathbb{T}_{2,3}^{(1,0;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{10}$$

$$\boxed{\text{z332}} \quad \mathbb{Q}_{1,2}^{(1,0;c)}(T_u, d) = -\frac{\sqrt{30}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{30} + \frac{\sqrt{10}\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{10} - \frac{\sqrt{10}\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{10} + \frac{\sqrt{10}\mathbb{T}_{2,3}^{(1,0;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{10}$$

$$\boxed{\text{z333}} \quad \mathbb{Q}_{1,3}^{(1,0;c)}(T_u, d) = \frac{\sqrt{30}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{15} + \frac{\sqrt{10}\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{10} + \frac{\sqrt{10}\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{10}$$

$$\boxed{\text{z334}} \quad \mathbb{Q}_{3,1}^{(1,0;c)}(T_u, 1a) = -\frac{\sqrt{6}\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{6} + \frac{\sqrt{6}\mathbb{G}_{1,3}^{(1,0;a)}(T_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{6}$$

$$\boxed{\text{z335}} \quad \mathbb{Q}_{3,2}^{(1,0;c)}(T_u, 1a) = \frac{\sqrt{6}\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{6} - \frac{\sqrt{6}\mathbb{G}_{1,3}^{(1,0;a)}(T_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{6}$$

$$\boxed{\text{z336}} \quad \mathbb{Q}_{3,3}^{(1,0;c)}(T_u, 1a) = -\frac{\sqrt{6}\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{6} + \frac{\sqrt{6}\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{6}$$

$$\boxed{\text{z382}} \quad \mathbb{Q}_{3,1}^{(1,0;c)}(T_u, 1b) = -\frac{\sqrt{5}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{10} + \frac{\sqrt{15}\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{10} - \frac{\sqrt{15}\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{15} - \frac{\sqrt{15}\mathbb{T}_{2,3}^{(1,0;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{15}$$

$$\boxed{\text{z383}} \quad \mathbb{Q}_{3,2}^{(1,0;c)}(T_u, 1b) = -\frac{\sqrt{5}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{10} - \frac{\sqrt{15}\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{15} - \frac{\sqrt{15}\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{10} - \frac{\sqrt{15}\mathbb{T}_{2,3}^{(1,0;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{15}$$

$$\boxed{\text{z384}} \quad \mathbb{Q}_{3,3}^{(1,0;c)}(T_u, 1b) = \frac{\sqrt{5}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{5} - \frac{\sqrt{15}\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{15} - \frac{\sqrt{15}\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{15}$$

$$\boxed{\text{z385}} \quad \mathbb{Q}_{3,1}^{(1,0;c)}(T_u, 2a) = -\frac{\sqrt{6}\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{6} - \frac{\sqrt{6}\mathbb{G}_{1,3}^{(1,0;a)}(T_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{6}$$

$$\boxed{\text{z386}} \quad \mathbb{Q}_{3,2}^{(1,0;c)}(T_u, 2a) = -\frac{\sqrt{6}\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{6} - \frac{\sqrt{6}\mathbb{G}_{1,3}^{(1,0;a)}(T_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{6}$$

$$\boxed{\text{z387}} \quad \mathbb{Q}_{3,3}^{(1,0;c)}(T_u, 2a) = -\frac{\sqrt{6}\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{6} - \frac{\sqrt{6}\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{6}$$

$$\boxed{\text{z388}} \quad \mathbb{Q}_{3,1}^{(1,0;c)}(T_u, 2b) = -\frac{\sqrt{3}\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{M}_{2,1}^{(b)}(E_u)}{6} + \frac{\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{M}_{2,2}^{(b)}(E_u)}{2}$$

$$\boxed{\text{z389}} \quad \mathbb{Q}_{3,2}^{(1,0;c)}(T_u, 2b) = -\frac{\sqrt{3}\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{M}_{2,1}^{(b)}(E_u)}{6} - \frac{\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{M}_{2,2}^{(b)}(E_u)}{2}$$

$$\boxed{\text{z390}} \quad \mathbb{Q}_{3,3}^{(1,0;c)}(T_u, 2b) = \frac{\sqrt{3}\mathbb{T}_{2,3}^{(1,0;a)}(T_g)\mathbb{M}_{2,1}^{(b)}(E_u)}{3}$$

$$\boxed{\text{z391}} \quad \mathbb{Q}_{3,1}^{(1,0;c)}(T_u, 2c) = -\frac{\sqrt{3}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{6} - \frac{\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{6} - \frac{\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{3} + \frac{\mathbb{T}_{2,3}^{(1,0;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z392}} \quad \mathbb{Q}_{3,2}^{(1,0;c)}(T_u, 2c) = \frac{\sqrt{3}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{6} + \frac{\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{3} - \frac{\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{6} - \frac{\mathbb{T}_{2,3}^{(1,0;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z393}} \quad \mathbb{Q}_{3,3}^{(1,0;c)}(T_u, 2c) = -\frac{\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{3} + \frac{\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{3} + \frac{\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z394}} \quad \mathbb{Q}_{1,1}^{(1,1;c)}(T_u, a) = \frac{\sqrt{3}\mathbb{Q}_0^{(1,1;a)}(A_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z395}} \quad \mathbb{Q}_{1,2}^{(1,1;c)}(T_u, a) = \frac{\sqrt{3}\mathbb{Q}_0^{(1,1;a)}(A_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z396}} \quad \mathbb{Q}_{1,3}^{(1,1;c)}(T_u, a) = \frac{\sqrt{3}\mathbb{Q}_0^{(1,1;a)}(A_g)\mathbb{Q}_{1,3}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z397}} \quad \mathbb{Q}_{1,1}^{(1,1;c)}(T_u, b) = -\frac{\sqrt{3}\mathbb{M}_{1,1}^{(1,1;a)}(T_g)\mathbb{M}_{2,1}^{(b)}(E_u)}{6} + \frac{\mathbb{M}_{1,1}^{(1,1;a)}(T_g)\mathbb{M}_{2,2}^{(b)}(E_u)}{2}$$

$$\boxed{\text{z398}} \quad \mathbb{Q}_{1,2}^{(1,1;c)}(T_u, b) = -\frac{\sqrt{3}\mathbb{M}_{1,2}^{(1,1;a)}(T_g)\mathbb{M}_{2,1}^{(b)}(E_u)}{6} - \frac{\mathbb{M}_{1,2}^{(1,1;a)}(T_g)\mathbb{M}_{2,2}^{(b)}(E_u)}{2}$$

$$\boxed{\text{z399}} \quad \mathbb{Q}_{1,3}^{(1,1;c)}(T_u, b) = \frac{\sqrt{3}\mathbb{M}_{1,3}^{(1,1;a)}(T_g)\mathbb{M}_{2,1}^{(b)}(E_u)}{3}$$

$$\boxed{\text{z400}} \quad \mathbb{Q}_{1,1}^{(1,1;c)}(T_u, c) = \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,1;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{6} - \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z401}} \quad \mathbb{Q}_{1,2}^{(1,1;c)}(T_u, c) = -\frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,1;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z402}} \quad \mathbb{Q}_{1,3}^{(1,1;c)}(T_u, c) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{6} - \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z403}} \quad \mathbb{Q}_{3,1}^{(1,1;c)}(T_u, 1) = \frac{\sqrt{3}\mathbb{Q}_0^{(1,1;a)}(A_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{3}$$

$$\boxed{\text{z404}} \quad \mathbb{Q}_{3,2}^{(1,1;c)}(T_u, 1) = \frac{\sqrt{3}\mathbb{Q}_0^{(1,1;a)}(A_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{3}$$

$$\boxed{\text{z405}} \quad \mathbb{Q}_{3,3}^{(1,1;c)}(T_u, 1) = \frac{\sqrt{3}\mathbb{Q}_0^{(1,1;a)}(A_g)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{3}$$

$$\boxed{\text{z406}} \quad \mathbb{Q}_{3,1}^{(1,1;c)}(T_u, 2a) = -\frac{\sqrt{3}\mathbb{M}_{1,1}^{(1,1;a)}(T_g)\mathbb{T}_3^{(b)}(A_u)}{3}$$

