

Model for “Th1”

Generated on 2026-01-26 01:26:39 by MultiPie 2.0.6

General Condition

- Basis type: 1gs
- 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]
- Atomic selection:
 - Type: [Q, G, M, T]
 - 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]
- Site-cluster selection:
 - 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]
- Bond-cluster selection:
 - Type: [Q, G, M, T]
 - 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]
- Max. neighbor: 10
- Search cell range: (-2, 3), (-2, 3), (-2, 3)
- Toroidal priority: false

Group and Unit Cell

- Group: SG No. 200 T_h^1 $Pm\bar{3}$ [cubic]
- Associated point group: PG No. 200 T_h $m\bar{3}$ [cubic]
- Unit cell:
 $a = 1.00000, b = 1.00000, c = 1.00000, \alpha = 90.0, \beta = 90.0, \gamma = 90.0$
- Lattice vectors (conventional cell):
 $\mathbf{a}_1 = [1.00000, 0.00000, 0.00000]$
 $\mathbf{a}_2 = [0.00000, 1.00000, 0.00000]$
 $\mathbf{a}_3 = [0.00000, 0.00000, 1.00000]$

 — Symmetry Operation —

Table 1: Symmetry operation

#	SO	#	SO	#	SO	#	SO	#	SO
1	{1 0}	2	{2 ₀₀₁ 0}	3	{2 ₀₁₀ 0}	4	{2 ₁₀₀ 0}	5	{3 ₁₁₁ ⁺ 0}
6	{3 ₋₁₁₋₁ ⁺ 0}	7	{3 ₁₋₁₋₁ ⁺ 0}	8	{3 ₋₁₋₁₁ ⁺ 0}	9	{3 ₁₁₁ ⁻ 0}	10	{3 ₁₋₁₋₁ ⁻ 0}
11	{3 ₋₁₋₁₁ ⁻ 0}	12	{3 ₋₁₁₋₁ ⁻ 0}	13	{-1 0}	14	{m ₀₀₁ 0}	15	{m ₀₁₀ 0}
16	{m ₁₀₀ 0}	17	{-3 ₁₁₁ ⁺ 0}	18	{-3 ₋₁₁₋₁ ⁺ 0}	19	{-3 ₁₋₁₋₁ ⁺ 0}	20	{-3 ₋₁₋₁₁ ⁺ 0}
21	{-3 ₁₁₁ ⁻ 0}	22	{-3 ₁₋₁₋₁ ⁻ 0}	23	{-3 ₋₁₋₁₁ ⁻ 0}	24	{-3 ₋₁₁₋₁ ⁻ 0}		

 — 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	-	-	$\sqrt{15}xyz$

continued ...

Table 2

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

continued ...

Table 2

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

continued ...

Table 2

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

Basis in full matrix

Table 3: dimension = 24

#	orbital@atom(SL)								
0	$ s, \uparrow\rangle @A(1)$	1	$ s, \downarrow\rangle @A(1)$	2	$ p_x, \uparrow\rangle @A(1)$	3	$ p_x, \downarrow\rangle @A(1)$	4	$ p_y, \uparrow\rangle @A(1)$
5	$ p_y, \downarrow\rangle @A(1)$	6	$ p_z, \uparrow\rangle @A(1)$	7	$ p_z, \downarrow\rangle @A(1)$	8	$ s, \uparrow\rangle @A(2)$	9	$ s, \downarrow\rangle @A(2)$
10	$ p_x, \uparrow\rangle @A(2)$	11	$ p_x, \downarrow\rangle @A(2)$	12	$ p_y, \uparrow\rangle @A(2)$	13	$ p_y, \downarrow\rangle @A(2)$	14	$ p_z, \uparrow\rangle @A(2)$
15	$ p_z, \downarrow\rangle @A(2)$	16	$ s, \uparrow\rangle @A(3)$	17	$ s, \downarrow\rangle @A(3)$	18	$ p_x, \uparrow\rangle @A(3)$	19	$ p_x, \downarrow\rangle @A(3)$
20	$ p_y, \uparrow\rangle @A(3)$	21	$ p_y, \downarrow\rangle @A(3)$	22	$ p_z, \uparrow\rangle @A(3)$	23	$ p_z, \downarrow\rangle @A(3)$		

Table 4: Atomic basis (orbital part only)

orbital	definition
$ s\rangle$	1
$ p_x\rangle$	x
$ p_y\rangle$	y
$ p_z\rangle$	z

SAMB

1428 (all 1428) SAMBs

- 'A' site-cluster : A
 - * bra: $\langle s, \uparrow |, \langle s, \downarrow |$
 - * ket: $|s, \uparrow \rangle, |s, \downarrow \rangle$
 - * wyckoff: 3d

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

$$\boxed{\text{z70}} \quad \mathbb{Q}_{2,1}^{(c)}(E_g) = \frac{\sqrt{2}\mathbb{Q}_0^{(a)}(A_g)\mathbb{Q}_{2,1}^{(s)}(E_g)}{2}$$

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

- 'A' site-cluster : A
 - * bra: $\langle s, \uparrow |, \langle s, \downarrow |$

* ket: $|p_x, \uparrow\rangle, |p_x, \downarrow\rangle, |p_y, \uparrow\rangle, |p_y, \downarrow\rangle, |p_z, \uparrow\rangle, |p_z, \downarrow\rangle$
* wyckoff: 3d

$$\boxed{\text{z685}} \quad \mathbb{Q}_3^{(1,-1;c)}(A_u) = \frac{\sqrt{2}\mathbb{G}_{2,1}^{(1,-1;a)}(E_u)\mathbb{Q}_{2,2}^{(s)}(E_g)}{2} - \frac{\sqrt{2}\mathbb{G}_{2,2}^{(1,-1;a)}(E_u)\mathbb{Q}_{2,1}^{(s)}(E_g)}{2}$$

$$\boxed{\text{z686}} \quad \mathbb{G}_0^{(1,-1;c)}(A_u) = \frac{\sqrt{2}\mathbb{G}_{2,1}^{(1,-1;a)}(E_u)\mathbb{Q}_{2,1}^{(s)}(E_g)}{2} + \frac{\sqrt{2}\mathbb{G}_{2,2}^{(1,-1;a)}(E_u)\mathbb{Q}_{2,2}^{(s)}(E_g)}{2}$$

$$\boxed{\text{z687}} \quad \mathbb{G}_0^{(1,1;c)}(A_u) = \mathbb{G}_0^{(1,1;a)}(A_u)\mathbb{Q}_0^{(s)}(A_g)$$

$$\boxed{\text{z750}} \quad \mathbb{G}_{2,1}^{(1,-1;c)}(E_u, a) = \frac{\sqrt{2}\mathbb{G}_{2,1}^{(1,-1;a)}(E_u)\mathbb{Q}_0^{(s)}(A_g)}{2}$$

$$\boxed{\text{z751}} \quad \mathbb{G}_{2,2}^{(1,-1;c)}(E_u, a) = \frac{\sqrt{2}\mathbb{G}_{2,2}^{(1,-1;a)}(E_u)\mathbb{Q}_0^{(s)}(A_g)}{2}$$

$$\boxed{\text{z752}} \quad \mathbb{G}_{2,1}^{(1,-1;c)}(E_u, b) = \frac{\mathbb{G}_{2,1}^{(1,-1;a)}(E_u)\mathbb{Q}_{2,1}^{(s)}(E_g)}{2} - \frac{\mathbb{G}_{2,2}^{(1,-1;a)}(E_u)\mathbb{Q}_{2,2}^{(s)}(E_g)}{2}$$

$$\boxed{\text{z753}} \quad \mathbb{G}_{2,2}^{(1,-1;c)}(E_u, b) = -\frac{\mathbb{G}_{2,1}^{(1,-1;a)}(E_u)\mathbb{Q}_{2,2}^{(s)}(E_g)}{2} - \frac{\mathbb{G}_{2,2}^{(1,-1;a)}(E_u)\mathbb{Q}_{2,1}^{(s)}(E_g)}{2}$$

$$\boxed{\text{z754}} \quad \mathbb{G}_{2,1}^{(1,1;c)}(E_u) = \frac{\sqrt{2}\mathbb{G}_0^{(1,1;a)}(A_u)\mathbb{Q}_{2,1}^{(s)}(E_g)}{2}$$

$$\boxed{\text{z755}} \quad \mathbb{G}_{2,2}^{(1,1;c)}(E_u) = \frac{\sqrt{2}\mathbb{G}_0^{(1,1;a)}(A_u)\mathbb{Q}_{2,2}^{(s)}(E_g)}{2}$$

$$\boxed{\text{z880}} \quad \mathbb{Q}_{1,1}^{(c)}(T_u, a) = \frac{\sqrt{3}\mathbb{Q}_{1,1}^{(a)}(T_u)\mathbb{Q}_0^{(s)}(A_g)}{3}$$

$$\boxed{\text{z881}} \quad \mathbb{Q}_{1,2}^{(c)}(T_u, a) = \frac{\sqrt{3}\mathbb{Q}_{1,2}^{(a)}(T_u)\mathbb{Q}_0^{(s)}(A_g)}{3}$$

$$\boxed{\text{z882}} \quad \mathbb{Q}_{1,3}^{(c)}(T_u, a) = \frac{\sqrt{3}\mathbb{Q}_{1,3}^{(a)}(T_u)\mathbb{Q}_0^{(s)}(A_g)}{3}$$

$$\boxed{\text{z883}} \quad \mathbb{Q}_{1,1}^{(c)}(T_u, b) = -\frac{\sqrt{3}\mathbb{Q}_{1,1}^{(a)}(T_u)\mathbb{Q}_{2,1}^{(s)}(E_g)}{6} + \frac{\mathbb{Q}_{1,1}^{(a)}(T_u)\mathbb{Q}_{2,2}^{(s)}(E_g)}{2}$$

$$\boxed{\text{z884}} \quad \mathbb{Q}_{1,2}^{(c)}(T_u, b) = -\frac{\sqrt{3}\mathbb{Q}_{1,2}^{(a)}(T_u)\mathbb{Q}_{2,1}^{(s)}(E_g)}{6} - \frac{\mathbb{Q}_{1,2}^{(a)}(T_u)\mathbb{Q}_{2,2}^{(s)}(E_g)}{2}$$

$$\boxed{\text{z885}} \quad \mathbb{Q}_{1,3}^{(c)}(T_u, b) = \frac{\sqrt{3}\mathbb{Q}_{1,3}^{(a)}(T_u)\mathbb{Q}_{2,1}^{(s)}(E_g)}{3}$$

$$\boxed{\text{z886}} \quad \mathbb{Q}_{3,1}^{(c)}(T_u, 2) = -\frac{\mathbb{Q}_{1,1}^{(a)}(T_u)\mathbb{Q}_{2,1}^{(s)}(E_g)}{2} - \frac{\sqrt{3}\mathbb{Q}_{1,1}^{(a)}(T_u)\mathbb{Q}_{2,2}^{(s)}(E_g)}{6}$$

$$\boxed{\text{z887}} \quad \mathbb{Q}_{3,2}^{(c)}(T_u, 2) = \frac{\mathbb{Q}_{1,2}^{(a)}(T_u)\mathbb{Q}_{2,1}^{(s)}(E_g)}{2} - \frac{\sqrt{3}\mathbb{Q}_{1,2}^{(a)}(T_u)\mathbb{Q}_{2,2}^{(s)}(E_g)}{6}$$

$$\boxed{\text{z888}} \quad \mathbb{Q}_{3,3}^{(c)}(T_u, 2) = \frac{\sqrt{3}\mathbb{Q}_{1,3}^{(a)}(T_u)\mathbb{Q}_{2,2}^{(s)}(E_g)}{3}$$

$$\boxed{\text{z889}} \quad \mathbb{Q}_{1,1}^{(1,-1;c)}(T_u) = \frac{\mathbb{G}_{2,1}^{(1,-1;a)}(T_u)\mathbb{Q}_{2,1}^{(s)}(E_g)}{2} + \frac{\sqrt{3}\mathbb{G}_{2,1}^{(1,-1;a)}(T_u)\mathbb{Q}_{2,2}^{(s)}(E_g)}{6}$$

$$\boxed{\text{z890}} \quad \mathbb{Q}_{1,2}^{(1,-1;c)}(T_u) = -\frac{\mathbb{G}_{2,2}^{(1,-1;a)}(T_u)\mathbb{Q}_{2,1}^{(s)}(E_g)}{2} + \frac{\sqrt{3}\mathbb{G}_{2,2}^{(1,-1;a)}(T_u)\mathbb{Q}_{2,2}^{(s)}(E_g)}{6}$$

$$\boxed{\text{z891}} \quad \mathbb{Q}_{1,3}^{(1,-1;c)}(T_u) = -\frac{\sqrt{3}\mathbb{G}_{2,3}^{(1,-1;a)}(T_u)\mathbb{Q}_{2,2}^{(s)}(E_g)}{3}$$

$$\boxed{\text{z892}} \quad \mathbb{Q}_{3,1}^{(1,-1;c)}(T_u, 2) = -\frac{\sqrt{3}\mathbb{G}_{2,1}^{(1,-1;a)}(T_u)\mathbb{Q}_{2,1}^{(s)}(E_g)}{6} + \frac{\mathbb{G}_{2,1}^{(1,-1;a)}(T_u)\mathbb{Q}_{2,2}^{(s)}(E_g)}{2}$$

$$\boxed{\text{z893}} \quad \mathbb{Q}_{3,2}^{(1,-1;c)}(T_u, 2) = -\frac{\sqrt{3}\mathbb{G}_{2,2}^{(1,-1;a)}(T_u)\mathbb{Q}_{2,1}^{(s)}(E_g)}{6} - \frac{\mathbb{G}_{2,2}^{(1,-1;a)}(T_u)\mathbb{Q}_{2,2}^{(s)}(E_g)}{2}$$

$$\boxed{\text{z894}} \quad \mathbb{Q}_{3,3}^{(1,-1;c)}(T_u, 2) = \frac{\sqrt{3}\mathbb{G}_{2,3}^{(1,-1;a)}(T_u)\mathbb{Q}_{2,1}^{(s)}(E_g)}{3}$$

$$\boxed{\text{z895}} \quad \mathbb{Q}_{1,1}^{(1,0;c)}(T_u, a) = \frac{\sqrt{3}\mathbb{Q}_{1,1}^{(1,0;a)}(T_u)\mathbb{Q}_0^{(s)}(A_g)}{3}$$

$$\boxed{\text{z896}} \quad \mathbb{Q}_{1,2}^{(1,0;c)}(T_u, a) = \frac{\sqrt{3}\mathbb{Q}_{1,2}^{(1,0;a)}(T_u)\mathbb{Q}_0^{(s)}(A_g)}{3}$$

$$\boxed{\text{z897}} \quad \mathbb{Q}_{1,3}^{(1,0;c)}(T_u, a) = \frac{\sqrt{3}\mathbb{Q}_{1,3}^{(1,0;a)}(T_u)\mathbb{Q}_0^{(s)}(A_g)}{3}$$

$$\boxed{\text{z898}} \quad \mathbb{Q}_{1,1}^{(1,0;c)}(T_u, b) = -\frac{\sqrt{3}\mathbb{Q}_{1,1}^{(1,0;a)}(T_u)\mathbb{Q}_{2,1}^{(s)}(E_g)}{6} + \frac{\mathbb{Q}_{1,1}^{(1,0;a)}(T_u)\mathbb{Q}_{2,2}^{(s)}(E_g)}{2}$$

$$\boxed{\text{z899}} \quad \mathbb{Q}_{1,2}^{(1,0;c)}(T_u, b) = -\frac{\sqrt{3}\mathbb{Q}_{1,2}^{(1,0;a)}(T_u)\mathbb{Q}_{2,1}^{(s)}(E_g)}{6} - \frac{\mathbb{Q}_{1,2}^{(1,0;a)}(T_u)\mathbb{Q}_{2,2}^{(s)}(E_g)}{2}$$

$$\boxed{\text{z900}} \quad \mathbb{Q}_{1,3}^{(1,0;c)}(T_u, b) = \frac{\sqrt{3}\mathbb{Q}_{1,3}^{(1,0;a)}(T_u)\mathbb{Q}_{2,1}^{(s)}(E_g)}{3}$$

$$\boxed{\text{z901}} \quad \mathbb{Q}_{3,1}^{(1,0;c)}(T_u, 2) = -\frac{\mathbb{Q}_{1,1}^{(1,0;a)}(T_u)\mathbb{Q}_{2,1}^{(s)}(E_g)}{2} - \frac{\sqrt{3}\mathbb{Q}_{1,1}^{(1,0;a)}(T_u)\mathbb{Q}_{2,2}^{(s)}(E_g)}{6}$$

$$\boxed{\text{z902}} \quad \mathbb{Q}_{3,2}^{(1,0;c)}(T_u, 2) = \frac{\mathbb{Q}_{1,2}^{(1,0;a)}(T_u)\mathbb{Q}_{2,1}^{(s)}(E_g)}{2} - \frac{\sqrt{3}\mathbb{Q}_{1,2}^{(1,0;a)}(T_u)\mathbb{Q}_{2,2}^{(s)}(E_g)}{6}$$

$$\boxed{\text{z903}} \quad \mathbb{Q}_{3,3}^{(1,0;c)}(T_u, 2) = \frac{\sqrt{3}\mathbb{Q}_{1,3}^{(1,0;a)}(T_u)\mathbb{Q}_{2,2}^{(s)}(E_g)}{3}$$

$$\boxed{\text{z904}} \quad \mathbb{G}_{2,1}^{(1,-1;c)}(T_u) = \frac{\sqrt{3}\mathbb{G}_{2,1}^{(1,-1;a)}(T_u)\mathbb{Q}_0^{(s)}(A_g)}{3}$$

$$\boxed{\text{z905}} \quad \mathbb{G}_{2,2}^{(1,-1;c)}(T_u) = \frac{\sqrt{3}\mathbb{G}_{2,2}^{(1,-1;a)}(T_u)\mathbb{Q}_0^{(s)}(A_g)}{3}$$

$$\boxed{\text{z906}} \quad \mathbb{G}_{2,3}^{(1,-1;c)}(T_u) = \frac{\sqrt{3}\mathbb{G}_{2,3}^{(1,-1;a)}(T_u)\mathbb{Q}_0^{(s)}(A_g)}{3}$$