$$\boxed{\text{z407}} \quad \mathbb{Q}_{3,2}^{(1,1;c)}(T_u, 2a) = -\frac{\sqrt{3}\mathbb{M}_{1,2}^{(1,1;a)}(T_g)\mathbb{T}_3^{(b)}(A_u)}{3}$$

$$\boxed{\text{z408}} \quad \mathbb{Q}_{3,3}^{(1,1;c)}(T_u, 2a) = -\frac{\sqrt{3}\mathbb{M}_{1,3}^{(1,1;a)}(T_g)\mathbb{T}_3^{(b)}(A_u)}{3}$$

$$\boxed{\text{z409}} \quad \mathbb{Q}_{3,1}^{(1,1;c)}(T_u, 2b) = -\frac{\mathbb{M}_{1,1}^{(1,1;a)}(T_g)\mathbb{M}_{2,1}^{(b)}(E_u)}{2} - \frac{\sqrt{3}\mathbb{M}_{1,1}^{(1,1;a)}(T_g)\mathbb{M}_{2,2}^{(b)}(E_u)}{6}$$

$$\boxed{\text{z410}} \quad \mathbb{Q}_{3,2}^{(1,1;c)}(T_u, 2b) = \frac{\mathbb{M}_{1,2}^{(1,1;a)}(T_g)\mathbb{M}_{2,1}^{(b)}(E_u)}{2} - \frac{\sqrt{3}\mathbb{M}_{1,2}^{(1,1;a)}(T_g)\mathbb{M}_{2,2}^{(b)}(E_u)}{6}$$

$$\boxed{\text{z411}} \quad \mathbb{Q}_{3,3}^{(1,1;c)}(T_u, 2b) = \frac{\sqrt{3}\mathbb{M}_{1,3}^{(1,1;a)}(T_g)\mathbb{M}_{2,2}^{(b)}(E_u)}{3}$$

$$\boxed{\text{z412}} \quad \mathbb{G}_3^{(c)}(A_g, a) = \frac{\sqrt{2}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{2} - \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z413}} \quad \mathbb{G}_3^{(c)}(A_g, b) = \frac{\sqrt{3}\mathbb{M}_{1,1}^{(a)}(T_g)\mathbb{T}_{2,1}^{(b)}(T_g)}{3} + \frac{\sqrt{3}\mathbb{M}_{1,2}^{(a)}(T_g)\mathbb{T}_{2,2}^{(b)}(T_g)}{3} + \frac{\sqrt{3}\mathbb{M}_{1,3}^{(a)}(T_g)\mathbb{T}_{2,3}^{(b)}(T_g)}{3}$$

$$\boxed{\text{z414}} \quad \mathbb{G}_3^{(1,-1;c)}(A_g, a) = \frac{\sqrt{2}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{2} - \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z415}} \quad \mathbb{G}_3^{(1,-1;c)}(A_g, b) = -\frac{\sqrt{3}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,1}^{(b)}(T_g)}{3} - \frac{\sqrt{3}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,2}^{(b)}(T_g)}{3} - \frac{\sqrt{3}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,3}^{(b)}(T_g)}{3}$$

$$\boxed{\text{z416}} \quad \mathbb{G}_3^{(1,-1;c)}(A_g, c) = -\frac{\sqrt{3}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{2,1}^{(b)}(T_g)}{3} - \frac{\sqrt{3}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{2,2}^{(b)}(T_g)}{3} - \frac{\sqrt{3}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{2,3}^{(b)}(T_g)}{3}$$

$$\boxed{\text{z417}} \quad \mathbb{G}_3^{(1,-1;c)}(A_g, d) = \frac{\sqrt{3}\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{T}_{2,1}^{(b)}(T_g)}{3} + \frac{\sqrt{3}\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{T}_{2,2}^{(b)}(T_g)}{3} + \frac{\sqrt{3}\mathbb{M}_{1,3}^{(1,-1;a)}(T_g)\mathbb{T}_{2,3}^{(b)}(T_g)}{3}$$

$$\boxed{\text{z418}} \quad \mathbb{G}_3^{(1,0;c)}(A_g, a) = \frac{\sqrt{3}\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{3} + \frac{\sqrt{3}\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{3} + \frac{\sqrt{3}\mathbb{G}_{1,3}^{(1,0;a)}(T_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{3}$$

$$\boxed{\text{z419}} \quad \mathbb{G}_3^{(1,0;c)}(A_g, b) = \frac{\sqrt{3}\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{3} + \frac{\sqrt{3}\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{3} + \frac{\sqrt{3}\mathbb{T}_{2,3}^{(1,0;a)}(T_g)\mathbb{M}_{1,3}^{(b)}(T_g)}{3}$$

$$\boxed{\text{z420}} \quad \mathbb{G}_3^{(1,1;c)}(A_g) = \frac{\sqrt{3}\mathbb{M}_{1,1}^{(1,1;a)}(T_g)\mathbb{T}_{2,1}^{(b)}(T_g)}{3} + \frac{\sqrt{3}\mathbb{M}_{1,2}^{(1,1;a)}(T_g)\mathbb{T}_{2,2}^{(b)}(T_g)}{3} + \frac{\sqrt{3}\mathbb{M}_{1,3}^{(1,1;a)}(T_g)\mathbb{T}_{2,3}^{(b)}(T_g)}{3}$$

$$\boxed{\text{z421}} \quad \mathbb{G}_0^{(c)}(A_u) = \frac{\sqrt{3}\mathbb{M}_{1,1}^{(a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{3} + \frac{\sqrt{3}\mathbb{M}_{1,2}^{(a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{3} + \frac{\sqrt{3}\mathbb{M}_{1,3}^{(a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z422}} \quad \mathbb{G}_0^{(1,-1;c)}(A_u, a) = \mathbb{M}_3^{(1,-1;a)}(A_g) \mathbb{T}_3^{(b)}(A_u)$$

$$\boxed{\text{z423}} \quad \mathbb{G}_0^{(1,-1;c)}(A_u, b) = \frac{\sqrt{3}\mathbb{M}_{1,1}^{(1,-1;a)}(T_g) \mathbb{T}_{1,1}^{(b)}(T_u)}{3} + \frac{\sqrt{3}\mathbb{M}_{1,2}^{(1,-1;a)}(T_g) \mathbb{T}_{1,2}^{(b)}(T_u)}{3} + \frac{\sqrt{3}\mathbb{M}_{1,3}^{(1,-1;a)}(T_g) \mathbb{T}_{1,3}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z424}} \quad \mathbb{G}_4^{(1,-1;c)}(A_u) = \frac{\sqrt{3}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1) \mathbb{T}_{1,1}^{(b)}(T_u)}{3} + \frac{\sqrt{3}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1) \mathbb{T}_{1,2}^{(b)}(T_u)}{3} + \frac{\sqrt{3}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1) \mathbb{T}_{1,3}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z425}} \quad \mathbb{G}_0^{(1,0;c)}(A_u, a) = \frac{\sqrt{3}\mathbb{G}_{1,1}^{(1,0;a)}(T_g) \mathbb{Q}_{1,1}^{(b)}(T_u)}{3} + \frac{\sqrt{3}\mathbb{G}_{1,2}^{(1,0;a)}(T_g) \mathbb{Q}_{1,2}^{(b)}(T_u)}{3} + \frac{\sqrt{3}\mathbb{G}_{1,3}^{(1,0;a)}(T_g) \mathbb{Q}_{1,3}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z426}} \quad \mathbb{G}_0^{(1,0;c)}(A_u, b) = \frac{\sqrt{2}\mathbb{T}_{2,1}^{(1,0;a)}(E_g) \mathbb{M}_{2,1}^{(b)}(E_u)}{2} + \frac{\sqrt{2}\mathbb{T}_{2,2}^{(1,0;a)}(E_g) \mathbb{M}_{2,2}^{(b)}(E_u)}{2}$$

$$\boxed{\text{z427}} \quad \mathbb{G}_4^{(1,0;c)}(A_u) = \frac{\sqrt{3}\mathbb{G}_{1,1}^{(1,0;a)}(T_g) \mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{3} + \frac{\sqrt{3}\mathbb{G}_{1,2}^{(1,0;a)}(T_g) \mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{3} + \frac{\sqrt{3}\mathbb{G}_{1,3}^{(1,0;a)}(T_g) \mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{3}$$

$$\boxed{\text{z428}} \quad \mathbb{G}_0^{(1,1;c)}(A_u) = \frac{\sqrt{3}\mathbb{M}_{1,1}^{(1,1;a)}(T_g) \mathbb{T}_{1,1}^{(b)}(T_u)}{3} + \frac{\sqrt{3}\mathbb{M}_{1,2}^{(1,1;a)}(T_g) \mathbb{T}_{1,2}^{(b)}(T_u)}{3} + \frac{\sqrt{3}\mathbb{M}_{1,3}^{(1,1;a)}(T_g) \mathbb{T}_{1,3}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z429}} \quad \mathbb{G}_{2,1}^{(c)}(E_u, a) = -\frac{\mathbb{Q}_{2,1}^{(a)}(T_g) \mathbb{Q}_{1,1}^{(b)}(T_u)}{2} + \frac{\mathbb{Q}_{2,2}^{(a)}(T_g) \mathbb{Q}_{1,2}^{(b)}(T_u)}{2}$$

$$\boxed{\text{z430}} \quad \mathbb{G}_{2,2}^{(c)}(E_u, a) = -\frac{\sqrt{3}\mathbb{Q}_{2,1}^{(a)}(T_g) \mathbb{Q}_{1,1}^{(b)}(T_u)}{6} - \frac{\sqrt{3}\mathbb{Q}_{2,2}^{(a)}(T_g) \mathbb{Q}_{1,2}^{(b)}(T_u)}{6} + \frac{\sqrt{3}\mathbb{Q}_{2,3}^{(a)}(T_g) \mathbb{Q}_{1,3}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z431}} \quad \mathbb{G}_{2,1}^{(c)}(E_u, b) = -\frac{\sqrt{3}\mathbb{M}_{1,1}^{(a)}(T_g) \mathbb{T}_{1,1}^{(b)}(T_u)}{6} - \frac{\sqrt{3}\mathbb{M}_{1,2}^{(a)}(T_g) \mathbb{T}_{1,2}^{(b)}(T_u)}{6} + \frac{\sqrt{3}\mathbb{M}_{1,3}^{(a)}(T_g) \mathbb{T}_{1,3}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z432}} \quad \mathbb{G}_{2,2}^{(c)}(E_u, b) = \frac{\mathbb{M}_{1,1}^{(a)}(T_g) \mathbb{T}_{1,1}^{(b)}(T_u)}{2} - \frac{\mathbb{M}_{1,2}^{(a)}(T_g) \mathbb{T}_{1,2}^{(b)}(T_u)}{2}$$

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

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

$$\boxed{\text{z435}} \quad \mathbb{G}_{2,1}^{(1,-1;c)}(E_u, b) = -\frac{\sqrt{42}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1) \mathbb{T}_{1,1}^{(b)}(T_u)}{28} - \frac{\sqrt{70}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2) \mathbb{T}_{1,1}^{(b)}(T_u)}{28} - \frac{\sqrt{42}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1) \mathbb{T}_{1,2}^{(b)}(T_u)}{28} + \frac{\sqrt{70}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2) \mathbb{T}_{1,2}^{(b)}(T_u)}{28} + \frac{\sqrt{42}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1) \mathbb{T}_{1,3}^{(b)}(T_u)}{14}$$

$$\boxed{\text{z436}} \quad \mathbb{G}_{2,2}^{(1,-1;c)}(E_u, b) = \frac{3\sqrt{14}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,1}^{(b)}(T_u)}{28} - \frac{\sqrt{210}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,1}^{(b)}(T_u)}{84} - \frac{3\sqrt{14}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,2}^{(b)}(T_u)}{28} - \frac{\sqrt{210}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,2}^{(b)}(T_u)}{84} + \frac{\sqrt{210}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,3}^{(b)}(T_u)}{42}$$

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

$$\boxed{\text{z438}} \quad \mathbb{G}_{2,2}^{(1,-1;c)}(E_u, c) = \frac{\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{2} - \frac{\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{2}$$

$$\boxed{\text{z439}} \quad \mathbb{G}_{4,1}^{(1,-1;c)}(E_u) = -\frac{\sqrt{210}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,1}^{(b)}(T_u)}{84} + \frac{3\sqrt{14}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,1}^{(b)}(T_u)}{28} - \frac{\sqrt{210}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,2}^{(b)}(T_u)}{84} - \frac{3\sqrt{14}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,2}^{(b)}(T_u)}{28} + \frac{\sqrt{210}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,3}^{(b)}(T_u)}{42}$$

$$\boxed{\text{z440}} \quad \mathbb{G}_{4,2}^{(1,-1;c)}(E_u) = \frac{\sqrt{70}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,1}^{(b)}(T_u)}{28} + \frac{\sqrt{42}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,1}^{(b)}(T_u)}{28} - \frac{\sqrt{70}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,2}^{(b)}(T_u)}{28} + \frac{\sqrt{42}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,2}^{(b)}(T_u)}{28} - \frac{\sqrt{42}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,3}^{(b)}(T_u)}{14}$$

$$\boxed{\text{z441}} \quad \mathbb{G}_{2,1}^{(1,0;c)}(E_u, a) = -\frac{\sqrt{3}\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{6} - \frac{\sqrt{3}\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{6} + \frac{\sqrt{3}\mathbb{G}_{1,3}^{(1,0;a)}(T_g)\mathbb{Q}_{1,3}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z442}} \quad \mathbb{G}_{2,2}^{(1,0;c)}(E_u, a) = \frac{\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{2} - \frac{\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{2}$$

$$\boxed{\text{z443}} \quad \mathbb{G}_{2,1}^{(1,0;c)}(E_u, b) = -\frac{\sqrt{3}\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{6} - \frac{\sqrt{3}\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{6} + \frac{\sqrt{3}\mathbb{G}_{1,3}^{(1,0;a)}(T_g)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{3}$$

$$\boxed{\text{z444}} \quad \mathbb{G}_{2,2}^{(1,0;c)}(E_u, b) = \frac{\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{2} - \frac{\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{2}$$

$$\boxed{\text{z445}} \quad \mathbb{G}_{2,1}^{(1,0;c)}(E_u, c) = \frac{\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{M}_{2,1}^{(b)}(E_u)}{2} - \frac{\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{M}_{2,2}^{(b)}(E_u)}{2}$$

$$\boxed{\text{z446}} \quad \mathbb{G}_{2,2}^{(1,0;c)}(E_u, c) = -\frac{\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{M}_{2,2}^{(b)}(E_u)}{2} - \frac{\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{M}_{2,1}^{(b)}(E_u)}{2}$$

$$\boxed{\text{z447}} \quad \mathbb{G}_{2,1}^{(1,0;c)}(E_u, d) = -\frac{\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{2} + \frac{\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{2}$$

$$\boxed{\text{z448}} \quad \mathbb{G}_{2,2}^{(1,0;c)}(E_u, d) = -\frac{\sqrt{3}\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{6} - \frac{\sqrt{3}\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{6} + \frac{\sqrt{3}\mathbb{T}_{2,3}^{(1,0;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z449}} \quad \mathbb{G}_{2,1}^{(1,1;c)}(E_u) = -\frac{\sqrt{3}\mathbb{M}_{1,1}^{(1,1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{6} - \frac{\sqrt{3}\mathbb{M}_{1,2}^{(1,1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{6} + \frac{\sqrt{3}\mathbb{M}_{1,3}^{(1,1;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z450}} \quad \mathbb{G}_{2,2}^{(1,1;c)}(E_u) = \frac{\mathbb{M}_{1,1}^{(1,1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{2} - \frac{\mathbb{M}_{1,2}^{(1,1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{2}$$

$$\boxed{\text{z451}} \quad \mathbb{G}_{1,1}^{(c)}(T_g, a) = -\frac{\sqrt{10}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{10} + \frac{\sqrt{10}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{10} + \frac{\sqrt{30}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{30} - \frac{\sqrt{30}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{30} - \frac{\sqrt{30}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{30} + \frac{\sqrt{30}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{30}$$