• 'A' site-cluster : A

* bra: $\langle p_x, \uparrow |, \langle p_x, \downarrow |, \langle p_y, \uparrow |, \langle p_y, \downarrow |, \langle p_z, \uparrow |, \langle p_z, \downarrow |$

* ket: $|p_x, \uparrow \rangle, |p_x, \downarrow \rangle, |p_y, \uparrow \rangle, |p_y, \downarrow \rangle, |p_z, \uparrow \rangle, |p_z, \downarrow \rangle$

* wyckoff: 3d

$$\boxed{\text{z2}} \quad \mathbb{Q}_0^{(c)}(A_g, a) = \mathbb{Q}_0^{(a)}(A_g)\mathbb{Q}_0^{(s)}(A_g)$$

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

$$\boxed{\text{z4}} \quad \mathbb{Q}_0^{(1,-1;c)}(A_g) = \frac{\sqrt{2}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,1}^{(s)}(E_g)}{2} + \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,2}^{(s)}(E_g)}{2}$$

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

$$\boxed{\text{z6}} \quad \mathbb{G}_3^{(c)}(A_g) = \frac{\sqrt{2}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{2,2}^{(s)}(E_g)}{2} - \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{2,1}^{(s)}(E_g)}{2}$$

$$\boxed{\text{z7}} \quad \mathbb{G}_3^{(1,-1;c)}(A_g) = \frac{\sqrt{2}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,2}^{(s)}(E_g)}{2} - \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,1}^{(s)}(E_g)}{2}$$

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

$$\boxed{\text{z73}} \quad \mathbb{Q}_{2,2}^{(c)}(E_g, a) = \frac{\sqrt{2}\mathbb{Q}_0^{(a)}(A_g)\mathbb{Q}_{2,2}^{(s)}(E_g)}{2}$$

$$\boxed{\text{z74}} \quad \mathbb{Q}_{2,1}^{(c)}(E_g, b) = \frac{\sqrt{2}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_0^{(s)}(A_g)}{2}$$

$$\boxed{\text{z75}} \quad \mathbb{Q}_{2,2}^{(c)}(E_g, b) = \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_0^{(s)}(A_g)}{2}$$

$$\boxed{\text{z76}} \quad \mathbb{Q}_{2,1}^{(c)}(E_g, c) = \frac{\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{2,1}^{(s)}(E_g)}{2} - \frac{\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{2,2}^{(s)}(E_g)}{2}$$

$$\boxed{\text{z77}} \quad \mathbb{Q}_{2,2}^{(c)}(E_g, c) = -\frac{\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{2,2}^{(s)}(E_g)}{2} - \frac{\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{2,1}^{(s)}(E_g)}{2}$$

$$\boxed{\text{z78}} \quad \mathbb{Q}_{2,1}^{(1,-1;c)}(E_g, a) = \frac{\sqrt{2}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_0^{(s)}(A_g)}{2}$$

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

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

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

$$\boxed{\text{z82}} \quad \mathbb{Q}_{2,1}^{(1,1;c)}(E_g) = \frac{\sqrt{2}\mathbb{Q}_0^{(1,1;a)}(A_g)\mathbb{Q}_{2,1}^{(s)}(E_g)}{2}$$

$$\boxed{\text{z83}} \quad \mathbb{Q}_{2,2}^{(1,1;c)}(E_g) = \frac{\sqrt{2}\mathbb{Q}_0^{(1,1;a)}(A_g)\mathbb{Q}_{2,2}^{(s)}(E_g)}{2}$$

$$\boxed{\text{z208}} \quad \mathbb{Q}_{2,1}^{(c)}(T_g, a) = \frac{\sqrt{3}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_0^{(s)}(A_g)}{3}$$

$$\boxed{\text{z209}} \quad \mathbb{Q}_{2,2}^{(c)}(T_g, a) = \frac{\sqrt{3}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_0^{(s)}(A_g)}{3}$$

$$\boxed{\text{z210}} \quad \mathbb{Q}_{2,3}^{(c)}(T_g, a) = \frac{\sqrt{3}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_0^{(s)}(A_g)}{3}$$

$$\boxed{\text{z211}} \quad \mathbb{Q}_{2,1}^{(c)}(T_g, b) = \frac{\sqrt{3}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{2,1}^{(s)}(E_g)}{6} - \frac{\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{2,2}^{(s)}(E_g)}{2}$$

$$\boxed{\text{z212}} \quad \mathbb{Q}_{2,2}^{(c)}(T_g, b) = \frac{\sqrt{3}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{2,1}^{(s)}(E_g)}{6} + \frac{\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{2,2}^{(s)}(E_g)}{2}$$

$$\boxed{\text{z213}} \quad \mathbb{Q}_{2,3}^{(c)}(T_g, b) = -\frac{\sqrt{3}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{2,1}^{(s)}(E_g)}{3}$$

$$\boxed{\text{z214}} \quad \mathbb{Q}_{4,1}^{(c)}(T_g, 1) = -\frac{\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{2,1}^{(s)}(E_g)}{2} - \frac{\sqrt{3}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{2,2}^{(s)}(E_g)}{6}$$

$$\boxed{\text{z215}} \quad \mathbb{Q}_{4,2}^{(c)}(T_g, 1) = \frac{\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{2,1}^{(s)}(E_g)}{2} - \frac{\sqrt{3}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{2,2}^{(s)}(E_g)}{6}$$

$$\boxed{\text{z216}} \quad \mathbb{Q}_{4,3}^{(c)}(T_g, 1) = \frac{\sqrt{3}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{2,2}^{(s)}(E_g)}{3}$$

$$\boxed{\text{z217}} \quad \mathbb{Q}_{2,1}^{(1,-1;c)}(T_g, a) = \frac{\sqrt{3}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_0^{(s)}(A_g)}{3}$$

$$\boxed{\text{z218}} \quad \mathbb{Q}_{2,2}^{(1,-1;c)}(T_g, a) = \frac{\sqrt{3}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_0^{(s)}(A_g)}{3}$$

$$\boxed{\text{z219}} \quad \mathbb{Q}_{2,3}^{(1,-1;c)}(T_g, a) = \frac{\sqrt{3}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_0^{(s)}(A_g)}{3}$$

$$\boxed{\text{z220}} \quad \mathbb{Q}_{2,1}^{(1,-1;c)}(T_g, b) = \frac{\sqrt{3}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,1}^{(s)}(E_g)}{6} - \frac{\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,2}^{(s)}(E_g)}{2}$$

$$\boxed{\text{z221}} \quad \mathbb{Q}_{2,2}^{(1,-1;c)}(T_g, b) = \frac{\sqrt{3}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,1}^{(s)}(E_g)}{6} + \frac{\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,2}^{(s)}(E_g)}{2}$$

$$\boxed{\text{z222}} \quad \mathbb{Q}_{2,3}^{(1,-1;c)}(T_g, b) = -\frac{\sqrt{3}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,1}^{(s)}(E_g)}{3}$$

$$\boxed{\text{z223}} \quad \mathbb{Q}_{4,1}^{(1,-1;c)}(T_g, 1) = -\frac{\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,1}^{(s)}(E_g)}{2} - \frac{\sqrt{3}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,2}^{(s)}(E_g)}{6}$$

$$\boxed{\text{z224}} \quad \mathbb{Q}_{4,2}^{(1,-1;c)}(T_g, 1) = \frac{\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,1}^{(s)}(E_g)}{2} - \frac{\sqrt{3}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,2}^{(s)}(E_g)}{6}$$

$$\boxed{\text{z225}} \quad \mathbb{Q}_{4,3}^{(1,-1;c)}(T_g, 1) = \frac{\sqrt{3}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,2}^{(s)}(E_g)}{3}$$

$$\boxed{\text{z226}} \quad \mathbb{Q}_{2,1}^{(1,0;c)}(T_g) = -\frac{\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{2,1}^{(s)}(E_g)}{2} - \frac{\sqrt{3}\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{2,2}^{(s)}(E_g)}{6}$$

$$\boxed{\text{z227}} \quad \mathbb{Q}_{2,2}^{(1,0;c)}(T_g) = \frac{\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{2,1}^{(s)}(E_g)}{2} - \frac{\sqrt{3}\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{2,2}^{(s)}(E_g)}{6}$$

$$\boxed{\text{z228}} \quad \mathbb{Q}_{2,3}^{(1,0;c)}(T_g) = \frac{\sqrt{3}\mathbb{G}_{1,3}^{(1,0;a)}(T_g)\mathbb{Q}_{2,2}^{(s)}(E_g)}{3}$$

$$\boxed{\text{z229}} \quad \mathbb{G}_{1,1}^{(1,0;c)}(T_g, a) = \frac{\sqrt{3}\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_0^{(s)}(A_g)}{3}$$

$$\boxed{\text{z230}} \quad \mathbb{G}_{1,2}^{(1,0;c)}(T_g, a) = \frac{\sqrt{3}\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_0^{(s)}(A_g)}{3}$$

$$\boxed{\text{z231}} \quad \mathbb{G}_{1,3}^{(1,0;c)}(T_g, a) = \frac{\sqrt{3}\mathbb{G}_{1,3}^{(1,0;a)}(T_g)\mathbb{Q}_0^{(s)}(A_g)}{3}$$

$$\boxed{\text{z232}} \quad \mathbb{G}_{1,1}^{(1,0;c)}(T_g, b) = -\frac{\sqrt{3}\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{2,1}^{(s)}(E_g)}{6} + \frac{\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{2,2}^{(s)}(E_g)}{2}$$

$$\boxed{\text{z233}} \quad \mathbb{G}_{1,2}^{(1,0;c)}(T_g, b) = -\frac{\sqrt{3}\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{2,1}^{(s)}(E_g)}{6} - \frac{\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{2,2}^{(s)}(E_g)}{2}$$

$$\boxed{\text{z234}} \quad \mathbb{G}_{1,3}^{(1,0;c)}(T_g, b) = \frac{\sqrt{3}\mathbb{G}_{1,3}^{(1,0;a)}(T_g)\mathbb{Q}_{2,1}^{(s)}(E_g)}{3}$$

- 'A'-'A' bond-cluster : A;A_001_1

* bra: $\langle s, \uparrow |$, $\langle s, \downarrow |$
 * ket: $|s, \uparrow \rangle$, $|s, \downarrow \rangle$
 * wyckoff: 12a@12j

$$[z8] \quad \mathbb{Q}_0^{(c)}(A_g) = \mathbb{Q}_0^{(a)}(A_g) \mathbb{Q}_0^{(b)}(A_g)$$

$$[z9] \quad \mathbb{Q}_0^{(1,-1;c)}(A_g) = \frac{\sqrt{3}\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{3} + \frac{\sqrt{3}\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{3} + \frac{\sqrt{3}\mathbb{M}_{1,3}^{(1,-1;a)}(T_g)\mathbb{M}_{1,3}^{(b)}(T_g)}{3}$$

$$[z84] \quad \mathbb{G}_0^{(1,-1;c)}(A_u, a) = \frac{\sqrt{3}\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u, a)}{3} + \frac{\sqrt{3}\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u, a)}{3} + \frac{\sqrt{3}\mathbb{M}_{1,3}^{(1,-1;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u, a)}{3}$$

$$[z85] \quad \mathbb{G}_0^{(1,-1;c)}(A_u, b) = \frac{\sqrt{3}\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u, b)}{3} + \frac{\sqrt{3}\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u, b)}{3} + \frac{\sqrt{3}\mathbb{M}_{1,3}^{(1,-1;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u, b)}{3}$$

$$[z86] \quad \mathbb{Q}_{2,1}^{(c)}(E_g) = \frac{\sqrt{2}\mathbb{Q}_0^{(a)}(A_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{2}$$

$$[z87] \quad \mathbb{Q}_{2,2}^{(c)}(E_g) = \frac{\sqrt{2}\mathbb{Q}_0^{(a)}(A_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{2}$$

$$[z235] \quad \mathbb{Q}_{2,1}^{(1,-1;c)}(E_g) = -\frac{\sqrt{3}\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{6} - \frac{\sqrt{3}\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{6} + \frac{\sqrt{3}\mathbb{M}_{1,3}^{(1,-1;a)}(T_g)\mathbb{M}_{1,3}^{(b)}(T_g)}{3}$$

$$[z236] \quad \mathbb{Q}_{2,2}^{(1,-1;c)}(E_g) = \frac{\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{2} - \frac{\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{2}$$

$$[z237] \quad \mathbb{G}_{2,1}^{(1,-1;c)}(E_u, a) = -\frac{\sqrt{3}\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u, a)}{6} - \frac{\sqrt{3}\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u, a)}{6} + \frac{\sqrt{3}\mathbb{M}_{1,3}^{(1,-1;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u, a)}{3}$$

$$[z238] \quad \mathbb{G}_{2,2}^{(1,-1;c)}(E_u, a) = \frac{\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u, a)}{2} - \frac{\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u, a)}{2}$$

$$[z239] \quad \mathbb{G}_{2,1}^{(1,-1;c)}(E_u, b) = -\frac{\sqrt{3}\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u, b)}{6} - \frac{\sqrt{3}\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u, b)}{6} + \frac{\sqrt{3}\mathbb{M}_{1,3}^{(1,-1;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u, b)}{3}$$

$$[z240] \quad \mathbb{G}_{2,2}^{(1,-1;c)}(E_u, b) = \frac{\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u, b)}{2} - \frac{\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u, b)}{2}$$

$$\boxed{\text{z241}} \quad \mathbb{Q}_{2,1}^{(c)}(T_g) = \frac{\sqrt{3}\mathbb{Q}_0^{(a)}(A_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{3}$$

$$\boxed{\text{z242}} \quad \mathbb{Q}_{2,2}^{(c)}(T_g) = \frac{\sqrt{3}\mathbb{Q}_0^{(a)}(A_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{3}$$

$$\boxed{\text{z243}} \quad \mathbb{Q}_{2,3}^{(c)}(T_g) = \frac{\sqrt{3}\mathbb{Q}_0^{(a)}(A_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{3}$$

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

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

$$\boxed{\text{z246}} \quad \mathbb{Q}_{2,3}^{(1,-1;c)}(T_g, a) = \frac{\sqrt{3}\mathbb{M}_{1,3}^{(1,-1;a)}(T_g)\mathbb{T}_{2,2}^{(b)}(E_g)}{3}$$