$$\boxed{\text{z452}} \quad \mathbb{G}_{1,2}^{(c)}(T_g, a) = \frac{\sqrt{10}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{10} + \frac{\sqrt{30}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{30} - \frac{\sqrt{30}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{30} - \frac{\sqrt{10}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{10} + \frac{\sqrt{30}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{30} - \frac{\sqrt{30}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{30}$$

$$\boxed{\text{z453}} \quad \mathbb{G}_{1,3}^{(c)}(T_g, a) = -\frac{\sqrt{30}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{30} + \frac{\sqrt{30}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{15} + \frac{\sqrt{30}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{30} - \frac{\sqrt{30}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{15}$$

$$\boxed{\text{z454}} \quad \mathbb{G}_{1,1}^{(c)}(T_g, b) = \frac{\sqrt{6}\mathbb{M}_{1,2}^{(a)}(T_g)\mathbb{M}_{1,3}^{(b)}(T_g)}{6} - \frac{\sqrt{6}\mathbb{M}_{1,3}^{(a)}(T_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{6}$$

$$\boxed{\text{z455}} \quad \mathbb{G}_{1,2}^{(c)}(T_g, b) = -\frac{\sqrt{6}\mathbb{M}_{1,1}^{(a)}(T_g)\mathbb{M}_{1,3}^{(b)}(T_g)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(a)}(T_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{6}$$

$$\boxed{\text{z456}} \quad \mathbb{G}_{1,3}^{(c)}(T_g, b) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(a)}(T_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{6} - \frac{\sqrt{6}\mathbb{M}_{1,2}^{(a)}(T_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{6}$$

$$\boxed{\text{z457}} \quad \mathbb{G}_{1,1}^{(c)}(T_g, c) = \frac{\sqrt{6}\mathbb{M}_{1,2}^{(a)}(T_g)\mathbb{T}_{2,3}^{(b)}(T_g)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(a)}(T_g)\mathbb{T}_{2,2}^{(b)}(T_g)}{6}$$

$$\boxed{\text{z458}} \quad \mathbb{G}_{1,2}^{(c)}(T_g, c) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(a)}(T_g)\mathbb{T}_{2,3}^{(b)}(T_g)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(a)}(T_g)\mathbb{T}_{2,1}^{(b)}(T_g)}{6}$$

$$\boxed{\text{z459}} \quad \mathbb{G}_{1,3}^{(c)}(T_g, c) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(a)}(T_g)\mathbb{T}_{2,2}^{(b)}(T_g)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,2}^{(a)}(T_g)\mathbb{T}_{2,1}^{(b)}(T_g)}{6}$$

$$\boxed{\text{z460}} \quad \mathbb{G}_{3,1}^{(c)}(T_g, 1) = \frac{\sqrt{10}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{20} - \frac{\sqrt{10}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{20} - \frac{\sqrt{30}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{60} + \frac{\sqrt{30}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{60} - \frac{\sqrt{30}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{15} + \frac{\sqrt{30}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{15}$$

$$\boxed{\text{z461}} \quad \mathbb{G}_{3,2}^{(c)}(T_g, 1) = -\frac{\sqrt{10}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{20} + \frac{\sqrt{30}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{15} + \frac{\sqrt{30}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{60} + \frac{\sqrt{10}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{20} - \frac{\sqrt{30}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{60} - \frac{\sqrt{30}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{15}$$

$$\boxed{\text{z462}} \quad \mathbb{G}_{3,3}^{(c)}(T_g, 1) = -\frac{\sqrt{30}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{15} - \frac{\sqrt{30}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{30} + \frac{\sqrt{30}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{15} + \frac{\sqrt{30}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{30}$$

$$\boxed{\text{z463}} \quad \mathbb{G}_{3,1}^{(c)}(T_g, 2) = \frac{\sqrt{6}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{12} - \frac{\sqrt{6}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{12} + \frac{\sqrt{2}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{4} - \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{4}$$

$$\boxed{\text{z464}} \quad \mathbb{G}_{3,2}^{(c)}(T_g, 2) = \frac{\sqrt{6}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{12} + \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{4} - \frac{\sqrt{6}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{12} - \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{4}$$

$$\boxed{\text{z465}} \quad \mathbb{G}_{3,3}^{(c)}(T_g, 2) = -\frac{\sqrt{6}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{6} + \frac{\sqrt{6}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{6}$$

$$\boxed{\text{z466}} \quad \begin{aligned} \mathbb{G}_{1,1}^{(1,-1;c)}(T_g, a) = & -\frac{\sqrt{10}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{10} + \frac{\sqrt{10}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{10} + \frac{\sqrt{30}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{30} \\ & - \frac{\sqrt{30}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{30} - \frac{\sqrt{30}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{30} + \frac{\sqrt{30}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{30} \end{aligned}$$

$$\boxed{\text{z467}} \quad \begin{aligned} \mathbb{G}_{1,2}^{(1,-1;c)}(T_g, a) = & \frac{\sqrt{10}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{10} + \frac{\sqrt{30}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{30} - \frac{\sqrt{30}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{30} \\ & - \frac{\sqrt{10}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{10} + \frac{\sqrt{30}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{30} - \frac{\sqrt{30}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{30} \end{aligned}$$

$$\boxed{\text{z468}} \quad \mathbb{G}_{1,3}^{(1,-1;c)}(T_g, a) = -\frac{\sqrt{30}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{30} + \frac{\sqrt{30}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{15} + \frac{\sqrt{30}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{30} - \frac{\sqrt{30}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{15}$$

$$\boxed{\text{z469}} \quad \begin{aligned} \mathbb{G}_{1,1}^{(1,-1;c)}(T_g, b) = & -\frac{21\sqrt{79}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{2,3}^{(b)}(T_g)}{632} - \frac{13\sqrt{1185}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{2,3}^{(b)}(T_g)}{1896} - \frac{21\sqrt{79}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{2,2}^{(b)}(T_g)}{632} \\ & + \frac{13\sqrt{1185}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{2,2}^{(b)}(T_g)}{1896} + \frac{\sqrt{1185}\mathbb{M}_3^{(1,-1;a)}(A_g)\mathbb{T}_{2,1}^{(b)}(T_g)}{158} \end{aligned}$$

$$\boxed{\text{z470}} \quad \begin{aligned} \mathbb{G}_{1,2}^{(1,-1;c)}(T_g, b) = & -\frac{21\sqrt{79}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{2,3}^{(b)}(T_g)}{632} + \frac{13\sqrt{1185}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{2,3}^{(b)}(T_g)}{1896} - \frac{21\sqrt{79}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{2,1}^{(b)}(T_g)}{632} \\ & - \frac{13\sqrt{1185}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{2,1}^{(b)}(T_g)}{1896} + \frac{\sqrt{1185}\mathbb{M}_3^{(1,-1;a)}(A_g)\mathbb{T}_{2,2}^{(b)}(T_g)}{158} \end{aligned}$$

$$\boxed{\text{z471}} \quad \begin{aligned} \mathbb{G}_{1,3}^{(1,-1;c)}(T_g, b) = & -\frac{21\sqrt{79}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{2,2}^{(b)}(T_g)}{632} - \frac{13\sqrt{1185}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{2,2}^{(b)}(T_g)}{1896} - \frac{21\sqrt{79}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{2,1}^{(b)}(T_g)}{632} \\ & + \frac{13\sqrt{1185}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{2,1}^{(b)}(T_g)}{1896} + \frac{\sqrt{1185}\mathbb{M}_3^{(1,-1;a)}(A_g)\mathbb{T}_{2,3}^{(b)}(T_g)}{158} \end{aligned}$$

$$\boxed{\text{z472}} \quad \mathbb{G}_{1,1}^{(1,-1;c)}(T_g, c) = \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{M}_{1,3}^{(b)}(T_g)}{6} - \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,-1;a)}(T_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{6}$$

$$\boxed{\text{z473}} \quad \mathbb{G}_{1,2}^{(1,-1;c)}(T_g, c) = -\frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{M}_{1,3}^{(b)}(T_g)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,-1;a)}(T_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{6}$$

$$\boxed{\text{z474}} \quad \mathbb{G}_{1,3}^{(1,-1;c)}(T_g, c) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{6} - \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{6}$$

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

$$\boxed{\text{z476}} \quad \mathbb{G}_{1,2}^{(1,-1;c)}(T_g, d) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{T}_{2,3}^{(b)}(T_g)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,-1;a)}(T_g)\mathbb{T}_{2,1}^{(b)}(T_g)}{6}$$

$$\boxed{\text{z477}} \quad \mathbb{G}_{1,3}^{(1,-1;c)}(T_g, d) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{T}_{2,2}^{(b)}(T_g)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{T}_{2,1}^{(b)}(T_g)}{6}$$

$$\boxed{\text{z478}} \quad \mathbb{G}_{3,1}^{(1,-1;c)}(T_g, 1a) = \frac{\sqrt{10}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{20} - \frac{\sqrt{10}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{20} - \frac{\sqrt{30}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{60} \\ + \frac{\sqrt{30}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{60} - \frac{\sqrt{30}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{15} + \frac{\sqrt{30}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{15}$$

$$\boxed{\text{z479}} \quad \mathbb{G}_{3,2}^{(1,-1;c)}(T_g, 1a) = -\frac{\sqrt{10}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{20} + \frac{\sqrt{30}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{15} + \frac{\sqrt{30}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{60} \\ + \frac{\sqrt{10}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{20} - \frac{\sqrt{30}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{60} - \frac{\sqrt{30}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{15}$$

$$\boxed{\text{z480}} \quad \mathbb{G}_{3,3}^{(1,-1;c)}(T_g, 1a) = -\frac{\sqrt{30}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{15} - \frac{\sqrt{30}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{30} + \frac{\sqrt{30}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{15} + \frac{\sqrt{30}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{30}$$

$$\boxed{\text{z481}} \quad \mathbb{G}_{3,1}^{(1,-1;c)}(T_g, 1b) = -\frac{\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,3}^{(b)}(T_g)}{4} - \frac{\sqrt{15}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,3}^{(b)}(T_g)}{12} + \frac{\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,2}^{(b)}(T_g)}{4} - \frac{\sqrt{15}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,2}^{(b)}(T_g)}{12}$$

$$\boxed{\text{z482}} \quad \mathbb{G}_{3,2}^{(1,-1;c)}(T_g, 1b) = \frac{\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,3}^{(b)}(T_g)}{4} - \frac{\sqrt{15}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,3}^{(b)}(T_g)}{12} - \frac{\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,1}^{(b)}(T_g)}{4} - \frac{\sqrt{15}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,1}^{(b)}(T_g)}{12}$$

$$\boxed{\text{z483}} \quad \mathbb{G}_{3,3}^{(1,-1;c)}(T_g, 1b) = -\frac{\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,2}^{(b)}(T_g)}{4} - \frac{\sqrt{15}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,2}^{(b)}(T_g)}{12} + \frac{\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,1}^{(b)}(T_g)}{4} - \frac{\sqrt{15}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,1}^{(b)}(T_g)}{12}$$

$$\boxed{\text{z484}} \quad \mathbb{G}_{3,1}^{(1,-1;c)}(T_g, 1c) = \frac{\sqrt{1185}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{2,3}^{(b)}(T_g)}{948} - \frac{9\sqrt{79}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{2,3}^{(b)}(T_g)}{316} + \frac{\sqrt{1185}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{2,2}^{(b)}(T_g)}{948} + \frac{9\sqrt{79}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{2,2}^{(b)}(T_g)}{316} - \frac{4\sqrt{79}\mathbb{M}_3^{(1,-1;a)}(A_g)\mathbb{T}_{2,1}^{(b)}(T_g)}{79}$$

$$\boxed{\text{z485}} \quad \mathbb{G}_{3,2}^{(1,-1;c)}(T_g, 1c) = \frac{\sqrt{1185}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{2,3}^{(b)}(T_g)}{948} + \frac{9\sqrt{79}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{2,3}^{(b)}(T_g)}{316} + \frac{\sqrt{1185}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{2,1}^{(b)}(T_g)}{948} - \frac{9\sqrt{79}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{2,1}^{(b)}(T_g)}{316} - \frac{4\sqrt{79}\mathbb{M}_3^{(1,-1;a)}(A_g)\mathbb{T}_{2,2}^{(b)}(T_g)}{79}$$

$$\boxed{\text{z486}} \quad \mathbb{G}_{3,3}^{(1,-1;c)}(T_g, 1c) = \frac{\sqrt{1185}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{2,2}^{(b)}(T_g)}{948} - \frac{9\sqrt{79}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{2,2}^{(b)}(T_g)}{316} + \frac{\sqrt{1185}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{2,1}^{(b)}(T_g)}{948} + \frac{9\sqrt{79}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{2,1}^{(b)}(T_g)}{316} - \frac{4\sqrt{79}\mathbb{M}_3^{(1,-1;a)}(A_g)\mathbb{T}_{2,3}^{(b)}(T_g)}{79}$$

$$\boxed{\text{z487}} \quad \mathbb{G}_{3,1}^{(1,-1;c)}(T_g, 2a) = \frac{\sqrt{6}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{12} - \frac{\sqrt{6}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{12} + \frac{\sqrt{2}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{4} - \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{4}$$

$$\boxed{\text{z488}} \quad \mathbb{G}_{3,2}^{(1,-1;c)}(T_g, 2a) = \frac{\sqrt{6}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{12} + \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{4} - \frac{\sqrt{6}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{12} - \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{4}$$

$$\boxed{\text{z489}} \quad \mathbb{G}_{3,3}^{(1,-1;c)}(T_g, 2a) = -\frac{\sqrt{6}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{6} + \frac{\sqrt{6}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{6}$$

$$\boxed{\text{z490}} \quad \mathbb{G}_{3,1}^{(1,-1;c)}(T_g, 2b) = \frac{\sqrt{15}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,3}^{(b)}(T_g)}{12} + \frac{\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,3}^{(b)}(T_g)}{12} + \frac{\sqrt{15}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,2}^{(b)}(T_g)}{12} - \frac{\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,2}^{(b)}(T_g)}{12} + \frac{\mathbb{M}_3^{(1,-1;a)}(A_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{3}$$

$$\boxed{\text{z491}} \quad \mathbb{G}_{3,2}^{(1,-1;c)}(T_g, 2b) = \frac{\sqrt{15}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,3}^{(b)}(T_g)}{12} - \frac{\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,3}^{(b)}(T_g)}{12} + \frac{\sqrt{15}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,1}^{(b)}(T_g)}{12} + \frac{\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,1}^{(b)}(T_g)}{12} + \frac{\mathbb{M}_3^{(1,-1;a)}(A_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{3}$$

$$\boxed{\text{z492}} \quad \mathbb{G}_{3,3}^{(1,-1;c)}(T_g, 2b) = \frac{\sqrt{15}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,2}^{(b)}(T_g)}{12} + \frac{\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,2}^{(b)}(T_g)}{12} + \frac{\sqrt{15}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,1}^{(b)}(T_g)}{12} - \frac{\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,1}^{(b)}(T_g)}{12} + \frac{\mathbb{M}_3^{(1,-1;a)}(A_g)\mathbb{M}_{1,3}^{(b)}(T_g)}{3}$$

$$\boxed{\text{z493}} \quad \mathbb{G}_{1,1}^{(1,0;c)}(T_g, a) = \frac{\sqrt{3}\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_0^{(b)}(A_g)}{3}$$

$$\boxed{\text{z494}} \quad \mathbb{G}_{1,2}^{(1,0;c)}(T_g, a) = \frac{\sqrt{3}\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_0^{(b)}(A_g)}{3}$$

$$\boxed{\text{z495}} \quad \mathbb{G}_{1,3}^{(1,0;c)}(T_g, a) = \frac{\sqrt{3}\mathbb{G}_{1,3}^{(1,0;a)}(T_g)\mathbb{Q}_0^{(b)}(A_g)}{3}$$