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

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

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

$$\boxed{\text{z250}} \quad \mathbb{G}_{1,1}^{(1,-1;c)}(T_g, a) = \frac{\sqrt{3}\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{T}_0^{(b)}(A_g)}{3}$$

$$\boxed{\text{z251}} \quad \mathbb{G}_{1,2}^{(1,-1;c)}(T_g, a) = \frac{\sqrt{3}\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{T}_0^{(b)}(A_g)}{3}$$

$$\boxed{\text{z252}} \quad \mathbb{G}_{1,3}^{(1,-1;c)}(T_g, a) = \frac{\sqrt{3}\mathbb{M}_{1,3}^{(1,-1;a)}(T_g)\mathbb{T}_0^{(b)}(A_g)}{3}$$

$$\boxed{\text{z688}} \quad \mathbb{G}_{1,1}^{(1,-1;c)}(T_g, b) = -\frac{\sqrt{3}\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{T}_{2,1}^{(b)}(E_g)}{6} + \frac{\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{T}_{2,2}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z689}} \quad \mathbb{G}_{1,2}^{(1,-1;c)}(T_g, b) = -\frac{\sqrt{3}\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{T}_{2,1}^{(b)}(E_g)}{6} - \frac{\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{T}_{2,2}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z756}} \quad \mathbb{G}_{1,3}^{(1,-1;c)}(T_g, b) = \frac{\sqrt{3}\mathbb{M}_{1,3}^{(1,-1;a)}(T_g)\mathbb{T}_{2,1}^{(b)}(E_g)}{3}$$

$$\boxed{\text{z757}} \quad \mathbb{G}_{1,1}^{(1,-1;c)}(T_g, c) = \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{M}_{1,3}^{(b)}(T_g)}{6} - \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,-1;a)}(T_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{6}$$

$$\boxed{\text{z758}} \quad \mathbb{G}_{1,2}^{(1,-1;c)}(T_g, c) = -\frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{M}_{1,3}^{(b)}(T_g)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,-1;a)}(T_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{6}$$

$$\boxed{\text{z759}} \quad \mathbb{G}_{1,3}^{(1,-1;c)}(T_g, c) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{6} - \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{6}$$

$$\boxed{\text{z907}} \quad \mathbb{Q}_{1,1}^{(c)}(T_u) = \frac{\sqrt{3}\mathbb{Q}_0^{(a)}(A_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z908}} \quad \mathbb{Q}_{1,2}^{(c)}(T_u) = \frac{\sqrt{3}\mathbb{Q}_0^{(a)}(A_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z909}} \quad \mathbb{Q}_{1,3}^{(c)}(T_u) = \frac{\sqrt{3}\mathbb{Q}_0^{(a)}(A_g)\mathbb{Q}_{1,3}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z910}} \quad \mathbb{Q}_{3,1}^{(c)}(T_u, 1) = \frac{\sqrt{3}\mathbb{Q}_0^{(a)}(A_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{3}$$

$$\boxed{\text{z911}} \quad \mathbb{Q}_{3,2}^{(c)}(T_u, 1) = \frac{\sqrt{3}\mathbb{Q}_0^{(a)}(A_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{3}$$

$$\boxed{\text{z912}} \quad \mathbb{Q}_{3,3}^{(c)}(T_u, 1) = \frac{\sqrt{3}\mathbb{Q}_0^{(a)}(A_g)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{3}$$

$$\boxed{\text{z913}} \quad \mathbb{Q}_{1,1}^{(1,-1;c)}(T_u, a) = \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u, a)}{6} - \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,-1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u, a)}{6}$$

$$\boxed{\text{z914}} \quad \mathbb{Q}_{1,2}^{(1,-1;c)}(T_u, a) = -\frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u, a)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,-1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u, a)}{6}$$

$$\boxed{\text{z915}} \quad \mathbb{Q}_{1,3}^{(1,-1;c)}(T_u, a) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u, a)}{6} - \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u, a)}{6}$$

$$\boxed{\text{z916}} \quad \mathbb{Q}_{1,1}^{(1,-1;c)}(T_u, b) = \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u, b)}{6} - \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,-1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u, b)}{6}$$

$$\boxed{\text{z917}} \quad \mathbb{Q}_{1,2}^{(1,-1;c)}(T_u, b) = -\frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u, b)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,-1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u, b)}{6}$$

$$\boxed{\text{z918}} \quad \mathbb{Q}_{1,3}^{(1,-1;c)}(T_u, b) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u, b)}{6} - \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u, b)}{6}$$

$$\boxed{\text{z919}} \quad \mathbb{G}_{2,1}^{(1,-1;c)}(T_u, a) = \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u, a)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,-1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u, a)}{6}$$

$$\boxed{\text{z920}} \quad \mathbb{G}_{2,2}^{(1,-1;c)}(T_u, a) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u, a)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,-1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u, a)}{6}$$

$$\boxed{\text{z921}} \quad \mathbb{G}_{2,3}^{(1,-1;c)}(T_u, a) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u, a)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u, a)}{6}$$

$$\boxed{\text{z922}} \quad \mathbb{G}_{2,1}^{(1,-1;c)}(T_u, b) = \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u, b)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,-1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u, b)}{6}$$

$$\boxed{\text{z923}} \quad \mathbb{G}_{2,2}^{(1,-1;c)}(T_u, b) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u, b)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,-1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u, b)}{6}$$

$$\boxed{\text{z924}} \quad \mathbb{G}_{2,3}^{(1,-1;c)}(T_u, b) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u, b)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u, b)}{6}$$

• 'A-A' bond-cluster : A;A_001_1

* bra: $\langle s, \uparrow |, \langle s, \downarrow |$

* ket: $|p_x, \uparrow \rangle, |p_x, \downarrow \rangle, |p_y, \uparrow \rangle, |p_y, \downarrow \rangle, |p_z, \uparrow \rangle, |p_z, \downarrow \rangle$

* wyckoff: 12a@12j

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

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

$$\boxed{\text{z12}} \quad \mathbb{Q}_0^{(c)}(A_g, c) = \frac{\sqrt{3}\mathbb{T}_{1,1}^{(a)}(T_u)\mathbb{T}_{1,1}^{(b)}(T_u, b)}{3} + \frac{\sqrt{3}\mathbb{T}_{1,2}^{(a)}(T_u)\mathbb{T}_{1,2}^{(b)}(T_u, b)}{3} + \frac{\sqrt{3}\mathbb{T}_{1,3}^{(a)}(T_u)\mathbb{T}_{1,3}^{(b)}(T_u, b)}{3}$$

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

$$\boxed{\text{z14}} \quad \mathbb{Q}_0^{(1,0;c)}(A_g, a) = \frac{\sqrt{3}\mathbb{Q}_{1,1}^{(1,0;a)}(T_u)\mathbb{Q}_{1,1}^{(b)}(T_u)}{3} + \frac{\sqrt{3}\mathbb{Q}_{1,2}^{(1,0;a)}(T_u)\mathbb{Q}_{1,2}^{(b)}(T_u)}{3} + \frac{\sqrt{3}\mathbb{Q}_{1,3}^{(1,0;a)}(T_u)\mathbb{Q}_{1,3}^{(b)}(T_u)}{3}$$

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

$$\boxed{\text{z16}} \quad \mathbb{Q}_0^{(1,0;c)}(A_g, c) = \frac{\sqrt{3}\mathbb{T}_{1,1}^{(1,0;a)}(T_u)\mathbb{T}_{1,1}^{(b)}(T_u, b)}{3} + \frac{\sqrt{3}\mathbb{T}_{1,2}^{(1,0;a)}(T_u)\mathbb{T}_{1,2}^{(b)}(T_u, b)}{3} + \frac{\sqrt{3}\mathbb{T}_{1,3}^{(1,0;a)}(T_u)\mathbb{T}_{1,3}^{(b)}(T_u, b)}{3}$$

$$\boxed{\text{z17}} \quad \mathbb{Q}_4^{(1,0;c)}(A_g) = \frac{\sqrt{3}\mathbb{Q}_{1,1}^{(1,0;a)}(T_u)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{3} + \frac{\sqrt{3}\mathbb{Q}_{1,2}^{(1,0;a)}(T_u)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{3} + \frac{\sqrt{3}\mathbb{Q}_{1,3}^{(1,0;a)}(T_u)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{3}$$

$$\boxed{\text{z18}} \quad \mathbb{G}_3^{(1,-1;c)}(A_g, a) = \frac{\sqrt{3}\mathbb{G}_{2,1}^{(1,-1;a)}(T_u)\mathbb{Q}_{1,1}^{(b)}(T_u)}{3} + \frac{\sqrt{3}\mathbb{G}_{2,2}^{(1,-1;a)}(T_u)\mathbb{Q}_{1,2}^{(b)}(T_u)}{3} + \frac{\sqrt{3}\mathbb{G}_{2,3}^{(1,-1;a)}(T_u)\mathbb{Q}_{1,3}^{(b)}(T_u)}{3}$$

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

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

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

$$\boxed{\text{z88}} \quad \mathbb{Q}_3^{(c)}(A_u) = \frac{\sqrt{3}\mathbb{Q}_{1,1}^{(a)}(T_u)\mathbb{Q}_{2,1}^{(b)}(T_g)}{3} + \frac{\sqrt{3}\mathbb{Q}_{1,2}^{(a)}(T_u)\mathbb{Q}_{2,2}^{(b)}(T_g)}{3} + \frac{\sqrt{3}\mathbb{Q}_{1,3}^{(a)}(T_u)\mathbb{Q}_{2,3}^{(b)}(T_g)}{3}$$

$$\boxed{\text{z89}} \quad \mathbb{Q}_3^{(1,-1;c)}(A_u, a) = \frac{\sqrt{2}\mathbb{G}_{2,1}^{(1,-1;a)}(E_u)\mathbb{Q}_{2,2}^{(b)}(E_g)}{2} - \frac{\sqrt{2}\mathbb{G}_{2,2}^{(1,-1;a)}(E_u)\mathbb{Q}_{2,1}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z90}} \quad \mathbb{Q}_3^{(1,-1;c)}(A_u, b) = \frac{\sqrt{2}\mathbb{M}_{2,1}^{(1,-1;a)}(E_u)\mathbb{T}_{2,2}^{(b)}(E_g)}{2} - \frac{\sqrt{2}\mathbb{M}_{2,2}^{(1,-1;a)}(E_u)\mathbb{T}_{2,1}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z91}} \quad \mathbb{Q}_3^{(1,-1;c)}(A_u, c) = \frac{\sqrt{3}\mathbb{M}_{2,1}^{(1,-1;a)}(T_u)\mathbb{M}_{1,1}^{(b)}(T_g)}{3} + \frac{\sqrt{3}\mathbb{M}_{2,2}^{(1,-1;a)}(T_u)\mathbb{M}_{1,2}^{(b)}(T_g)}{3} + \frac{\sqrt{3}\mathbb{M}_{2,3}^{(1,-1;a)}(T_u)\mathbb{M}_{1,3}^{(b)}(T_g)}{3}$$

$$\boxed{\text{z92}} \quad \mathbb{Q}_3^{(1,0;c)}(A_u) = \frac{\sqrt{3}\mathbb{Q}_{1,1}^{(1,0;a)}(T_u)\mathbb{Q}_{2,1}^{(b)}(T_g)}{3} + \frac{\sqrt{3}\mathbb{Q}_{1,2}^{(1,0;a)}(T_u)\mathbb{Q}_{2,2}^{(b)}(T_g)}{3} + \frac{\sqrt{3}\mathbb{Q}_{1,3}^{(1,0;a)}(T_u)\mathbb{Q}_{2,3}^{(b)}(T_g)}{3}$$

$$\boxed{\text{z93}} \quad \mathbb{G}_0^{(c)}(A_u) = \frac{\sqrt{3}\mathbb{T}_{1,1}^{(a)}(T_u)\mathbb{M}_{1,1}^{(b)}(T_g)}{3} + \frac{\sqrt{3}\mathbb{T}_{1,2}^{(a)}(T_u)\mathbb{M}_{1,2}^{(b)}(T_g)}{3} + \frac{\sqrt{3}\mathbb{T}_{1,3}^{(a)}(T_u)\mathbb{M}_{1,3}^{(b)}(T_g)}{3}$$

$$\boxed{\text{z94}} \quad \mathbb{G}_0^{(1,-1;c)}(A_u, a) = \frac{\sqrt{5}\mathbb{G}_{2,1}^{(1,-1;a)}(E_u)\mathbb{Q}_{2,1}^{(b)}(E_g)}{5} + \frac{\sqrt{5}\mathbb{G}_{2,1}^{(1,-1;a)}(T_u)\mathbb{Q}_{2,1}^{(b)}(T_g)}{5} + \frac{\sqrt{5}\mathbb{G}_{2,2}^{(1,-1;a)}(E_u)\mathbb{Q}_{2,2}^{(b)}(E_g)}{5} + \frac{\sqrt{5}\mathbb{G}_{2,2}^{(1,-1;a)}(T_u)\mathbb{Q}_{2,2}^{(b)}(T_g)}{5} + \frac{\sqrt{5}\mathbb{G}_{2,3}^{(1,-1;a)}(T_u)\mathbb{Q}_{2,3}^{(b)}(T_g)}{5}$$

$$\boxed{\text{z95}} \quad \mathbb{G}_0^{(1,-1;c)}(A_u, b) = \frac{\sqrt{2}\mathbb{M}_{2,1}^{(1,-1;a)}(E_u)\mathbb{T}_{2,1}^{(b)}(E_g)}{2} + \frac{\sqrt{2}\mathbb{M}_{2,2}^{(1,-1;a)}(E_u)\mathbb{T}_{2,2}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z96}} \quad \mathbb{G}_4^{(1,-1;c)}(A_u) = \frac{\sqrt{30}\mathbb{G}_{2,1}^{(1,-1;a)}(E_u)\mathbb{Q}_{2,1}^{(b)}(E_g)}{10} - \frac{\sqrt{30}\mathbb{G}_{2,1}^{(1,-1;a)}(T_u)\mathbb{Q}_{2,1}^{(b)}(T_g)}{15} + \frac{\sqrt{30}\mathbb{G}_{2,2}^{(1,-1;a)}(E_u)\mathbb{Q}_{2,2}^{(b)}(E_g)}{10} - \frac{\sqrt{30}\mathbb{G}_{2,2}^{(1,-1;a)}(T_u)\mathbb{Q}_{2,2}^{(b)}(T_g)}{15} - \frac{\sqrt{30}\mathbb{G}_{2,3}^{(1,-1;a)}(T_u)\mathbb{Q}_{2,3}^{(b)}(T_g)}{15}$$

$$\boxed{\text{z97}} \quad \mathbb{G}_0^{(1,0;c)}(A_u) = \frac{\sqrt{3}\mathbb{T}_{1,1}^{(1,0;a)}(T_u)\mathbb{M}_{1,1}^{(b)}(T_g)}{3} + \frac{\sqrt{3}\mathbb{T}_{1,2}^{(1,0;a)}(T_u)\mathbb{M}_{1,2}^{(b)}(T_g)}{3} + \frac{\sqrt{3}\mathbb{T}_{1,3}^{(1,0;a)}(T_u)\mathbb{M}_{1,3}^{(b)}(T_g)}{3}$$

$$\boxed{\text{z98}} \quad \mathbb{G}_0^{(1,1;c)}(A_u, a) = \mathbb{G}_0^{(1,1;a)}(A_u)\mathbb{Q}_0^{(b)}(A_g)$$

$$\boxed{\text{z99}} \quad \mathbb{G}_0^{(1,1;c)}(A_u, b) = \mathbb{M}_0^{(1,1;a)}(A_u)\mathbb{T}_0^{(b)}(A_g)$$

$$\boxed{\text{z100}} \quad \mathbb{Q}_{2,1}^{(c)}(E_g, a) = -\frac{\sqrt{3}\mathbb{Q}_{1,1}^{(a)}(T_u)\mathbb{Q}_{1,1}^{(b)}(T_u)}{6} - \frac{\sqrt{3}\mathbb{Q}_{1,2}^{(a)}(T_u)\mathbb{Q}_{1,2}^{(b)}(T_u)}{6} + \frac{\sqrt{3}\mathbb{Q}_{1,3}^{(a)}(T_u)\mathbb{Q}_{1,3}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z101}} \quad \mathbb{Q}_{2,2}^{(c)}(E_g, a) = \frac{\mathbb{Q}_{1,1}^{(a)}(T_u)\mathbb{Q}_{1,1}^{(b)}(T_u)}{2} - \frac{\mathbb{Q}_{1,2}^{(a)}(T_u)\mathbb{Q}_{1,2}^{(b)}(T_u)}{2}$$

$$\boxed{\text{z102}} \quad \mathbb{Q}_{2,1}^{(c)}(E_g, b) = -\frac{\sqrt{3}\mathbb{Q}_{1,1}^{(a)}(T_u)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{6} - \frac{\sqrt{3}\mathbb{Q}_{1,2}^{(a)}(T_u)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{6} + \frac{\sqrt{3}\mathbb{Q}_{1,3}^{(a)}(T_u)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{3}$$

$$\boxed{\text{z103}} \quad \mathbb{Q}_{2,2}^{(c)}(E_g, b) = \frac{\mathbb{Q}_{1,1}^{(a)}(T_u)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{2} - \frac{\mathbb{Q}_{1,2}^{(a)}(T_u)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{2}$$

$$\boxed{\text{z104}} \quad \mathbb{Q}_{2,1}^{(c)}(E_g, c) = -\frac{\sqrt{3}\mathbb{T}_{1,1}^{(a)}(T_u)\mathbb{T}_{1,1}^{(b)}(T_u, a)}{6} - \frac{\sqrt{3}\mathbb{T}_{1,2}^{(a)}(T_u)\mathbb{T}_{1,2}^{(b)}(T_u, a)}{6} + \frac{\sqrt{3}\mathbb{T}_{1,3}^{(a)}(T_u)\mathbb{T}_{1,3}^{(b)}(T_u, a)}{3}$$

$$\boxed{\text{z105}} \quad \mathbb{Q}_{2,2}^{(c)}(E_g, c) = \frac{\mathbb{T}_{1,1}^{(a)}(T_u)\mathbb{T}_{1,1}^{(b)}(T_u, a)}{2} - \frac{\mathbb{T}_{1,2}^{(a)}(T_u)\mathbb{T}_{1,2}^{(b)}(T_u, a)}{2}$$

$$\boxed{\text{z106}} \quad \mathbb{Q}_{2,1}^{(c)}(E_g, d) = -\frac{\sqrt{3}\mathbb{T}_{1,1}^{(a)}(T_u)\mathbb{T}_{1,1}^{(b)}(T_u, b)}{6} - \frac{\sqrt{3}\mathbb{T}_{1,2}^{(a)}(T_u)\mathbb{T}_{1,2}^{(b)}(T_u, b)}{6} + \frac{\sqrt{3}\mathbb{T}_{1,3}^{(a)}(T_u)\mathbb{T}_{1,3}^{(b)}(T_u, b)}{3}$$