$$\boxed{\text{z496}} \quad \mathbb{G}_{1,1}^{(1,0;c)}(T_g, b) = -\frac{\sqrt{30}\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{30} + \frac{\sqrt{10}\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{10} + \frac{\sqrt{10}\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{10} + \frac{\sqrt{10}\mathbb{G}_{1,3}^{(1,0;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{10}$$

$$\boxed{\text{z497}} \quad \mathbb{G}_{1,2}^{(1,0;c)}(T_g, b) = \frac{\sqrt{10}\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{10} - \frac{\sqrt{30}\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{30} - \frac{\sqrt{10}\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{10} + \frac{\sqrt{10}\mathbb{G}_{1,3}^{(1,0;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{10}$$

$$\boxed{\text{z498}} \quad \mathbb{G}_{1,3}^{(1,0;c)}(T_g, b) = \frac{\sqrt{10}\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{10} + \frac{\sqrt{10}\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{10} + \frac{\sqrt{30}\mathbb{G}_{1,3}^{(1,0;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{15}$$

$$\boxed{\text{z499}} \quad \mathbb{G}_{1,1}^{(1,0;c)}(T_g, c) = -\frac{\sqrt{30}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{30} + \frac{\sqrt{10}\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{10} + \frac{\sqrt{10}\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{M}_{1,3}^{(b)}(T_g)}{10} + \frac{\sqrt{10}\mathbb{T}_{2,3}^{(1,0;a)}(T_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{10}$$

$$\boxed{\text{z500}} \quad \mathbb{G}_{1,2}^{(1,0;c)}(T_g, c) = -\frac{\sqrt{30}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{30} + \frac{\sqrt{10}\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{M}_{1,3}^{(b)}(T_g)}{10} - \frac{\sqrt{10}\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{10} + \frac{\sqrt{10}\mathbb{T}_{2,3}^{(1,0;a)}(T_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{10}$$

$$\boxed{\text{z501}} \quad \mathbb{G}_{1,3}^{(1,0;c)}(T_g, c) = \frac{\sqrt{30}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{M}_{1,3}^{(b)}(T_g)}{15} + \frac{\sqrt{10}\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{10} + \frac{\sqrt{10}\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{10}$$

$$\boxed{\text{z502}} \quad \mathbb{G}_{1,1}^{(1,0;c)}(T_g, d) = -\frac{\sqrt{6}\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{T}_{2,3}^{(b)}(T_g)}{6} + \frac{\sqrt{6}\mathbb{T}_{2,3}^{(1,0;a)}(T_g)\mathbb{T}_{2,2}^{(b)}(T_g)}{6}$$

$$\boxed{\text{z503}} \quad \mathbb{G}_{1,2}^{(1,0;c)}(T_g, d) = \frac{\sqrt{6}\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{T}_{2,3}^{(b)}(T_g)}{6} - \frac{\sqrt{6}\mathbb{T}_{2,3}^{(1,0;a)}(T_g)\mathbb{T}_{2,1}^{(b)}(T_g)}{6}$$

$$\boxed{\text{z504}} \quad \mathbb{G}_{1,3}^{(1,0;c)}(T_g, d) = -\frac{\sqrt{6}\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{T}_{2,2}^{(b)}(T_g)}{6} + \frac{\sqrt{6}\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{T}_{2,1}^{(b)}(T_g)}{6}$$

$$\boxed{\text{z505}} \quad \mathbb{G}_{3,1}^{(1,0;c)}(T_g, 1a) = -\frac{\sqrt{5}\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{10} + \frac{\sqrt{15}\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{10} - \frac{\sqrt{15}\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{15} - \frac{\sqrt{15}\mathbb{G}_{1,3}^{(1,0;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{15}$$

$$\boxed{\text{z506}} \quad \mathbb{G}_{3,2}^{(1,0;c)}(T_g, 1a) = -\frac{\sqrt{15}\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{15} - \frac{\sqrt{5}\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{10} - \frac{\sqrt{15}\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{10} - \frac{\sqrt{15}\mathbb{G}_{1,3}^{(1,0;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{15}$$

$$\boxed{\text{z507}} \quad \mathbb{G}_{3,3}^{(1,0;c)}(T_g, 1a) = -\frac{\sqrt{15}\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{15} - \frac{\sqrt{15}\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{15} + \frac{\sqrt{5}\mathbb{G}_{1,3}^{(1,0;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{5}$$

$$\boxed{\text{z508}} \quad \mathbb{G}_{3,1}^{(1,0;c)}(T_g, 1b) = -\frac{\sqrt{5}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{10} + \frac{\sqrt{15}\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{10} - \frac{\sqrt{15}\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{M}_{1,3}^{(b)}(T_g)}{15} - \frac{\sqrt{15}\mathbb{T}_{2,3}^{(1,0;a)}(T_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{15}$$

$$\boxed{\text{z509}} \quad \mathbb{G}_{3,2}^{(1,0;c)}(T_g, 1b) = -\frac{\sqrt{5}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{10} - \frac{\sqrt{15}\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{M}_{1,3}^{(b)}(T_g)}{15} - \frac{\sqrt{15}\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{10} - \frac{\sqrt{15}\mathbb{T}_{2,3}^{(1,0;a)}(T_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{15}$$

$$\boxed{\text{z510}} \quad \mathbb{G}_{3,3}^{(1,0;c)}(T_g, 1b) = \frac{\sqrt{5}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{M}_{1,3}^{(b)}(T_g)}{5} - \frac{\sqrt{15}\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{15} - \frac{\sqrt{15}\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{15}$$

$$\boxed{\text{z511}} \quad \mathbb{G}_{3,1}^{(1,0;c)}(T_g, 2a) = -\frac{\sqrt{3}\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{6} - \frac{\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{6} + \frac{\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{3} - \frac{\mathbb{G}_{1,3}^{(1,0;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{3}$$

$$\boxed{\text{z512}} \quad \mathbb{G}_{3,2}^{(1,0;c)}(T_g, 2a) = -\frac{\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{3} + \frac{\sqrt{3}\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{6} - \frac{\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{6} + \frac{\mathbb{G}_{1,3}^{(1,0;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{3}$$

$$\boxed{\text{z513}} \quad \mathbb{G}_{3,3}^{(1,0;c)}(T_g, 2a) = \frac{\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{3} - \frac{\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{3} + \frac{\mathbb{G}_{1,3}^{(1,0;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{3}$$

$$\boxed{\text{z514}} \quad \mathbb{G}_{3,1}^{(1,0;c)}(T_g, 2b) = -\frac{\sqrt{3}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{6} - \frac{\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{6} - \frac{\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{M}_{1,3}^{(b)}(T_g)}{3} + \frac{\mathbb{T}_{2,3}^{(1,0;a)}(T_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{3}$$

$$\boxed{\text{z515}} \quad \mathbb{G}_{3,2}^{(1,0;c)}(T_g, 2b) = \frac{\sqrt{3}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{6} + \frac{\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{M}_{1,3}^{(b)}(T_g)}{3} - \frac{\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{6} - \frac{\mathbb{T}_{2,3}^{(1,0;a)}(T_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{3}$$

$$\boxed{\text{z516}} \quad \mathbb{G}_{3,3}^{(1,0;c)}(T_g, 2b) = -\frac{\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{3} + \frac{\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{M}_{1,3}^{(b)}(T_g)}{3} + \frac{\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{3}$$

$$\boxed{\text{z517}} \quad \mathbb{G}_{1,1}^{(1,1;c)}(T_g, a) = \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,1;a)}(T_g)\mathbb{M}_{1,3}^{(b)}(T_g)}{6} - \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,1;a)}(T_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{6}$$

$$\boxed{\text{z518}} \quad \mathbb{G}_{1,2}^{(1,1;c)}(T_g, a) = -\frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,1;a)}(T_g)\mathbb{M}_{1,3}^{(b)}(T_g)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,1;a)}(T_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{6}$$

$$\boxed{\text{z519}} \quad \mathbb{G}_{1,3}^{(1,1;c)}(T_g, a) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,1;a)}(T_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{6} - \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,1;a)}(T_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{6}$$

$$\boxed{\text{z520}} \quad \mathbb{G}_{1,1}^{(1,1;c)}(T_g, b) = \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,1;a)}(T_g)\mathbb{T}_{2,3}^{(b)}(T_g)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,1;a)}(T_g)\mathbb{T}_{2,2}^{(b)}(T_g)}{6}$$

$$\boxed{\text{z521}} \quad \mathbb{G}_{1,2}^{(1,1;c)}(T_g, b) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,1;a)}(T_g)\mathbb{T}_{2,3}^{(b)}(T_g)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,1;a)}(T_g)\mathbb{T}_{2,1}^{(b)}(T_g)}{6}$$

$$\boxed{\text{z522}} \quad \mathbb{G}_{1,3}^{(1,1;c)}(T_g, b) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,1;a)}(T_g)\mathbb{T}_{2,2}^{(b)}(T_g)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,1;a)}(T_g)\mathbb{T}_{2,1}^{(b)}(T_g)}{6}$$

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

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

$$\boxed{\text{z525}} \quad \mathbb{G}_{2,3}^{(c)}(T_u, a) = -\frac{\sqrt{2}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{6} - \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{1,3}^{(b)}(T_u)}{3} + \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z526}} \quad \mathbb{G}_{2,1}^{(c)}(T_u, b) = \frac{\sqrt{6}\mathbb{M}_{1,2}^{(a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z527}} \quad \mathbb{G}_{2,2}^{(c)}(T_u, b) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z528}} \quad \mathbb{G}_{2,3}^{(c)}(T_u, b) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,2}^{(a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z529}} \quad \mathbb{G}_{2,1}^{(1,-1;c)}(T_u, a) = \frac{\sqrt{6}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{6} + \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{6} - \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,3}^{(b)}(T_u)}{6} + \frac{\sqrt{2}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z530}} \quad \mathbb{G}_{2,2}^{(1,-1;c)}(T_u, a) = -\frac{\sqrt{6}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{6} + \frac{\sqrt{2}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,3}^{(b)}(T_u)}{6} + \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{6} - \frac{\sqrt{2}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z531}} \quad \mathbb{G}_{2,3}^{(1,-1;c)}(T_u, a) = -\frac{\sqrt{2}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{6} - \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{1,3}^{(b)}(T_u)}{3} + \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z532}} \quad \mathbb{G}_{2,1}^{(1,-1;c)}(T_u, b) = -\frac{\sqrt{21}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,3}^{(b)}(T_u)}{21} + \frac{\sqrt{35}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,3}^{(b)}(T_u)}{21} - \frac{\sqrt{21}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,2}^{(b)}(T_u)}{21} - \frac{\sqrt{35}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,2}^{(b)}(T_u)}{21} + \frac{\sqrt{35}\mathbb{M}_3^{(1,-1;a)}(A_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{21}$$

$$\boxed{\text{z533}} \quad \mathbb{G}_{2,2}^{(1,-1;c)}(T_u, b) = -\frac{\sqrt{21}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,3}^{(b)}(T_u)}{21} - \frac{\sqrt{35}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,3}^{(b)}(T_u)}{21} - \frac{\sqrt{21}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,1}^{(b)}(T_u)}{21} + \frac{\sqrt{35}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,1}^{(b)}(T_u)}{21} + \frac{\sqrt{35}\mathbb{M}_3^{(1,-1;a)}(A_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{21}$$

$$\boxed{\text{z534}} \quad \mathbb{G}_{2,3}^{(1,-1;c)}(T_u, b) = -\frac{\sqrt{21}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,2}^{(b)}(T_u)}{21} + \frac{\sqrt{35}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,2}^{(b)}(T_u)}{21} - \frac{\sqrt{21}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,1}^{(b)}(T_u)}{21} - \frac{\sqrt{35}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,1}^{(b)}(T_u)}{21} + \frac{\sqrt{35}\mathbb{M}_3^{(1,-1;a)}(A_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{21}$$

$$\boxed{\text{z535}} \quad \mathbb{G}_{2,1}^{(1,-1;c)}(T_u, c) = \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,-1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z536}} \quad \mathbb{G}_{2,2}^{(1,-1;c)}(T_u, c) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,-1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z537}} \quad \mathbb{G}_{2,3}^{(1,-1;c)}(T_u, c) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z538}} \quad \mathbb{G}_{4,1}^{(1,-1;c)}(T_u, 1) = \frac{\sqrt{15}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,3}^{(b)}(T_u)}{12} - \frac{\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,3}^{(b)}(T_u)}{4} - \frac{\sqrt{15}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,2}^{(b)}(T_u)}{12} - \frac{\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,2}^{(b)}(T_u)}{4}$$

$$\boxed{\text{z539}} \quad \mathbb{G}_{4,2}^{(1,-1;c)}(T_u, 1) = -\frac{\sqrt{15}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,3}^{(b)}(T_u)}{12} - \frac{\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,3}^{(b)}(T_u)}{4} + \frac{\sqrt{15}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,1}^{(b)}(T_u)}{12} - \frac{\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,1}^{(b)}(T_u)}{4}$$

$$\boxed{\text{z540}} \quad \mathbb{G}_{4,3}^{(1,-1;c)}(T_u, 1) = \frac{\sqrt{15}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,2}^{(b)}(T_u)}{12} - \frac{\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,2}^{(b)}(T_u)}{4} - \frac{\sqrt{15}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,1}^{(b)}(T_u)}{12} - \frac{\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,1}^{(b)}(T_u)}{4}$$

$$\boxed{\text{z541}} \quad \mathbb{G}_{4,1}^{(1,-1;c)}(T_u, 2) = -\frac{\sqrt{105}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,3}^{(b)}(T_u)}{84} - \frac{3\sqrt{7}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,3}^{(b)}(T_u)}{28} - \frac{\sqrt{105}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,2}^{(b)}(T_u)}{84} + \frac{3\sqrt{7}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,2}^{(b)}(T_u)}{28} + \frac{\sqrt{7}\mathbb{M}_3^{(1,-1;a)}(A_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{7}$$

$$\boxed{\text{z542}} \quad \mathbb{G}_{4,2}^{(1,-1;c)}(T_u, 2) = -\frac{\sqrt{105}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,3}^{(b)}(T_u)}{84} + \frac{3\sqrt{7}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,3}^{(b)}(T_u)}{28} - \frac{\sqrt{105}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,1}^{(b)}(T_u)}{84} - \frac{3\sqrt{7}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,1}^{(b)}(T_u)}{28} + \frac{\sqrt{7}\mathbb{M}_3^{(1,-1;a)}(A_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{7}$$

$$\boxed{\text{z543}} \quad \mathbb{G}_{4,3}^{(1,-1;c)}(T_u, 2) = -\frac{\sqrt{105}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,2}^{(b)}(T_u)}{84} - \frac{3\sqrt{7}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,2}^{(b)}(T_u)}{28} - \frac{\sqrt{105}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,1}^{(b)}(T_u)}{84} + \frac{3\sqrt{7}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,1}^{(b)}(T_u)}{28} + \frac{\sqrt{7}\mathbb{M}_3^{(1,-1;a)}(A_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{7}$$

$$\boxed{\text{z544}} \quad \mathbb{G}_{2,1}^{(1,0;c)}(T_u, a) = \frac{\sqrt{6}\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{1,3}^{(b)}(T_u)}{6} + \frac{\sqrt{6}\mathbb{G}_{1,3}^{(1,0;a)}(T_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z545}} \quad \mathbb{G}_{2,2}^{(1,0;c)}(T_u, a) = \frac{\sqrt{6}\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{1,3}^{(b)}(T_u)}{6} + \frac{\sqrt{6}\mathbb{G}_{1,3}^{(1,0;a)}(T_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z546}} \quad \mathbb{G}_{2,3}^{(1,0;c)}(T_u, a) = \frac{\sqrt{6}\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{6} + \frac{\sqrt{6}\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z547}} \quad \mathbb{G}_{2,1}^{(1,0;c)}(T_u, b) = \frac{\sqrt{6}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{6} + \frac{\sqrt{2}\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{6} - \frac{\sqrt{2}\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{6} + \frac{\sqrt{2}\mathbb{T}_{2,3}^{(1,0;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z548}} \quad \mathbb{G}_{2,2}^{(1,0;c)}(T_u, b) = -\frac{\sqrt{6}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{6} + \frac{\sqrt{2}\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{6} + \frac{\sqrt{2}\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{6} - \frac{\sqrt{2}\mathbb{T}_{2,3}^{(1,0;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z549}} \quad \mathbb{G}_{2,3}^{(1,0;c)}(T_u, b) = -\frac{\sqrt{2}\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{6} - \frac{\sqrt{2}\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{3} + \frac{\sqrt{2}\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z550}} \quad \mathbb{G}_{2,1}^{(1,1;c)}(T_u) = \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,1;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z551}} \quad \mathbb{G}_{2,2}^{(1,1;c)}(T_u) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,1;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z552}} \quad \mathbb{G}_{2,3}^{(1,1;c)}(T_u) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{6}$$