$$\boxed{\text{z107}} \quad \mathbb{Q}_{2,2}^{(c)}(E_g, d) = \frac{\mathbb{T}_{1,1}^{(a)}(T_u)\mathbb{T}_{1,1}^{(b)}(T_u, b)}{2} - \frac{\mathbb{T}_{1,2}^{(a)}(T_u)\mathbb{T}_{1,2}^{(b)}(T_u, b)}{2}$$

$$\boxed{\text{z108}} \quad \mathbb{Q}_{2,1}^{(1,-1;c)}(E_g, a) = -\frac{\mathbb{G}_{2,1}^{(1,-1;a)}(T_u)\mathbb{Q}_{1,1}^{(b)}(T_u)}{2} + \frac{\mathbb{G}_{2,2}^{(1,-1;a)}(T_u)\mathbb{Q}_{1,2}^{(b)}(T_u)}{2}$$

$$\boxed{\text{z109}} \quad \mathbb{Q}_{2,2}^{(1,-1;c)}(E_g, a) = -\frac{\sqrt{3}\mathbb{G}_{2,1}^{(1,-1;a)}(T_u)\mathbb{Q}_{1,1}^{(b)}(T_u)}{6} - \frac{\sqrt{3}\mathbb{G}_{2,2}^{(1,-1;a)}(T_u)\mathbb{Q}_{1,2}^{(b)}(T_u)}{6} + \frac{\sqrt{3}\mathbb{G}_{2,3}^{(1,-1;a)}(T_u)\mathbb{Q}_{1,3}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z110}} \quad \mathbb{Q}_{2,1}^{(1,-1;c)}(E_g, b) = \frac{\mathbb{G}_{2,1}^{(1,-1;a)}(T_u)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{2} - \frac{\mathbb{G}_{2,2}^{(1,-1;a)}(T_u)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{2}$$

$$\boxed{\text{z111}} \quad \mathbb{Q}_{2,2}^{(1,-1;c)}(E_g, b) = \frac{\sqrt{3}\mathbb{G}_{2,1}^{(1,-1;a)}(T_u)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{6} + \frac{\sqrt{3}\mathbb{G}_{2,2}^{(1,-1;a)}(T_u)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{6} - \frac{\sqrt{3}\mathbb{G}_{2,3}^{(1,-1;a)}(T_u)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{3}$$

$$\boxed{\text{z253}} \quad \mathbb{Q}_{2,1}^{(1,-1;c)}(E_g, c) = -\frac{\mathbb{M}_{2,1}^{(1,-1;a)}(T_u)\mathbb{T}_{1,1}^{(b)}(T_u, a)}{2} + \frac{\mathbb{M}_{2,2}^{(1,-1;a)}(T_u)\mathbb{T}_{1,2}^{(b)}(T_u, a)}{2}$$

$$\boxed{\text{z254}} \quad \mathbb{Q}_{2,2}^{(1,-1;c)}(E_g, c) = -\frac{\sqrt{3}\mathbb{M}_{2,1}^{(1,-1;a)}(T_u)\mathbb{T}_{1,1}^{(b)}(T_u, a)}{6} - \frac{\sqrt{3}\mathbb{M}_{2,2}^{(1,-1;a)}(T_u)\mathbb{T}_{1,2}^{(b)}(T_u, a)}{6} + \frac{\sqrt{3}\mathbb{M}_{2,3}^{(1,-1;a)}(T_u)\mathbb{T}_{1,3}^{(b)}(T_u, a)}{3}$$

$$\boxed{\text{z255}} \quad \mathbb{Q}_{2,1}^{(1,-1;c)}(E_g, d) = -\frac{\mathbb{M}_{2,1}^{(1,-1;a)}(T_u)\mathbb{T}_{1,1}^{(b)}(T_u, b)}{2} + \frac{\mathbb{M}_{2,2}^{(1,-1;a)}(T_u)\mathbb{T}_{1,2}^{(b)}(T_u, b)}{2}$$

$$\boxed{\text{z256}} \quad \mathbb{Q}_{2,2}^{(1,-1;c)}(E_g, d) = -\frac{\sqrt{3}\mathbb{M}_{2,1}^{(1,-1;a)}(T_u)\mathbb{T}_{1,1}^{(b)}(T_u, b)}{6} - \frac{\sqrt{3}\mathbb{M}_{2,2}^{(1,-1;a)}(T_u)\mathbb{T}_{1,2}^{(b)}(T_u, b)}{6} + \frac{\sqrt{3}\mathbb{M}_{2,3}^{(1,-1;a)}(T_u)\mathbb{T}_{1,3}^{(b)}(T_u, b)}{3}$$

$$\boxed{\text{z257}} \quad \mathbb{Q}_{2,1}^{(1,0;c)}(E_g, a) = -\frac{\sqrt{3}\mathbb{Q}_{1,1}^{(1,0;a)}(T_u)\mathbb{Q}_{1,1}^{(b)}(T_u)}{6} - \frac{\sqrt{3}\mathbb{Q}_{1,2}^{(1,0;a)}(T_u)\mathbb{Q}_{1,2}^{(b)}(T_u)}{6} + \frac{\sqrt{3}\mathbb{Q}_{1,3}^{(1,0;a)}(T_u)\mathbb{Q}_{1,3}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z258}} \quad \mathbb{Q}_{2,2}^{(1,0;c)}(E_g, a) = \frac{\mathbb{Q}_{1,1}^{(1,0;a)}(T_u)\mathbb{Q}_{1,1}^{(b)}(T_u)}{2} - \frac{\mathbb{Q}_{1,2}^{(1,0;a)}(T_u)\mathbb{Q}_{1,2}^{(b)}(T_u)}{2}$$

$$\boxed{\text{z259}} \quad \mathbb{Q}_{2,1}^{(1,0;c)}(E_g, b) = -\frac{\sqrt{3}\mathbb{Q}_{1,1}^{(1,0;a)}(T_u)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{6} - \frac{\sqrt{3}\mathbb{Q}_{1,2}^{(1,0;a)}(T_u)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{6} + \frac{\sqrt{3}\mathbb{Q}_{1,3}^{(1,0;a)}(T_u)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{3}$$

$$\boxed{\text{z260}} \quad \mathbb{Q}_{2,2}^{(1,0;c)}(E_g, b) = \frac{\mathbb{Q}_{1,1}^{(1,0;a)}(T_u)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{2} - \frac{\mathbb{Q}_{1,2}^{(1,0;a)}(T_u)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{2}$$

$$\boxed{\text{z261}} \quad \mathbb{Q}_{2,1}^{(1,0;c)}(E_g, c) = -\frac{\sqrt{3}\mathbb{T}_{1,1}^{(1,0;a)}(T_u)\mathbb{T}_{1,1}^{(b)}(T_u, a)}{6} - \frac{\sqrt{3}\mathbb{T}_{1,2}^{(1,0;a)}(T_u)\mathbb{T}_{1,2}^{(b)}(T_u, a)}{6} + \frac{\sqrt{3}\mathbb{T}_{1,3}^{(1,0;a)}(T_u)\mathbb{T}_{1,3}^{(b)}(T_u, a)}{3}$$

$$\boxed{\text{z262}} \quad \mathbb{Q}_{2,2}^{(1,0;c)}(E_g, c) = \frac{\mathbb{T}_{1,1}^{(1,0;a)}(T_u)\mathbb{T}_{1,1}^{(b)}(T_u, a)}{2} - \frac{\mathbb{T}_{1,2}^{(1,0;a)}(T_u)\mathbb{T}_{1,2}^{(b)}(T_u, a)}{2}$$

$$\boxed{\text{z263}} \quad \mathbb{Q}_{2,1}^{(1,0;c)}(E_g, d) = -\frac{\sqrt{3}\mathbb{T}_{1,1}^{(1,0;a)}(T_u)\mathbb{T}_{1,1}^{(b)}(T_u, b)}{6} - \frac{\sqrt{3}\mathbb{T}_{1,2}^{(1,0;a)}(T_u)\mathbb{T}_{1,2}^{(b)}(T_u, b)}{6} + \frac{\sqrt{3}\mathbb{T}_{1,3}^{(1,0;a)}(T_u)\mathbb{T}_{1,3}^{(b)}(T_u, b)}{3}$$

$$\boxed{\text{z264}} \quad \mathbb{Q}_{2,2}^{(1,0;c)}(E_g, d) = \frac{\mathbb{T}_{1,1}^{(1,0;a)}(T_u)\mathbb{T}_{1,1}^{(b)}(T_u, b)}{2} - \frac{\mathbb{T}_{1,2}^{(1,0;a)}(T_u)\mathbb{T}_{1,2}^{(b)}(T_u, b)}{2}$$

$$\boxed{\text{z265}} \quad \mathbb{G}_{2,1}^{(c)}(E_u, a) = \frac{\mathbb{Q}_{1,1}^{(a)}(T_u)\mathbb{Q}_{2,1}^{(b)}(T_g)}{2} - \frac{\mathbb{Q}_{1,2}^{(a)}(T_u)\mathbb{Q}_{2,2}^{(b)}(T_g)}{2}$$

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

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

$$\boxed{\text{z268}} \quad \mathbb{G}_{2,2}^{(c)}(E_u, b) = \frac{\mathbb{T}_{1,1}^{(a)}(T_u)\mathbb{M}_{1,1}^{(b)}(T_g)}{2} - \frac{\mathbb{T}_{1,2}^{(a)}(T_u)\mathbb{M}_{1,2}^{(b)}(T_g)}{2}$$

$$\boxed{\text{z269}} \quad \mathbb{G}_{2,1}^{(1,-1;c)}(E_u, a) = \frac{\sqrt{2}\mathbb{G}_{2,1}^{(1,-1;a)}(E_u)\mathbb{Q}_0^{(b)}(A_g)}{2}$$

$$\boxed{\text{z270}} \quad \mathbb{G}_{2,2}^{(1,-1;c)}(E_u, a) = \frac{\sqrt{2}\mathbb{G}_{2,2}^{(1,-1;a)}(E_u)\mathbb{Q}_0^{(b)}(A_g)}{2}$$

$$\boxed{\text{z271}} \quad \mathbb{G}_{2,1}^{(1,-1;c)}(E_u, b) = \frac{\sqrt{7}\mathbb{G}_{2,1}^{(1,-1;a)}(E_u)\mathbb{Q}_{2,1}^{(b)}(E_g)}{7} + \frac{\sqrt{7}\mathbb{G}_{2,1}^{(1,-1;a)}(T_u)\mathbb{Q}_{2,1}^{(b)}(T_g)}{14} - \frac{\sqrt{7}\mathbb{G}_{2,2}^{(1,-1;a)}(E_u)\mathbb{Q}_{2,2}^{(b)}(E_g)}{7} + \frac{\sqrt{7}\mathbb{G}_{2,2}^{(1,-1;a)}(T_u)\mathbb{Q}_{2,2}^{(b)}(T_g)}{14} - \frac{\sqrt{7}\mathbb{G}_{2,3}^{(1,-1;a)}(T_u)\mathbb{Q}_{2,3}^{(b)}(T_g)}{7}$$

$$\boxed{\text{z272}} \quad \mathbb{G}_{2,2}^{(1,-1;c)}(E_u, b) = -\frac{\sqrt{7}\mathbb{G}_{2,1}^{(1,-1;a)}(E_u)\mathbb{Q}_{2,2}^{(b)}(E_g)}{7} - \frac{\sqrt{21}\mathbb{G}_{2,1}^{(1,-1;a)}(T_u)\mathbb{Q}_{2,1}^{(b)}(T_g)}{14} - \frac{\sqrt{7}\mathbb{G}_{2,2}^{(1,-1;a)}(E_u)\mathbb{Q}_{2,1}^{(b)}(E_g)}{7} + \frac{\sqrt{21}\mathbb{G}_{2,2}^{(1,-1;a)}(T_u)\mathbb{Q}_{2,2}^{(b)}(T_g)}{14}$$

$$\boxed{\text{z273}} \quad \mathbb{G}_{2,1}^{(1,-1;c)}(E_u, c) = \frac{\sqrt{2}\mathbb{M}_{2,1}^{(1,-1;a)}(E_u)\mathbb{T}_0^{(b)}(A_g)}{2}$$

$$\boxed{\text{z274}} \quad \mathbb{G}_{2,2}^{(1,-1;c)}(E_u, c) = \frac{\sqrt{2}\mathbb{M}_{2,2}^{(1,-1;a)}(E_u)\mathbb{T}_0^{(b)}(A_g)}{2}$$

$$\boxed{\text{z275}} \quad \mathbb{G}_{2,1}^{(1,-1;c)}(E_u, d) = \frac{\mathbb{M}_{2,1}^{(1,-1;a)}(E_u)\mathbb{T}_{2,1}^{(b)}(E_g)}{2} - \frac{\mathbb{M}_{2,2}^{(1,-1;a)}(E_u)\mathbb{T}_{2,2}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z276}} \quad \mathbb{G}_{2,2}^{(1,-1;c)}(E_u, d) = -\frac{\mathbb{M}_{2,1}^{(1,-1;a)}(E_u)\mathbb{T}_{2,2}^{(b)}(E_g)}{2} - \frac{\mathbb{M}_{2,2}^{(1,-1;a)}(E_u)\mathbb{T}_{2,1}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z277}} \quad \mathbb{G}_{2,1}^{(1,-1;c)}(E_u, e) = -\frac{\mathbb{M}_{2,1}^{(1,-1;a)}(T_u)\mathbb{M}_{1,1}^{(b)}(T_g)}{2} + \frac{\mathbb{M}_{2,2}^{(1,-1;a)}(T_u)\mathbb{M}_{1,2}^{(b)}(T_g)}{2}$$

$$\boxed{\text{z278}} \quad \mathbb{G}_{2,2}^{(1,-1;c)}(E_u, e) = -\frac{\sqrt{3}\mathbb{M}_{2,1}^{(1,-1;a)}(T_u)\mathbb{M}_{1,1}^{(b)}(T_g)}{6} - \frac{\sqrt{3}\mathbb{M}_{2,2}^{(1,-1;a)}(T_u)\mathbb{M}_{1,2}^{(b)}(T_g)}{6} + \frac{\sqrt{3}\mathbb{M}_{2,3}^{(1,-1;a)}(T_u)\mathbb{M}_{1,3}^{(b)}(T_g)}{3}$$

$$\boxed{\text{z279}} \quad \mathbb{G}_{4,1}^{(1,-1;c)}(E_u) = \frac{\sqrt{21}\mathbb{G}_{2,1}^{(1,-1;a)}(E_u)\mathbb{Q}_{2,1}^{(b)}(E_g)}{14} - \frac{\sqrt{21}\mathbb{G}_{2,1}^{(1,-1;a)}(T_u)\mathbb{Q}_{2,1}^{(b)}(T_g)}{21} - \frac{\sqrt{21}\mathbb{G}_{2,2}^{(1,-1;a)}(E_u)\mathbb{Q}_{2,2}^{(b)}(E_g)}{14} - \frac{\sqrt{21}\mathbb{G}_{2,2}^{(1,-1;a)}(T_u)\mathbb{Q}_{2,2}^{(b)}(T_g)}{21} + \frac{2\sqrt{21}\mathbb{G}_{2,3}^{(1,-1;a)}(T_u)\mathbb{Q}_{2,3}^{(b)}(T_g)}{21}$$

$$\boxed{\text{z280}} \quad \mathbb{G}_{4,2}^{(1,-1;c)}(E_u) = -\frac{\sqrt{21}\mathbb{G}_{2,1}^{(1,-1;a)}(E_u)\mathbb{Q}_{2,2}^{(b)}(E_g)}{14} + \frac{\sqrt{7}\mathbb{G}_{2,1}^{(1,-1;a)}(T_u)\mathbb{Q}_{2,1}^{(b)}(T_g)}{7} - \frac{\sqrt{21}\mathbb{G}_{2,2}^{(1,-1;a)}(E_u)\mathbb{Q}_{2,1}^{(b)}(E_g)}{14} - \frac{\sqrt{7}\mathbb{G}_{2,2}^{(1,-1;a)}(T_u)\mathbb{Q}_{2,2}^{(b)}(T_g)}{7}$$

$$\boxed{\text{z281}} \quad \mathbb{G}_{2,1}^{(1,0;c)}(E_u, a) = \frac{\mathbb{Q}_{1,1}^{(1,0;a)}(T_u)\mathbb{Q}_{2,1}^{(b)}(T_g)}{2} - \frac{\mathbb{Q}_{1,2}^{(1,0;a)}(T_u)\mathbb{Q}_{2,2}^{(b)}(T_g)}{2}$$

$$\boxed{\text{z282}} \quad \mathbb{G}_{2,2}^{(1,0;c)}(E_u, a) = \frac{\sqrt{3}\mathbb{Q}_{1,1}^{(1,0;a)}(T_u)\mathbb{Q}_{2,1}^{(b)}(T_g)}{6} + \frac{\sqrt{3}\mathbb{Q}_{1,2}^{(1,0;a)}(T_u)\mathbb{Q}_{2,2}^{(b)}(T_g)}{6} - \frac{\sqrt{3}\mathbb{Q}_{1,3}^{(1,0;a)}(T_u)\mathbb{Q}_{2,3}^{(b)}(T_g)}{3}$$

$$\boxed{\text{z283}} \quad \mathbb{G}_{2,1}^{(1,0;c)}(E_u, b) = -\frac{\sqrt{3}\mathbb{T}_{1,1}^{(1,0;a)}(T_u)\mathbb{M}_{1,1}^{(b)}(T_g)}{6} - \frac{\sqrt{3}\mathbb{T}_{1,2}^{(1,0;a)}(T_u)\mathbb{M}_{1,2}^{(b)}(T_g)}{6} + \frac{\sqrt{3}\mathbb{T}_{1,3}^{(1,0;a)}(T_u)\mathbb{M}_{1,3}^{(b)}(T_g)}{3}$$

$$\boxed{\text{z284}} \quad \mathbb{G}_{2,2}^{(1,0;c)}(E_u, b) = \frac{\mathbb{T}_{1,1}^{(1,0;a)}(T_u)\mathbb{M}_{1,1}^{(b)}(T_g)}{2} - \frac{\mathbb{T}_{1,2}^{(1,0;a)}(T_u)\mathbb{M}_{1,2}^{(b)}(T_g)}{2}$$

$$\boxed{\text{z285}} \quad \mathbb{G}_{2,1}^{(1,1;c)}(E_u, a) = \frac{\sqrt{2}\mathbb{G}_0^{(1,1;a)}(A_u)\mathbb{Q}_{2,1}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z286}} \quad \mathbb{G}_{2,2}^{(1,1;c)}(E_u, a) = \frac{\sqrt{2}\mathbb{G}_0^{(1,1;a)}(A_u)\mathbb{Q}_{2,2}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z287}} \quad \mathbb{G}_{2,1}^{(1,1;c)}(E_u, b) = \frac{\sqrt{2}\mathbb{M}_0^{(1,1;a)}(A_u)\mathbb{T}_{2,1}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z288}} \quad \mathbb{G}_{2,2}^{(1,1;c)}(E_u, b) = \frac{\sqrt{2}\mathbb{M}_0^{(1,1;a)}(A_u)\mathbb{T}_{2,2}^{(b)}(E_g)}{2}$$