— Atomic SAMB —

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

— Cluster SAMB —

- Site cluster

** Wyckoff: 8b

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

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

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

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

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

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

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

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

- Bond cluster

** Wyckoff: 12b@12c

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

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

$$\boxed{y11} \quad \mathbb{Q}_{2,1}^{(s)}(E_g) = \left[-\frac{5\sqrt{2778}}{1389}, -\frac{5\sqrt{2778}}{1389}, -\frac{5\sqrt{2778}}{1389}, -\frac{5\sqrt{2778}}{1389}, -\frac{23\sqrt{2778}}{5556}, -\frac{23\sqrt{2778}}{5556}, -\frac{23\sqrt{2778}}{5556}, \frac{43\sqrt{2778}}{5556}, \frac{43\sqrt{2778}}{5556}, \frac{43\sqrt{2778}}{5556}, \frac{43\sqrt{2778}}{5556} \right]$$

$$\boxed{y12} \quad \mathbb{Q}_{2,2}^{(s)}(E_g) = \left[\frac{11\sqrt{926}}{926}, \frac{11\sqrt{926}}{926}, \frac{11\sqrt{926}}{926}, \frac{11\sqrt{926}}{926}, -\frac{21\sqrt{926}}{1852}, -\frac{21\sqrt{926}}{1852}, -\frac{21\sqrt{926}}{1852}, -\frac{\sqrt{926}}{1852}, -\frac{\sqrt{926}}{1852}, -\frac{\sqrt{926}}{1852}, -\frac{\sqrt{926}}{1852} \right]$$

$$\boxed{y13} \quad \mathbb{M}_{2,1}^{(s)}(E_u) = \left[\frac{11\sqrt{926}i}{926}, \frac{11\sqrt{926}i}{926}, \frac{11\sqrt{926}i}{926}, \frac{11\sqrt{926}i}{926}, -\frac{21\sqrt{926}i}{1852}, -\frac{21\sqrt{926}i}{1852}, -\frac{21\sqrt{926}i}{1852}, -\frac{\sqrt{926}i}{1852}, -\frac{\sqrt{926}i}{1852}, -\frac{\sqrt{926}i}{1852}, -\frac{\sqrt{926}i}{1852} \right]$$

$$\boxed{y14} \quad \mathbb{M}_{2,2}^{(s)}(E_u) = \left[\frac{5\sqrt{2778}i}{1389}, \frac{5\sqrt{2778}i}{1389}, \frac{5\sqrt{2778}i}{1389}, \frac{5\sqrt{2778}i}{1389}, \frac{23\sqrt{2778}i}{5556}, \frac{23\sqrt{2778}i}{5556}, \frac{23\sqrt{2778}i}{5556}, \frac{23\sqrt{2778}i}{5556}, -\frac{43\sqrt{2778}i}{5556}, -\frac{43\sqrt{2778}i}{5556}, -\frac{43\sqrt{2778}i}{5556}, -\frac{43\sqrt{2778}i}{5556} \right]$$

$$\boxed{y15} \quad \mathbb{M}_{1,1}^{(s)}(T_g) = \left[0, 0, 0, 0, \frac{\sqrt{21}i}{14}, \frac{\sqrt{21}i}{14}, -\frac{\sqrt{21}i}{14}, -\frac{\sqrt{21}i}{14}, \frac{\sqrt{7}i}{7}, -\frac{\sqrt{7}i}{7}, \frac{\sqrt{7}i}{7}, -\frac{\sqrt{7}i}{7} \right]$$

$$\boxed{y16} \quad \mathbb{M}_{1,2}^{(s)}(T_g) = \left[\frac{\sqrt{7}i}{7}, -\frac{\sqrt{7}i}{7}, \frac{\sqrt{7}i}{7}, -\frac{\sqrt{7}i}{7}, 0, 0, 0, 0, \frac{\sqrt{21}i}{14}, \frac{\sqrt{21}i}{14}, -\frac{\sqrt{21}i}{14}, -\frac{\sqrt{21}i}{14} \right]$$

$$\boxed{y17} \quad \mathbb{M}_{1,3}^{(s)}(T_g) = \left[\frac{\sqrt{21}i}{14}, \frac{\sqrt{21}i}{14}, -\frac{\sqrt{21}i}{14}, -\frac{\sqrt{21}i}{14}, \frac{\sqrt{7}i}{7}, -\frac{\sqrt{7}i}{7}, \frac{\sqrt{7}i}{7}, -\frac{\sqrt{7}i}{7}, 0, 0, 0, 0 \right]$$

$$\boxed{y18} \quad \mathbb{Q}_{2,1}^{(s)}(T_g) = \left[\frac{1}{2}, -\frac{1}{2}, -\frac{1}{2}, \frac{1}{2}, 0, 0, 0, 0, 0, 0, 0, 0 \right]$$

$$\boxed{y19} \quad \mathbb{Q}_{2,2}^{(s)}(T_g) = \left[0, 0, 0, 0, \frac{1}{2}, -\frac{1}{2}, \frac{1}{2}, 0, 0, 0, 0 \right]$$

$$\boxed{y20} \quad \mathbb{Q}_{2,3}^{(s)}(T_g) = \left[0, 0, 0, 0, 0, 0, 0, \frac{1}{2}, -\frac{1}{2}, -\frac{1}{2}, \frac{1}{2} \right]$$

$$\boxed{y21} \quad \mathbb{T}_{2,1}^{(s)}(T_g) = \left[0, 0, 0, 0, \frac{\sqrt{7}i}{7}, \frac{\sqrt{7}i}{7}, -\frac{\sqrt{7}i}{7}, -\frac{\sqrt{7}i}{7}, -\frac{\sqrt{21}i}{14}, \frac{\sqrt{21}i}{14}, -\frac{\sqrt{21}i}{14}, \frac{\sqrt{21}i}{14} \right]$$

$$\boxed{y22} \quad \mathbb{T}_{2,2}^{(s)}(T_g) = \left[-\frac{\sqrt{21}i}{14}, \frac{\sqrt{21}i}{14}, -\frac{\sqrt{21}i}{14}, \frac{\sqrt{21}i}{14}, 0, 0, 0, 0, \frac{\sqrt{7}i}{7}, \frac{\sqrt{7}i}{7}, -\frac{\sqrt{7}i}{7}, -\frac{\sqrt{7}i}{7} \right]$$

$$\boxed{y23} \quad \mathbb{T}_{2,3}^{(s)}(T_g) = \left[\frac{\sqrt{7}i}{7}, \frac{\sqrt{7}i}{7}, -\frac{\sqrt{7}i}{7}, -\frac{\sqrt{7}i}{7}, -\frac{\sqrt{21}i}{14}, \frac{\sqrt{21}i}{14}, -\frac{\sqrt{21}i}{14}, \frac{\sqrt{21}i}{14}, 0, 0, 0, 0 \right]$$

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

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

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

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

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

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

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

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

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

— Site and Bond —

Table 4: Orbital of each site

#	site	orbital
1	A	$ \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 (s)	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]

Bond in Unit Cell

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, $|v|=2.0$ (cartesian)

SL	vector (v)	center (c)	mapping	head	tail	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]