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

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

$$\boxed{\text{z291}} \quad \mathbb{Q}_{2,3}^{(c)}(T_g, a) = \frac{\sqrt{6}\mathbb{Q}_{1,1}^{(a)}(T_u)\mathbb{Q}_{1,2}^{(b)}(T_u)}{6} + \frac{\sqrt{6}\mathbb{Q}_{1,2}^{(a)}(T_u)\mathbb{Q}_{1,1}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z292}} \quad \mathbb{Q}_{2,1}^{(c)}(T_g, b) = -\frac{\sqrt{6}\mathbb{Q}_{1,2}^{(a)}(T_u)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{6} - \frac{\sqrt{6}\mathbb{Q}_{1,3}^{(a)}(T_u)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{6}$$

$$\boxed{\text{z293}} \quad \mathbb{Q}_{2,2}^{(c)}(T_g, b) = -\frac{\sqrt{6}\mathbb{Q}_{1,1}^{(a)}(T_u)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{6} - \frac{\sqrt{6}\mathbb{Q}_{1,3}^{(a)}(T_u)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{6}$$

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

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

$$\boxed{\text{z296}} \quad \mathbb{Q}_{2,2}^{(c)}(T_g, c) = \frac{\sqrt{6}\mathbb{T}_{1,1}^{(a)}(T_u)\mathbb{T}_{1,3}^{(b)}(T_u, a)}{6} + \frac{\sqrt{6}\mathbb{T}_{1,3}^{(a)}(T_u)\mathbb{T}_{1,1}^{(b)}(T_u, a)}{6}$$

$$\boxed{\text{z297}} \quad \mathbb{Q}_{2,3}^{(c)}(T_g, c) = \frac{\sqrt{6}\mathbb{T}_{1,1}^{(a)}(T_u)\mathbb{T}_{1,2}^{(b)}(T_u, a)}{6} + \frac{\sqrt{6}\mathbb{T}_{1,2}^{(a)}(T_u)\mathbb{T}_{1,1}^{(b)}(T_u, a)}{6}$$

$$\boxed{\text{z298}} \quad \mathbb{Q}_{2,1}^{(c)}(T_g, d) = \frac{\sqrt{6}\mathbb{T}_{1,2}^{(a)}(T_u)\mathbb{T}_{1,3}^{(b)}(T_u, b)}{6} + \frac{\sqrt{6}\mathbb{T}_{1,3}^{(a)}(T_u)\mathbb{T}_{1,2}^{(b)}(T_u, b)}{6}$$

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

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

$$\boxed{\text{z301}} \quad \mathbb{Q}_{4,1}^{(c)}(T_g, 1) = -\frac{\sqrt{6}\mathbb{Q}_{1,2}^{(a)}(T_u)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{6} + \frac{\sqrt{6}\mathbb{Q}_{1,3}^{(a)}(T_u)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{6}$$

$$\boxed{\text{z302}} \quad \mathbb{Q}_{4,2}^{(c)}(T_g, 1) = \frac{\sqrt{6}\mathbb{Q}_{1,1}^{(a)}(T_u)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{6} - \frac{\sqrt{6}\mathbb{Q}_{1,3}^{(a)}(T_u)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{6}$$

$$\boxed{\text{z303}} \quad \mathbb{Q}_{4,3}^{(c)}(T_g, 1) = -\frac{\sqrt{6}\mathbb{Q}_{1,1}^{(a)}(T_u)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{6} + \frac{\sqrt{6}\mathbb{Q}_{1,2}^{(a)}(T_u)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{6}$$

$$\boxed{\text{z304}} \quad \mathbb{Q}_{2,1}^{(1,-1;c)}(T_g, a) = \frac{\sqrt{6}\mathbb{G}_{2,1}^{(1,-1;a)}(E_u)\mathbb{Q}_{1,1}^{(b)}(T_u)}{6} + \frac{\sqrt{2}\mathbb{G}_{2,2}^{(1,-1;a)}(E_u)\mathbb{Q}_{1,1}^{(b)}(T_u)}{6} - \frac{\sqrt{2}\mathbb{G}_{2,2}^{(1,-1;a)}(T_u)\mathbb{Q}_{1,3}^{(b)}(T_u)}{6} + \frac{\sqrt{2}\mathbb{G}_{2,3}^{(1,-1;a)}(T_u)\mathbb{Q}_{1,2}^{(b)}(T_u)}{6}$$

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

$$\boxed{\text{z306}} \quad \mathbb{Q}_{2,3}^{(1,-1;c)}(T_g, a) = -\frac{\sqrt{2}\mathbb{G}_{2,1}^{(1,-1;a)}(T_u)\mathbb{Q}_{1,2}^{(b)}(T_u)}{6} - \frac{\sqrt{2}\mathbb{G}_{2,2}^{(1,-1;a)}(E_u)\mathbb{Q}_{1,3}^{(b)}(T_u)}{3} + \frac{\sqrt{2}\mathbb{G}_{2,2}^{(1,-1;a)}(T_u)\mathbb{Q}_{1,1}^{(b)}(T_u)}{6}$$

$$\boxed{z307} \quad \mathbb{Q}_{2,1}^{(1,-1;c)}(T_g, b) = -\frac{\mathbb{G}_{2,1}^{(1,-1;a)}(E_u)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{6} - \frac{\sqrt{3}\mathbb{G}_{2,2}^{(1,-1;a)}(E_u)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{18} - \frac{2\sqrt{3}\mathbb{G}_{2,2}^{(1,-1;a)}(T_u)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{9} + \frac{2\sqrt{3}\mathbb{G}_{2,3}^{(1,-1;a)}(T_u)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{9}$$

$$\boxed{\text{z308}} \quad \mathbb{Q}_{2,2}^{(1,-1;c)}(T_g, b) = \frac{\mathbb{G}_{2,1}^{(1,-1;a)}(E_u)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{c} + \frac{2\sqrt{3}\mathbb{G}_{2,1}^{(1,-1;a)}(T_u)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{0} - \frac{\sqrt{3}\mathbb{G}_{2,2}^{(1,-1;a)}(E_u)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{18} - \frac{2\sqrt{3}\mathbb{G}_{2,3}^{(1,-1;a)}(T_u)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{0}$$

$$\boxed{\text{z309}} \quad \mathbb{Q}_{2,3}^{(1,-1;c)}(T_g, b) = -\frac{2\sqrt{3}\mathbb{G}_{2,1}^{(1,-1;a)}(T_u)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{c} + \frac{\sqrt{3}\mathbb{G}_{2,2}^{(1,-1;a)}(E_u)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{c} + \frac{2\sqrt{3}\mathbb{G}_{2,2}^{(1,-1;a)}(T_u)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{c}$$

$$\boxed{\text{z310}} \quad \mathbb{Q}_{2,1}^{(1,-1;c)}(T_g, c) = \frac{\sqrt{6}\mathbb{M}_{2,1}^{(1,-1;a)}(E_u)\mathbb{T}_{1,1}^{(b)}(T_u, a)}{\tilde{c}} + \frac{\sqrt{2}\mathbb{M}_{2,2}^{(1,-1;a)}(E_u)\mathbb{T}_{1,1}^{(b)}(T_u, a)}{\tilde{c}} - \frac{\sqrt{2}\mathbb{M}_{2,2}^{(1,-1;a)}(T_u)\mathbb{T}_{1,3}^{(b)}(T_u, a)}{\tilde{c}} + \frac{\sqrt{2}\mathbb{M}_{2,3}^{(1,-1;a)}(T_u)\mathbb{T}_{1,2}^{(b)}(T_u, a)}{\tilde{c}}$$

$$\boxed{\text{z311}} \quad \mathbb{Q}_{2,2}^{(1,-1;c)}(T_g, c) = -\frac{\sqrt{6}\mathbb{M}_{2,1}^{(1,-1;a)}(E_u)\mathbb{T}_{1,2}^{(b)}(T_u, a)}{\mathcal{G}_2} + \frac{\sqrt{2}\mathbb{M}_{2,1}^{(1,-1;a)}(T_u)\mathbb{T}_{1,3}^{(b)}(T_u, a)}{\mathcal{G}_3} + \frac{\sqrt{2}\mathbb{M}_{2,2}^{(1,-1;a)}(E_u)\mathbb{T}_{1,2}^{(b)}(T_u, a)}{\mathcal{G}_2} - \frac{\sqrt{2}\mathbb{M}_{2,3}^{(1,-1;a)}(T_u)\mathbb{T}_{1,1}^{(b)}(T_u, a)}{\mathcal{G}_3}$$

$$\boxed{z312} \quad \mathbb{Q}_{2,3}^{(1,-1;c)}(T_q, c) = -\frac{\sqrt{2}\mathbb{M}_{2,1}^{(1,-1;a)}(T_u)\mathbb{T}_{1,2}^{(b)}(T_u, a)}{\mathbb{M}_{2,2}^{(1,-1;a)}(E_u)} - \frac{\sqrt{2}\mathbb{M}_{2,2}^{(1,-1;a)}(E_u)\mathbb{T}_{1,3}^{(b)}(T_u, a)}{\mathbb{M}_{2,2}^{(1,-1;a)}(T_u)} + \frac{\sqrt{2}\mathbb{M}_{2,2}^{(1,-1;a)}(T_u)\mathbb{T}_{1,1}^{(b)}(T_u, a)}{\mathbb{M}_{2,2}^{(1,-1;a)}(E_u)}$$

$$\boxed{\text{z313}} \quad \mathbb{Q}_{\frac{1}{2}, \frac{1}{2}}^{(1,-1;c)}(T_g, d) = \frac{\sqrt{6}\mathbb{M}_{2,1}^{(1,-1;a)}(E_u)\mathbb{T}_{1,1}^{(b)}(T_u, b)}{\mathcal{C}_1} + \frac{\sqrt{2}\mathbb{M}_{2,2}^{(1,-1;a)}(E_u)\mathbb{T}_{1,1}^{(b)}(T_u, b)}{\mathcal{C}_2} - \frac{\sqrt{2}\mathbb{M}_{2,2}^{(1,-1;a)}(T_u)\mathbb{T}_{1,3}^{(b)}(T_u, b)}{\mathcal{C}_3} + \frac{\sqrt{2}\mathbb{M}_{2,3}^{(1,-1;a)}(T_u)\mathbb{T}_{1,2}^{(b)}(T_u, b)}{\mathcal{C}_4}$$

$$\boxed{z314} \quad \mathbb{O}_{3,2}^{(1,-1;c)}(T_a,d) = -\frac{\sqrt{6}\mathbb{M}_{2,1}^{(1,-1;a)}(E_u)\mathbb{T}_{1,2}^{(b)}(T_u,b)}{} + \frac{\sqrt{2}\mathbb{M}_{2,1}^{(1,-1;a)}(T_u)\mathbb{T}_{1,3}^{(b)}(T_u,b)}{} + \frac{\sqrt{2}\mathbb{M}_{2,2}^{(1,-1;a)}(E_u)\mathbb{T}_{1,2}^{(b)}(T_u,b)}{} - \frac{\sqrt{2}\mathbb{M}_{2,3}^{(1,-1;a)}(T_u)\mathbb{T}_{1,1}^{(b)}(T_u,b)}{}$$

$$\boxed{z315} \quad \mathbb{Q}_{\alpha_1^2, \alpha_2^2}^{(1,-1;c)}(T_u, d) = -\frac{\sqrt{2}\mathbb{M}_{2,1}^{(1,-1;a)}(T_u)\mathbb{T}_{1,2}^{(b)}(T_u, b)}{} - \frac{\sqrt{2}\mathbb{M}_{2,2}^{(1,-1;a)}(E_u)\mathbb{T}_{1,3}^{(b)}(T_u, b)}{} + \frac{\sqrt{2}\mathbb{M}_{2,2}^{(1,-1;a)}(T_u)\mathbb{T}_{1,1}^{(b)}(T_u, b)}{}$$

$$z_{316}^{316} \cap^{(1,-1;c)} (T_{-1}) = \frac{\sqrt{6}\mathbb{G}_{2,2}^{(1,-1;a)}(T_u)\mathbb{Q}_{3,3}^{(b)}(T_u,1)}{} + \frac{\sqrt{6}\mathbb{G}_{2,3}^{(1,-1;a)}(T_u)\mathbb{Q}_{3,2}^{(b)}(T_u,1)}{}$$

$$\left[\begin{smallmatrix} -3 & 7 \\ 1 & 1 \end{smallmatrix} \right] \cap {}^{(1,-1;c)}(T_{u-1}) = \sqrt{6}\mathbb{G}_{2,1}^{(1,-1;a)}(T_u)\mathbb{Q}_{3,3}^{(b)}(T_u,1) + \sqrt{6}\mathbb{G}_{2,3}^{(1,-1;a)}(T_u)\mathbb{Q}_{3,1}^{(b)}(T_u,1)$$

$$\left[\frac{1}{\sqrt{6}} \begin{pmatrix} 1 & -1 \\ 1 & 1 \end{pmatrix} \right] \cap \left(\begin{pmatrix} 1 & -1 \\ 1 & 1 \end{pmatrix} \otimes \mathbb{Q}_{3,2}^{(b)}(T_u, 1) \right) = \sqrt{6} \mathbb{G}_{2,1}^{(1,-1;a)}(T_u) \mathbb{Q}_{3,2}^{(b)}(T_u, 1)$$

$$\boxed{\text{z319}} \quad \mathbb{Q}_{4,1}^{(1,-1;c)}(T_g, 2) = \frac{\sqrt{2}\mathbb{G}_{2,1}^{(1,-1;a)}(E_u)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{3} + \frac{\sqrt{6}\mathbb{G}_{2,2}^{(1,-1;a)}(E_u)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{9} - \frac{\sqrt{6}\mathbb{G}_{2,2}^{(1,-1;a)}(T_u)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{18} + \frac{\sqrt{6}\mathbb{G}_{2,3}^{(1,-1;a)}(T_u)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{18}$$

$$\boxed{\text{z320}} \quad \mathbb{Q}_{4,2}^{(1,-1;c)}(T_g, 2) = -\frac{\sqrt{2}\mathbb{G}_{2,1}^{(1,-1;a)}(E_u)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{3} + \frac{\sqrt{6}\mathbb{G}_{2,1}^{(1,-1;a)}(T_u)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{18} + \frac{\sqrt{6}\mathbb{G}_{2,2}^{(1,-1;a)}(E_u)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{9} - \frac{\sqrt{6}\mathbb{G}_{2,3}^{(1,-1;a)}(T_u)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{18}$$

$$\boxed{\text{z321}} \quad \mathbb{Q}_{4,3}^{(1,-1;c)}(T_g, 2) = -\frac{\sqrt{6}\mathbb{G}_{2,1}^{(1,-1;a)}(T_u)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{18} - \frac{2\sqrt{6}\mathbb{G}_{2,2}^{(1,-1;a)}(E_u)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{9} + \frac{\sqrt{6}\mathbb{G}_{2,2}^{(1,-1;a)}(T_u)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{18}$$

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

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

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

$$\boxed{\text{z325}} \quad \mathbb{Q}_{2,1}^{(1,0;c)}(T_g, b) = -\frac{\sqrt{6}\mathbb{Q}_{1,2}^{(1,0;a)}(T_u)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{6} - \frac{\sqrt{6}\mathbb{Q}_{1,3}^{(1,0;a)}(T_u)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{6}$$

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

$$\boxed{\text{z327}} \quad \mathbb{Q}_{2,3}^{(1,0;c)}(T_g, b) = -\frac{\sqrt{6}\mathbb{Q}_{1,1}^{(1,0;a)}(T_u)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{6} - \frac{\sqrt{6}\mathbb{Q}_{1,2}^{(1,0;a)}(T_u)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{6}$$

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

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

$$\boxed{\text{z330}} \quad \mathbb{Q}_{2,3}^{(1,0;c)}(T_g, c) = \frac{\sqrt{6}\mathbb{T}_{1,1}^{(1,0;a)}(T_u)\mathbb{T}_{1,2}^{(b)}(T_u, a)}{6} + \frac{\sqrt{6}\mathbb{T}_{1,2}^{(1,0;a)}(T_u)\mathbb{T}_{1,1}^{(b)}(T_u, a)}{6}$$

$$\boxed{\text{z331}} \quad \mathbb{Q}_{2,1}^{(1,0;c)}(T_g, d) = \frac{\sqrt{6}\mathbb{T}_{1,2}^{(1,0;a)}(T_u)\mathbb{T}_{1,3}^{(b)}(T_u, b)}{6} + \frac{\sqrt{6}\mathbb{T}_{1,3}^{(1,0;a)}(T_u)\mathbb{T}_{1,2}^{(b)}(T_u, b)}{6}$$

$$\boxed{\text{z332}} \quad \mathbb{Q}_{2,2}^{(1,0;c)}(T_g, d) = \frac{\sqrt{6}\mathbb{T}_{1,1}^{(1,0;a)}(T_u)\mathbb{T}_{1,3}^{(b)}(T_u, b)}{6} + \frac{\sqrt{6}\mathbb{T}_{1,3}^{(1,0;a)}(T_u)\mathbb{T}_{1,1}^{(b)}(T_u, b)}{6}$$

$$\boxed{\text{z333}} \quad \mathbb{Q}_{2,3}^{(1,0;c)}(T_g, d) = \frac{\sqrt{6}\mathbb{T}_{1,1}^{(1,0;a)}(T_u)\mathbb{T}_{1,2}^{(b)}(T_u, b)}{6} + \frac{\sqrt{6}\mathbb{T}_{1,2}^{(1,0;a)}(T_u)\mathbb{T}_{1,1}^{(b)}(T_u, b)}{6}$$

$$\boxed{\text{z334}} \quad \mathbb{Q}_{4,1}^{(1,0;c)}(T_g, 1) = -\frac{\sqrt{6}\mathbb{Q}_{1,2}^{(1,0;a)}(T_u)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{6} + \frac{\sqrt{6}\mathbb{Q}_{1,3}^{(1,0;a)}(T_u)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{6}$$

$$\boxed{\text{z335}} \quad \mathbb{Q}_{4,2}^{(1,0;c)}(T_g, 1) = \frac{\sqrt{6}\mathbb{Q}_{1,1}^{(1,0;a)}(T_u)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{6} - \frac{\sqrt{6}\mathbb{Q}_{1,3}^{(1,0;a)}(T_u)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{6}$$

$$\boxed{\text{z336}} \quad \mathbb{Q}_{4,3}^{(1,0;c)}(T_g, 1) = -\frac{\sqrt{6}\mathbb{Q}_{1,1}^{(1,0;a)}(T_u)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{6} + \frac{\sqrt{6}\mathbb{Q}_{1,2}^{(1,0;a)}(T_u)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{6}$$

$$\boxed{\text{z337}} \quad \mathbb{G}_{1,1}^{(c)}(T_g, a) = \frac{\sqrt{6}\mathbb{Q}_{1,2}^{(a)}(T_u)\mathbb{Q}_{1,3}^{(b)}(T_u)}{6} - \frac{\sqrt{6}\mathbb{Q}_{1,3}^{(a)}(T_u)\mathbb{Q}_{1,2}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z338}} \quad \mathbb{G}_{1,2}^{(c)}(T_g, a) = -\frac{\sqrt{6}\mathbb{Q}_{1,1}^{(a)}(T_u)\mathbb{Q}_{1,3}^{(b)}(T_u)}{6} + \frac{\sqrt{6}\mathbb{Q}_{1,3}^{(a)}(T_u)\mathbb{Q}_{1,1}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z339}} \quad \mathbb{G}_{1,3}^{(c)}(T_g, a) = \frac{\sqrt{6}\mathbb{Q}_{1,1}^{(a)}(T_u)\mathbb{Q}_{1,2}^{(b)}(T_u)}{6} - \frac{\sqrt{6}\mathbb{Q}_{1,2}^{(a)}(T_u)\mathbb{Q}_{1,1}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z340}} \quad \mathbb{G}_{1,1}^{(c)}(T_g, b) = \frac{\sqrt{6}\mathbb{T}_{1,2}^{(a)}(T_u)\mathbb{T}_{1,3}^{(b)}(T_u, a)}{6} - \frac{\sqrt{6}\mathbb{T}_{1,3}^{(a)}(T_u)\mathbb{T}_{1,2}^{(b)}(T_u, a)}{6}$$

$$\boxed{\text{z341}} \quad \mathbb{G}_{1,2}^{(c)}(T_g, b) = -\frac{\sqrt{6}\mathbb{T}_{1,1}^{(a)}(T_u)\mathbb{T}_{1,3}^{(b)}(T_u, a)}{6} + \frac{\sqrt{6}\mathbb{T}_{1,3}^{(a)}(T_u)\mathbb{T}_{1,1}^{(b)}(T_u, a)}{6}$$

$$\boxed{\text{z342}} \quad \mathbb{G}_{1,3}^{(c)}(T_g, b) = \frac{\sqrt{6}\mathbb{T}_{1,1}^{(a)}(T_u)\mathbb{T}_{1,2}^{(b)}(T_u, a)}{6} - \frac{\sqrt{6}\mathbb{T}_{1,2}^{(a)}(T_u)\mathbb{T}_{1,1}^{(b)}(T_u, a)}{6}$$

$$\boxed{\text{z343}} \quad \mathbb{G}_{1,1}^{(c)}(T_g, c) = \frac{\sqrt{6}\mathbb{T}_{1,2}^{(a)}(T_u)\mathbb{T}_{1,3}^{(b)}(T_u, b)}{6} - \frac{\sqrt{6}\mathbb{T}_{1,3}^{(a)}(T_u)\mathbb{T}_{1,2}^{(b)}(T_u, b)}{6}$$

$$\boxed{\text{z344}} \quad \mathbb{G}_{1,2}^{(c)}(T_g, c) = -\frac{\sqrt{6}\mathbb{T}_{1,1}^{(a)}(T_u)\mathbb{T}_{1,3}^{(b)}(T_u, b)}{6} + \frac{\sqrt{6}\mathbb{T}_{1,3}^{(a)}(T_u)\mathbb{T}_{1,1}^{(b)}(T_u, b)}{6}$$

$$\boxed{\text{z345}} \quad \mathbb{G}_{1,3}^{(c)}(T_g, c) = \frac{\sqrt{6}\mathbb{T}_{1,1}^{(a)}(T_u)\mathbb{T}_{1,2}^{(b)}(T_u, b)}{6} - \frac{\sqrt{6}\mathbb{T}_{1,2}^{(a)}(T_u)\mathbb{T}_{1,1}^{(b)}(T_u, b)}{6}$$

$$\boxed{\text{z346}} \quad \mathbb{G}_{1,1}^{(1,-1;c)}(T_g, a) = -\frac{\sqrt{30}\mathbb{G}_{2,1}^{(1,-1;a)}(E_u)\mathbb{Q}_{1,1}^{(b)}(T_u)}{30} + \frac{\sqrt{10}\mathbb{G}_{2,2}^{(1,-1;a)}(E_u)\mathbb{Q}_{1,1}^{(b)}(T_u)}{10} + \frac{\sqrt{10}\mathbb{G}_{2,2}^{(1,-1;a)}(T_u)\mathbb{Q}_{1,3}^{(b)}(T_u)}{10} + \frac{\sqrt{10}\mathbb{G}_{2,3}^{(1,-1;a)}(T_u)\mathbb{Q}_{1,2}^{(b)}(T_u)}{10}$$

$$\boxed{z347} \quad \mathbb{G}_{1,2}^{(1,-1;c)}(T_g, a) = -\frac{\sqrt{30}\mathbb{G}_{2,1}^{(1,-1;a)}(E_u)\mathbb{Q}_{1,2}^{(b)}(T_u)}{30} + \frac{\sqrt{10}\mathbb{G}_{2,1}^{(1,-1;a)}(T_u)\mathbb{Q}_{1,3}^{(b)}(T_u)}{10} - \frac{\sqrt{10}\mathbb{G}_{2,2}^{(1,-1;a)}(E_u)\mathbb{Q}_{1,2}^{(b)}(T_u)}{10} + \frac{\sqrt{10}\mathbb{G}_{2,3}^{(1,-1;a)}(T_u)\mathbb{Q}_{1,1}^{(b)}(T_u)}{10}$$

$$\boxed{\text{z348}} \quad \mathbb{G}_{1,3}^{(1,-1;c)}(T_g, a) = \frac{\sqrt{30}\mathbb{G}_{2,1}^{(1,-1;a)}(E_u)\mathbb{Q}_{1,3}^{(b)}(T_u)}{15} + \frac{\sqrt{10}\mathbb{G}_{2,1}^{(1,-1;a)}(T_u)\mathbb{Q}_{1,2}^{(b)}(T_u)}{10} + \frac{\sqrt{10}\mathbb{G}_{2,2}^{(1,-1;a)}(T_u)\mathbb{Q}_{1,1}^{(b)}(T_u)}{10}$$

$$\boxed{z349} \quad \mathbb{G}_{1,1}^{(1,-1;c)}(T_g, b) = -\frac{\sqrt{3}\mathbb{G}_{2,1}^{(1,-1;a)}(E_u)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{6} + \frac{\mathbb{G}_{2,2}^{(1,-1;a)}(E_u)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{2}$$

$$\boxed{z350} \quad \mathbb{G}_{1,2}^{(1,-1;c)}(T_g, b) = -\frac{\sqrt{3}\mathbb{G}_{2,1}^{(1,-1;a)}(E_u)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{6} - \frac{\mathbb{G}_{2,2}^{(1,-1;a)}(E_u)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{2}$$

$$\boxed{\text{z351}} \quad \mathbb{G}_{1,3}^{(1,-1;c)}(T_g, b) = \frac{\sqrt{3}\mathbb{G}_{2,1}^{(1,-1;a)}(E_u)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{2}$$

$$\boxed{\text{z352}} \quad \mathbb{G}_{1,1}^{(1,-1;c)}(T_g, c) = -\frac{\sqrt{30}\mathbb{M}_{2,1}^{(1,-1;a)}(E_u)\mathbb{T}_{1,1}^{(b)}(T_u, a)}{30} + \frac{\sqrt{10}\mathbb{M}_{2,2}^{(1,-1;a)}(E_u)\mathbb{T}_{1,1}^{(b)}(T_u, a)}{10} + \frac{\sqrt{10}\mathbb{M}_{2,2}^{(1,-1;a)}(T_u)\mathbb{T}_{1,3}^{(b)}(T_u, a)}{10} + \frac{\sqrt{10}\mathbb{M}_{2,3}^{(1,-1;a)}(T_u)\mathbb{T}_{1,2}^{(b)}(T_u, a)}{10}$$

$$\boxed{\text{z353}} \quad \mathbb{G}_{1,2}^{(1,-1;c)}(Tg,c) = -\frac{\sqrt{30}\mathbb{M}_{2,1}^{(1,-1;a)}(Eu)\mathbb{T}_{1,2}^{(b)}(Tu,a)}{10} + \frac{\sqrt{10}\mathbb{M}_{2,1}^{(1,-1;a)}(Tu)\mathbb{T}_{1,3}^{(b)}(Tu,a)}{10} - \frac{\sqrt{10}\mathbb{M}_{2,2}^{(1,-1;a)}(Eu)\mathbb{T}_{1,2}^{(b)}(Tu,a)}{10} + \frac{\sqrt{10}\mathbb{M}_{2,3}^{(1,-1;a)}(Tu)\mathbb{T}_{1,1}^{(b)}(Tu,a)}{10}$$

$$\boxed{\text{z354}} \quad \mathbb{G}_{1,3}^{(1,-1;c)}(T_q, c) = \frac{\sqrt{30}\mathbb{M}_{2,1}^{(1,-1;a)}(E_u)\mathbb{T}_{1,3}^{(b)}(T_u, a)}{15} + \frac{\sqrt{10}\mathbb{M}_{2,1}^{(1,-1;a)}(T_u)\mathbb{T}_{1,2}^{(b)}(T_u, a)}{10} + \frac{\sqrt{10}\mathbb{M}_{2,2}^{(1,-1;a)}(T_u)\mathbb{T}_{1,1}^{(b)}(T_u, a)}{10}$$

$$\boxed{\text{z355}} \quad \mathbb{G}_{1,1}^{(1,-1;c)}(T_g, d) = -\frac{\sqrt{30}\mathbb{M}_{2,1}^{(1,-1;a)}(E_u)\mathbb{T}_{1,1}^{(b)}(T_u, b)}{20} + \frac{\sqrt{10}\mathbb{M}_{2,2}^{(1,-1;a)}(E_u)\mathbb{T}_{1,1}^{(b)}(T_u, b)}{10} + \frac{\sqrt{10}\mathbb{M}_{2,2}^{(1,-1;a)}(T_u)\mathbb{T}_{1,3}^{(b)}(T_u, b)}{10} + \frac{\sqrt{10}\mathbb{M}_{2,3}^{(1,-1;a)}(T_u)\mathbb{T}_{1,2}^{(b)}(T_u, b)}{10}$$

$$\boxed{\text{z356}} \quad \mathbb{G}_{1,2}^{(1,-1;c)}(T_g,d) = -\frac{\sqrt{30}\mathbb{M}_{2,1}^{(1,-1;a)}(E_u)\mathbb{T}_{1,2}^{(b)}(T_u,b)}{+} + \frac{\sqrt{10}\mathbb{M}_{2,1}^{(1,-1;a)}(T_u)\mathbb{T}_{1,3}^{(b)}(T_u,b)}{+} - \frac{\sqrt{10}\mathbb{M}_{2,2}^{(1,-1;a)}(E_u)\mathbb{T}_{1,2}^{(b)}(T_u,b)}{+} + \frac{\sqrt{10}\mathbb{M}_{2,3}^{(1,-1;a)}(T_u)\mathbb{T}_{1,1}^{(b)}(T_u,b)}{+}$$

$$\boxed{\text{z357}} \quad \mathbb{G}_{1,3}^{(1,-1;c)}(T_a,d) = \frac{\sqrt{30}\mathbb{M}_{2,1}^{(1,-1;a)}(E_u)\mathbb{T}_{1,3}^{(b)}(T_u,b)}{} + \frac{\sqrt{10}\mathbb{M}_{2,1}^{(1,-1;a)}(T_u)\mathbb{T}_{1,2}^{(b)}(T_u,b)}{} + \frac{\sqrt{10}\mathbb{M}_{2,2}^{(1,-1;a)}(T_u)\mathbb{T}_{1,1}^{(b)}(T_u,b)}{}$$

$$\boxed{z358} \quad \mathbb{G}_{2,1}^{(1,-1;c)}(T_u, 1a) = -\frac{\sqrt{5}\mathbb{G}_{2,1}^{(1,-1;a)}(E_u)\mathbb{Q}_{1,1}^{(b)}(T_u)}{} + \frac{\sqrt{15}\mathbb{G}_{2,2}^{(1,-1;a)}(E_u)\mathbb{Q}_{1,1}^{(b)}(T_u)}{} - \frac{\sqrt{15}\mathbb{G}_{2,2}^{(1,-1;a)}(T_u)\mathbb{Q}_{1,3}^{(b)}(T_u)}{} - \frac{\sqrt{15}\mathbb{G}_{2,2}^{(1,-1;a)}(T_u)\mathbb{Q}_{1,2}^{(b)}(T_u)}{}$$

$$\overline{\Gamma_{\mathbb{Q}_p^{\times}}^{(1,-1;a)}} = \sqrt{5}\mathbb{G}_{\mathbb{Q},\mathfrak{p}}^{(1,-1;a)}(E_p)\mathbb{Q}_{\mathbb{Q},\mathfrak{p}}^{(b)}(T_p) = \sqrt{15}\mathbb{G}_{\mathbb{Q},\mathfrak{p}}^{(1,-1;a)}(T_p)\mathbb{Q}_{\mathbb{Q},\mathfrak{p}}^{(b)}(T_p) = \sqrt{15}\mathbb{G}_{\mathbb{Q},\mathfrak{p}}^{(1,-1;a)}(E_p)\mathbb{Q}_{\mathbb{Q},\mathfrak{p}}^{(b)}(T_p) = \sqrt{15}\mathbb{G}_{\mathbb{Q},\mathfrak{p}}^{(1,-1;a)}(T_p)\mathbb{Q}_{\mathbb{Q},\mathfrak{p}}^{(b)}(T_p)$$

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$$\mathbb{G}_{3,1}^{(1,-1;c)}(T_g, 1b) = -\frac{\sqrt{5}\mathbb{M}_{2,1}^{(1,-1;a)}(E_u)\mathbb{T}_{1,1}^{(b)}(T_u, a)}{10} + \frac{\sqrt{15}\mathbb{M}_{2,2}^{(1,-1;a)}(E_u)\mathbb{T}_{1,1}^{(b)}(T_u, a)}{10} - \frac{\sqrt{15}\mathbb{M}_{2,2}^{(1,-1;a)}(T_u)\mathbb{T}_{1,3}^{(b)}(T_u, a)}{15} - \frac{\sqrt{15}\mathbb{M}_{2,3}^{(1,-1;a)}(T_u)\mathbb{T}_{1,2}^{(b)}(T_u, a)}{15}$$

$$\mathbb{G}_{3,2}^{(1,-1;c)}(T_g, 1b) = -\frac{\sqrt{5}\mathbb{M}_{2,1}^{(1,-1;a)}(E_u)\mathbb{T}_{1,2}^{(b)}(T_u, a)}{10} - \frac{\sqrt{15}\mathbb{M}_{2,1}^{(1,-1;a)}(T_u)\mathbb{T}_{1,3}^{(b)}(T_u, a)}{15} - \frac{\sqrt{15}\mathbb{M}_{2,2}^{(1,-1;a)}(E_u)\mathbb{T}_{1,2}^{(b)}(T_u, a)}{10} - \frac{\sqrt{15}\mathbb{M}_{2,3}^{(1,-1;a)}(T_u)\mathbb{T}_{1,1}^{(b)}(T_u, a)}{15}$$

$$\boxed{\text{z692}} \quad \mathbb{G}_{3,3}^{(1,-1;c)}(T_g, 1b) = \frac{\sqrt{5}\mathbb{M}_{2,1}^{(1,-1;a)}(E_u)\mathbb{T}_{1,3}^{(b)}(T_u, a)}{5} - \frac{\sqrt{15}\mathbb{M}_{2,1}^{(1,-1;a)}(T_u)\mathbb{T}_{1,2}^{(b)}(T_u, a)}{15} + \frac{\sqrt{15}\mathbb{M}_{2,2}^{(1,-1;a)}(T_u)\mathbb{T}_{1,1}^{(b)}(T_u, a)}{15}$$

$$\mathbb{G}_{3,1}^{(1,-1;c)}(T_g, 1c) = -\frac{\sqrt{5}\mathbb{M}_{2,1}^{(1,-1;a)}(E_u)\mathbb{T}_{1,1}^{(b)}(T_u, b)}{10} + \frac{\sqrt{15}\mathbb{M}_{2,2}^{(1,-1;a)}(E_u)\mathbb{T}_{1,1}^{(b)}(T_u, b)}{10} - \frac{\sqrt{15}\mathbb{M}_{2,2}^{(1,-1;a)}(T_u)\mathbb{T}_{1,3}^{(b)}(T_u, b)}{15} - \frac{\sqrt{15}\mathbb{M}_{2,3}^{(1,-1;a)}(T_u)\mathbb{T}_{1,2}^{(b)}(T_u, b)}{15}$$

$$\boxed{z694} \quad \mathbb{G}_{3,2}^{(1,-1;c)}(T_g, 1c) = -\frac{\sqrt{5}\mathbb{M}_{2,1}^{(1,-1;a)}(E_u)\mathbb{T}_{1,2}^{(b)}(Tu, b)}{12} - \frac{\sqrt{15}\mathbb{M}_{2,1}^{(1,-1;a)}(Tu)\mathbb{T}_{1,3}^{(b)}(Tu, b)}{15} - \frac{\sqrt{15}\mathbb{M}_{2,2}^{(1,-1;a)}(E_u)\mathbb{T}_{1,2}^{(b)}(Tu, b)}{12} - \frac{\sqrt{15}\mathbb{M}_{2,3}^{(1,-1;a)}(Tu)\mathbb{T}_{1,1}^{(b)}(Tu, b)}{15}$$

$$\boxed{\text{z695}} \quad \mathbb{G}_{3,3}^{(1,-1;c)}(T_g, 1c) = \frac{\sqrt{5}\mathbb{M}_{2,1}^{(1,-1;a)}(E_u)\mathbb{T}_{1,3}^{(b)}(T_u, b)}{5} - \frac{\sqrt{15}\mathbb{M}_{2,1}^{(1,-1;a)}(T_u)\mathbb{T}_{1,2}^{(b)}(T_u, b)}{15} - \frac{\sqrt{15}\mathbb{M}_{2,2}^{(1,-1;a)}(T_u)\mathbb{T}_{1,1}^{(b)}(T_u, b)}{15}$$

$$\boxed{\text{z696}} \quad \mathbb{G}_{3,1}^{(1,-1;c)}(T_q, 2a) = -\frac{\sqrt{3}\mathbb{G}_{2,1}^{(1,-1;a)}(E_u)\mathbb{Q}_{1,1}^{(b)}(T_u)}{\mathbb{G}_{2,2}^{(1,-1;a)}(E_u)\mathbb{Q}_{1,1}^{(b)}(T_u)} - \frac{\mathbb{G}_{2,2}^{(1,-1;a)}(E_u)\mathbb{Q}_{1,1}^{(b)}(T_u)}{\mathbb{G}_{2,2}^{(1,-1;a)}(T_u)\mathbb{Q}_{1,3}^{(b)}(T_u)} + \frac{\mathbb{G}_{2,3}^{(1,-1;a)}(T_u)\mathbb{Q}_{1,2}^{(b)}(T_u)}{\mathbb{G}_{2,2}^{(1,-1;a)}(T_u)\mathbb{Q}_{1,2}^{(b)}(T_u)}$$

$$\boxed{z697} \quad \mathbb{G}_{2,2}^{(1,-1;c)}(T_a,2a) = \frac{\sqrt{3}\mathbb{G}_{2,1}^{(1,-1;a)}(E_u)\mathbb{Q}_{1,2}^{(b)}(T_u)}{} + \frac{\mathbb{G}_{2,1}^{(1,-1;a)}(T_u)\mathbb{Q}_{1,3}^{(b)}(T_u)}{} - \frac{\mathbb{G}_{2,2}^{(1,-1;a)}(E_u)\mathbb{Q}_{1,2}^{(b)}(T_u)}{} - \frac{\mathbb{G}_{2,3}^{(1,-1;a)}(T_u)\mathbb{Q}_{1,1}^{(b)}(T_u)}{}$$

$$\boxed{\text{z698}} \quad \mathbb{G}_{3,3}^{(1,-1;c)}(T_u, 2a) = -\frac{\mathbb{G}_{2,1}^{(1,-1;a)}(T_u)\mathbb{Q}_{1,2}^{(b)}(T_u)}{} + \frac{\mathbb{G}_{2,2}^{(1,-1;a)}(E_u)\mathbb{Q}_{1,3}^{(b)}(T_u)}{} + \frac{\mathbb{G}_{2,2}^{(1,-1;a)}(T_u)\mathbb{Q}_{1,1}^{(b)}(T_u)}{}$$

$$= \begin{pmatrix} 1 & -1/\alpha \\ 0 & 1 \end{pmatrix} \begin{pmatrix} b \\ 0 \end{pmatrix} = \begin{pmatrix} 1 & -1/\alpha \\ 0 & 1 \end{pmatrix} \begin{pmatrix} b \\ 0 \end{pmatrix}$$

$$\text{z699} \quad \mathbb{G}_{3,1}^{(1,-1,-1)}(T_g, 2b) = -\frac{\omega_{1,1}}{6} - \frac{\omega_{1,2}}{6} - \frac{\omega_{1,3}}{3} + \frac{\omega_{1,2}}{3}$$

$$\boxed{z700} \quad \mathbb{G}_{3,2}^{(1,-1;c)}(T_g, 2b) = \frac{\sqrt{3}\mathbb{M}_{2,1}}{6}(Eu)\mathbb{I}_{1,2}(Tu, a) + \frac{\mathbb{M}_{2,1}}{3}(Tu)\mathbb{I}_{1,3}(Tu, a) - \frac{\mathbb{M}_{2,2}}{6}(Eu)\mathbb{I}_{1,2}(Tu, a) - \frac{\mathbb{M}_{2,3}}{3}(Tu)\mathbb{I}_{1,1}(Tu, a)$$

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

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

$$\text{z761} \quad \mathbb{G}_{3,2}^{(1,-1;c)}(T_g, 2c) = \frac{\sqrt{3}\mathbb{M}_{2,1}^{(1,-1;a)}(E_u)\mathbb{T}_{1,2}^{(b)}(T_u, b)}{6} + \frac{\mathbb{M}_{2,1}^{(1,-1;a)}(T_u)\mathbb{T}_{1,3}^{(b)}(T_u, b)}{2} - \frac{\mathbb{M}_{2,2}^{(1,-1;a)}(E_u)\mathbb{T}_{1,2}^{(b)}(T_u, b)}{6} - \frac{\mathbb{M}_{2,3}^{(1,-1;a)}(T_u)\mathbb{T}_{1,1}^{(b)}(T_u, b)}{2}$$

$$\boxed{\text{z762}} \quad \mathbb{G}_{3,3}^{(1,-1;c)}(T_g, 2c) = -\frac{\mathbb{M}_{2,1}^{(1,-1;a)}(T_u)\mathbb{T}_{1,2}^{(b)}(T_u, b)}{3} + \frac{\mathbb{M}_{2,2}^{(1,-1;a)}(E_u)\mathbb{T}_{1,3}^{(b)}(T_u, b)}{3} + \frac{\mathbb{M}_{2,2}^{(1,-1;a)}(T_u)\mathbb{T}_{1,1}^{(b)}(T_u, b)}{3}$$

$$\boxed{\text{z763}} \quad \mathbb{G}_{1,1}^{(1,0;c)}(T_g, a) = \frac{\sqrt{6}\mathbb{Q}_{1,2}^{(1,0;a)}(T_u)\mathbb{Q}_{1,3}^{(b)}(T_u)}{6} - \frac{\sqrt{6}\mathbb{Q}_{1,3}^{(1,0;a)}(T_u)\mathbb{Q}_{1,2}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z764}} \quad \mathbb{G}_{1,2}^{(1,0;c)}(T_g, a) = -\frac{\sqrt{6}\mathbb{Q}_{1,1}^{(1,0;a)}(T_u)\mathbb{Q}_{1,3}^{(b)}(T_u)}{6} + \frac{\sqrt{6}\mathbb{Q}_{1,3}^{(1,0;a)}(T_u)\mathbb{Q}_{1,1}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z765}} \quad \mathbb{G}_{1,3}^{(1,0;c)}(T_g, a) = \frac{\sqrt{6}\mathbb{Q}_{1,1}^{(1,0;a)}(T_u)\mathbb{Q}_{1,2}^{(b)}(T_u)}{6} - \frac{\sqrt{6}\mathbb{Q}_{1,2}^{(1,0;a)}(T_u)\mathbb{Q}_{1,1}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z766}} \quad \mathbb{G}_{1,1}^{(1,0;c)}(T_g, b) = \frac{\sqrt{6}\mathbb{T}_{1,2}^{(1,0;a)}(T_u)\mathbb{T}_{1,3}^{(b)}(T_u, a)}{6} - \frac{\sqrt{6}\mathbb{T}_{1,3}^{(1,0;a)}(T_u)\mathbb{T}_{1,2}^{(b)}(T_u, a)}{6}$$

$$\boxed{\text{z767}} \quad \mathbb{G}_{1,2}^{(1,0;c)}(T_g, b) = -\frac{\sqrt{6}\mathbb{T}_{1,1}^{(1,0;a)}(T_u)\mathbb{T}_{1,3}^{(b)}(T_u, a)}{6} + \frac{\sqrt{6}\mathbb{T}_{1,3}^{(1,0;a)}(T_u)\mathbb{T}_{1,1}^{(b)}(T_u, a)}{6}$$

$$\boxed{\text{z768}} \quad \mathbb{G}_{1,3}^{(1,0;c)}(T_g, b) = \frac{\sqrt{6}\mathbb{T}_{1,1}^{(1,0;a)}(T_u)\mathbb{T}_{1,2}^{(b)}(T_u, a)}{6} - \frac{\sqrt{6}\mathbb{T}_{1,2}^{(1,0;a)}(T_u)\mathbb{T}_{1,1}^{(b)}(T_u, a)}{6}$$

$$\boxed{\text{z769}} \quad \mathbb{G}_{1,1}^{(1,0;c)}(T_g, c) = \frac{\sqrt{6}\mathbb{T}_{1,2}^{(1,0;a)}(T_u)\mathbb{T}_{1,3}^{(b)}(T_u, b)}{6} - \frac{\sqrt{6}\mathbb{T}_{1,3}^{(1,0;a)}(T_u)\mathbb{T}_{1,2}^{(b)}(T_u, b)}{6}$$

$$\boxed{\text{z770}} \quad \mathbb{G}_{1,2}^{(1,0;c)}(T_g, c) = -\frac{\sqrt{6}\mathbb{T}_{1,1}^{(1,0;a)}(T_u)\mathbb{T}_{1,3}^{(b)}(T_u, b)}{6} + \frac{\sqrt{6}\mathbb{T}_{1,3}^{(1,0;a)}(T_u)\mathbb{T}_{1,1}^{(b)}(T_u, b)}{6}$$

$$\boxed{\text{z771}} \quad \mathbb{G}_{1,3}^{(1,0;c)}(T_g, c) = \frac{\sqrt{6}\mathbb{T}_{1,1}^{(1,0;a)}(T_u)\mathbb{T}_{1,2}^{(b)}(T_u, b)}{6} - \frac{\sqrt{6}\mathbb{T}_{1,2}^{(1,0;a)}(T_u)\mathbb{T}_{1,1}^{(b)}(T_u, b)}{6}$$

$$\boxed{\text{z772}} \quad \mathbb{G}_{1,1}^{(1,1;c)}(T_g, a) = \frac{\sqrt{3}\mathbb{G}_0^{(1,1;a)}(A_u)\mathbb{Q}_{1,1}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z773}} \quad \mathbb{G}_{1,2}^{(1,1;c)}(T_g, a) = \frac{\sqrt{3}\mathbb{G}_0^{(1,1;a)}(A_u)\mathbb{Q}_{1,2}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z774}} \quad \mathbb{G}_{1,3}^{(1,1;c)}(T_g, a) = \frac{\sqrt{3}\mathbb{G}_0^{(1,1;a)}(A_u)\mathbb{Q}_{1,3}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z775}} \quad \mathbb{G}_{1,1}^{(1,1;c)}(T_g, b) = \frac{\sqrt{3}\mathbb{M}_0^{(1,1;a)}(A_u)\mathbb{T}_{1,1}^{(b)}(T_u, a)}{3}$$

$$\boxed{\text{z776}} \quad \mathbb{G}_{1,2}^{(1,1;c)}(T_g, b) = \frac{\sqrt{3}\mathbb{M}_0^{(1,1;a)}(A_u)\mathbb{T}_{1,2}^{(b)}(T_u, a)}{3}$$

$$\boxed{\text{z777}} \quad \mathbb{G}_{1,3}^{(1,1;c)}(T_g, b) = \frac{\sqrt{3}\mathbb{M}_0^{(1,1;a)}(A_u)\mathbb{T}_{1,3}^{(b)}(T_u, a)}{3}$$

$$\boxed{\text{z778}} \quad \mathbb{G}_{1,1}^{(1,1;c)}(T_g, c) = \frac{\sqrt{3}\mathbb{M}_0^{(1,1;a)}(A_u)\mathbb{T}_{1,1}^{(b)}(T_u, b)}{3}$$

$$\boxed{\text{z779}} \quad \mathbb{G}_{1,2}^{(1,1;c)}(T_g, c) = \frac{\sqrt{3}\mathbb{M}_0^{(1,1;a)}(A_u)\mathbb{T}_{1,2}^{(b)}(T_u, b)}{3}$$

$$\boxed{\text{z780}} \quad \mathbb{G}_{1,3}^{(1,1;c)}(T_g, c) = \frac{\sqrt{3}\mathbb{M}_0^{(1,1;a)}(A_u)\mathbb{T}_{1,3}^{(b)}(T_u, b)}{3}$$

$$\boxed{\text{z781}} \quad \mathbb{G}_{3,1}^{(1,1;c)}(T_g, 1) = \frac{\sqrt{3}\mathbb{G}_0^{(1,1;a)}(A_u)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{3}$$

$$\boxed{\text{z782}} \quad \mathbb{G}_{3,2}^{(1,1;c)}(T_g, 1) = \frac{\sqrt{3}\mathbb{G}_0^{(1,1;a)}(A_u)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{3}$$

$$\boxed{\text{z783}} \quad \mathbb{G}_{3,3}^{(1,1;c)}(T_g, 1) = \frac{\sqrt{3}\mathbb{G}_0^{(1,1;a)}(A_u)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{3}$$

$$\boxed{\text{z925}} \quad \mathbb{Q}_{1,1}^{(c)}(T_u, a) = \frac{\sqrt{3}\mathbb{Q}_{1,1}^{(a)}(T_u)\mathbb{Q}_0^{(b)}(A_g)}{3}$$

$$\boxed{\text{z926}} \quad \mathbb{Q}_{1,2}^{(c)}(T_u, a) = \frac{\sqrt{3}\mathbb{Q}_{1,2}^{(a)}(T_u)\mathbb{Q}_0^{(b)}(A_g)}{3}$$

$$\boxed{\text{z927}} \quad \mathbb{Q}_{1,3}^{(c)}(T_u, a) = \frac{\sqrt{3}\mathbb{Q}_{1,3}^{(a)}(T_u)\mathbb{Q}_0^{(b)}(A_g)}{3}$$

$$\boxed{\text{z928}} \quad \mathbb{Q}_{1,1}^{(c)}(T_u, b) = -\frac{\sqrt{30}\mathbb{Q}_{1,1}^{(a)}(T_u)\mathbb{Q}_{2,1}^{(b)}(E_g)}{30} + \frac{\sqrt{10}\mathbb{Q}_{1,1}^{(a)}(T_u)\mathbb{Q}_{2,2}^{(b)}(E_g)}{10} + \frac{\sqrt{10}\mathbb{Q}_{1,2}^{(a)}(T_u)\mathbb{Q}_{2,3}^{(b)}(T_g)}{10} + \frac{\sqrt{10}\mathbb{Q}_{1,3}^{(a)}(T_u)\mathbb{Q}_{2,2}^{(b)}(T_g)}{10}$$

$$\boxed{\text{z929}} \quad \mathbb{Q}_{1,2}^{(c)}(T_u, b) = \frac{\sqrt{10}\mathbb{Q}_{1,1}^{(a)}(T_u)\mathbb{Q}_{2,3}^{(b)}(T_g)}{10} - \frac{\sqrt{30}\mathbb{Q}_{1,2}^{(a)}(T_u)\mathbb{Q}_{2,1}^{(b)}(E_g)}{30} - \frac{\sqrt{10}\mathbb{Q}_{1,2}^{(a)}(T_u)\mathbb{Q}_{2,2}^{(b)}(E_g)}{10} + \frac{\sqrt{10}\mathbb{Q}_{1,3}^{(a)}(T_u)\mathbb{Q}_{2,1}^{(b)}(T_g)}{10}$$

$$\boxed{\text{z930}} \quad \mathbb{Q}_{1,3}^{(c)}(T_u, b) = \frac{\sqrt{10}\mathbb{Q}_{1,1}^{(a)}(T_u)\mathbb{Q}_{2,2}^{(b)}(T_g)}{10} + \frac{\sqrt{10}\mathbb{Q}_{1,2}^{(a)}(T_u)\mathbb{Q}_{2,1}^{(b)}(T_g)}{10} + \frac{\sqrt{30}\mathbb{Q}_{1,3}^{(a)}(T_u)\mathbb{Q}_{2,1}^{(b)}(E_g)}{15}$$

$$\boxed{\text{z931}} \quad \mathbb{Q}_{1,1}^{(c)}(T_u, c) = \frac{\sqrt{3}\mathbb{T}_{1,1}^{(a)}(T_u)\mathbb{T}_0^{(b)}(A_g)}{3}$$

$$\boxed{\text{z932}} \quad \mathbb{Q}_{1,2}^{(c)}(T_u, c) = \frac{\sqrt{3}\mathbb{T}_{1,2}^{(a)}(T_u)\mathbb{T}_0^{(b)}(A_g)}{3}$$

$$\boxed{\text{z933}} \quad \mathbb{Q}_{1,3}^{(c)}(T_u, c) = \frac{\sqrt{3}\mathbb{T}_{1,3}^{(a)}(T_u)\mathbb{T}_0^{(b)}(A_g)}{3}$$

$$\boxed{\text{z934}} \quad \mathbb{Q}_{1,1}^{(c)}(T_u, d) = -\frac{\sqrt{3}\mathbb{T}_{1,1}^{(a)}(T_u)\mathbb{T}_{2,1}^{(b)}(E_g)}{6} + \frac{\mathbb{T}_{1,1}^{(a)}(T_u)\mathbb{T}_{2,2}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z935}} \quad \mathbb{Q}_{1,2}^{(c)}(T_u, d) = -\frac{\sqrt{3}\mathbb{T}_{1,2}^{(a)}(T_u)\mathbb{T}_{2,1}^{(b)}(E_g)}{6} - \frac{\mathbb{T}_{1,2}^{(a)}(T_u)\mathbb{T}_{2,2}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z936}} \quad \mathbb{Q}_{1,3}^{(c)}(T_u, d) = \frac{\sqrt{3}\mathbb{T}_{1,3}^{(a)}(T_u)\mathbb{T}_{2,1}^{(b)}(E_g)}{3}$$

$$\boxed{\text{z937}} \quad \mathbb{Q}_{1,1}^{(c)}(T_u, e) = \frac{\sqrt{6}\mathbb{T}_{1,2}^{(a)}(T_u)\mathbb{M}_{1,3}^{(b)}(T_g)}{6} - \frac{\sqrt{6}\mathbb{T}_{1,3}^{(a)}(T_u)\mathbb{M}_{1,2}^{(b)}(T_g)}{6}$$

$$\boxed{\text{z938}} \quad \mathbb{Q}_{1,2}^{(c)}(T_u, e) = -\frac{\sqrt{6}\mathbb{T}_{1,1}^{(a)}(T_u)\mathbb{M}_{1,3}^{(b)}(T_g)}{6} + \frac{\sqrt{6}\mathbb{T}_{1,3}^{(a)}(T_u)\mathbb{M}_{1,1}^{(b)}(T_g)}{6}$$

$$\boxed{\text{z939}} \quad \mathbb{Q}_{1,3}^{(c)}(T_u, e) = \frac{\sqrt{6}\mathbb{T}_{1,1}^{(a)}(T_u)\mathbb{M}_{1,2}^{(b)}(T_g)}{6} - \frac{\sqrt{6}\mathbb{T}_{1,2}^{(a)}(T_u)\mathbb{M}_{1,1}^{(b)}(T_g)}{6}$$

$$\boxed{\text{z940}} \quad \mathbb{Q}_{3,1}^{(c)}(T_u, 1) = -\frac{\sqrt{5}\mathbb{Q}_{1,1}^{(a)}(T_u)\mathbb{Q}_{2,1}^{(b)}(E_g)}{10} + \frac{\sqrt{15}\mathbb{Q}_{1,1}^{(a)}(T_u)\mathbb{Q}_{2,2}^{(b)}(E_g)}{10} - \frac{\sqrt{15}\mathbb{Q}_{1,2}^{(a)}(T_u)\mathbb{Q}_{2,3}^{(b)}(T_g)}{15} - \frac{\sqrt{15}\mathbb{Q}_{1,3}^{(a)}(T_u)\mathbb{Q}_{2,2}^{(b)}(T_g)}{15}$$

$$\boxed{\text{z941}} \quad \mathbb{Q}_{3,2}^{(c)}(T_u, 1) = -\frac{\sqrt{15}\mathbb{Q}_{1,1}^{(a)}(T_u)\mathbb{Q}_{2,3}^{(b)}(T_g)}{15} - \frac{\sqrt{5}\mathbb{Q}_{1,2}^{(a)}(T_u)\mathbb{Q}_{2,1}^{(b)}(E_g)}{10} - \frac{\sqrt{15}\mathbb{Q}_{1,2}^{(a)}(T_u)\mathbb{Q}_{2,2}^{(b)}(E_g)}{10} - \frac{\sqrt{15}\mathbb{Q}_{1,3}^{(a)}(T_u)\mathbb{Q}_{2,1}^{(b)}(T_g)}{15}$$

$$\boxed{\text{z942}} \quad \mathbb{Q}_{3,3}^{(c)}(T_u, 1) = -\frac{\sqrt{15}\mathbb{Q}_{1,1}^{(a)}(T_u)\mathbb{Q}_{2,2}^{(b)}(T_g)}{15} - \frac{\sqrt{15}\mathbb{Q}_{1,2}^{(a)}(T_u)\mathbb{Q}_{2,1}^{(b)}(T_g)}{15} + \frac{\sqrt{5}\mathbb{Q}_{1,3}^{(a)}(T_u)\mathbb{Q}_{2,1}^{(b)}(E_g)}{5}$$

$$\boxed{\text{z943}} \quad \mathbb{Q}_{3,1}^{(c)}(T_u, 2a) = -\frac{\sqrt{3}\mathbb{Q}_{1,1}^{(a)}(T_u)\mathbb{Q}_{2,1}^{(b)}(E_g)}{6} - \frac{\mathbb{Q}_{1,1}^{(a)}(T_u)\mathbb{Q}_{2,2}^{(b)}(E_g)}{6} + \frac{\mathbb{Q}_{1,2}^{(a)}(T_u)\mathbb{Q}_{2,3}^{(b)}(T_g)}{3} - \frac{\mathbb{Q}_{1,3}^{(a)}(T_u)\mathbb{Q}_{2,2}^{(b)}(T_g)}{3}$$

$$\boxed{\text{z944}} \quad \mathbb{Q}_{3,2}^{(c)}(T_u, 2a) = -\frac{\mathbb{Q}_{1,1}^{(a)}(T_u)\mathbb{Q}_{2,3}^{(b)}(T_g)}{3} + \frac{\sqrt{3}\mathbb{Q}_{1,2}^{(a)}(T_u)\mathbb{Q}_{2,1}^{(b)}(E_g)}{6} - \frac{\mathbb{Q}_{1,2}^{(a)}(T_u)\mathbb{Q}_{2,2}^{(b)}(E_g)}{6} + \frac{\mathbb{Q}_{1,3}^{(a)}(T_u)\mathbb{Q}_{2,1}^{(b)}(T_g)}{3}$$

$$\boxed{\text{z945}} \quad \mathbb{Q}_{3,3}^{(c)}(T_u, 2a) = \frac{\mathbb{Q}_{1,1}^{(a)}(T_u)\mathbb{Q}_{2,2}^{(b)}(T_g)}{3} - \frac{\mathbb{Q}_{1,2}^{(a)}(T_u)\mathbb{Q}_{2,1}^{(b)}(T_g)}{3} + \frac{\mathbb{Q}_{1,3}^{(a)}(T_u)\mathbb{Q}_{2,2}^{(b)}(E_g)}{3}$$

$$\boxed{\text{z946}} \quad \mathbb{Q}_{3,1}^{(c)}(T_u, 2b) = -\frac{\mathbb{T}_{1,1}^{(a)}(T_u)\mathbb{T}_{2,1}^{(b)}(E_g)}{2} - \frac{\sqrt{3}\mathbb{T}_{1,1}^{(a)}(T_u)\mathbb{T}_{2,2}^{(b)}(E_g)}{6}$$

$$\boxed{\text{z947}} \quad \mathbb{Q}_{3,2}^{(c)}(T_u, 2b) = \frac{\mathbb{T}_{1,2}^{(a)}(T_u)\mathbb{T}_{2,1}^{(b)}(E_g)}{2} - \frac{\sqrt{3}\mathbb{T}_{1,2}^{(a)}(T_u)\mathbb{T}_{2,2}^{(b)}(E_g)}{6}$$

$$\boxed{\text{z948}} \quad \mathbb{Q}_{3,3}^{(c)}(T_u, 2b) = \frac{\sqrt{3}\mathbb{T}_{1,3}^{(a)}(T_u)\mathbb{T}_{2,2}^{(b)}(E_g)}{3}$$

$$\boxed{\text{z949}} \quad \begin{aligned} \mathbb{Q}_{1,1}^{(1,-1;c)}(T_u, a) = & -\frac{\sqrt{10}\mathbb{G}_{2,1}^{(1,-1;a)}(E_u)\mathbb{Q}_{2,1}^{(b)}(T_g)}{10} + \frac{\sqrt{10}\mathbb{G}_{2,1}^{(1,-1;a)}(T_u)\mathbb{Q}_{2,1}^{(b)}(E_g)}{10} + \frac{\sqrt{30}\mathbb{G}_{2,1}^{(1,-1;a)}(T_u)\mathbb{Q}_{2,2}^{(b)}(E_g)}{30} \\ & - \frac{\sqrt{30}\mathbb{G}_{2,2}^{(1,-1;a)}(E_u)\mathbb{Q}_{2,1}^{(b)}(T_g)}{30} - \frac{\sqrt{30}\mathbb{G}_{2,2}^{(1,-1;a)}(T_u)\mathbb{Q}_{2,3}^{(b)}(T_g)}{30} + \frac{\sqrt{30}\mathbb{G}_{2,3}^{(1,-1;a)}(T_u)\mathbb{Q}_{2,2}^{(b)}(T_g)}{30} \end{aligned}$$

$$\boxed{\text{z950}} \quad \begin{aligned} \mathbb{Q}_{1,2}^{(1,-1;c)}(T_u, a) = & \frac{\sqrt{10}\mathbb{G}_{2,1}^{(1,-1;a)}(E_u)\mathbb{Q}_{2,2}^{(b)}(T_g)}{10} + \frac{\sqrt{30}\mathbb{G}_{2,1}^{(1,-1;a)}(T_u)\mathbb{Q}_{2,3}^{(b)}(T_g)}{30} - \frac{\sqrt{30}\mathbb{G}_{2,2}^{(1,-1;a)}(E_u)\mathbb{Q}_{2,2}^{(b)}(T_g)}{30} \\ & - \frac{\sqrt{10}\mathbb{G}_{2,2}^{(1,-1;a)}(T_u)\mathbb{Q}_{2,1}^{(b)}(E_g)}{10} + \frac{\sqrt{30}\mathbb{G}_{2,2}^{(1,-1;a)}(T_u)\mathbb{Q}_{2,2}^{(b)}(E_g)}{30} - \frac{\sqrt{30}\mathbb{G}_{2,3}^{(1,-1;a)}(T_u)\mathbb{Q}_{2,1}^{(b)}(T_g)}{30} \end{aligned}$$

$$\boxed{\text{z951}} \quad \mathbb{Q}_{1,3}^{(1,-1;c)}(T_u, a) = -\frac{\sqrt{30}\mathbb{G}_{2,1}^{(1,-1;a)}(T_u)\mathbb{Q}_{2,2}^{(b)}(T_g)}{30} + \frac{\sqrt{30}\mathbb{G}_{2,2}^{(1,-1;a)}(E_u)\mathbb{Q}_{2,3}^{(b)}(T_g)}{15} + \frac{\sqrt{30}\mathbb{G}_{2,2}^{(1,-1;a)}(T_u)\mathbb{Q}_{2,1}^{(b)}(T_g)}{30} - \frac{\sqrt{30}\mathbb{G}_{2,3}^{(1,-1;a)}(T_u)\mathbb{Q}_{2,2}^{(b)}(E_g)}{15}$$

$$\boxed{\text{z952}} \quad \mathbb{Q}_{1,1}^{(1,-1;c)}(T_u, b) = \frac{\mathbb{M}_{2,1}^{(1,-1;a)}(T_u)\mathbb{T}_{2,1}^{(b)}(E_g)}{2} + \frac{\sqrt{3}\mathbb{M}_{2,1}^{(1,-1;a)}(T_u)\mathbb{T}_{2,2}^{(b)}(E_g)}{6}$$

$$\boxed{\text{z953}} \quad \mathbb{Q}_{1,2}^{(1,-1;c)}(T_u, b) = -\frac{\mathbb{M}_{2,2}^{(1,-1;a)}(T_u)\mathbb{T}_{2,1}^{(b)}(E_g)}{2} + \frac{\sqrt{3}\mathbb{M}_{2,2}^{(1,-1;a)}(T_u)\mathbb{T}_{2,2}^{(b)}(E_g)}{6}$$

$$\boxed{\text{z954}} \quad \mathbb{Q}_{1,3}^{(1,-1;c)}(T_u, b) = -\frac{\sqrt{3}\mathbb{M}_{2,3}^{(1,-1;a)}(T_u)\mathbb{T}_{2,2}^{(b)}(E_g)}{3}$$

$$\boxed{\text{z955}} \quad \mathbb{Q}_{1,1}^{(1,-1;c)}(T_u, c) = -\frac{\sqrt{30}\mathbb{M}_{2,1}^{(1,-1;a)}(E_u)\mathbb{M}_{1,1}^{(b)}(T_g)}{30} + \frac{\sqrt{10}\mathbb{M}_{2,2}^{(1,-1;a)}(E_u)\mathbb{M}_{1,1}^{(b)}(T_g)}{10} + \frac{\sqrt{10}\mathbb{M}_{2,2}^{(1,-1;a)}(T_u)\mathbb{M}_{1,3}^{(b)}(T_g)}{10} + \frac{\sqrt{10}\mathbb{M}_{2,3}^{(1,-1;a)}(T_u)\mathbb{M}_{1,2}^{(b)}(T_g)}{10}$$

$$\boxed{\text{z956}} \quad \mathbb{Q}_{1,2}^{(1,-1;c)}(T_u, c) = -\frac{\sqrt{30}\mathbb{M}_{2,1}^{(1,-1;a)}(E_u)\mathbb{M}_{1,2}^{(b)}(T_g)}{30} + \frac{\sqrt{10}\mathbb{M}_{2,1}^{(1,-1;a)}(T_u)\mathbb{M}_{1,3}^{(b)}(T_g)}{10} - \frac{\sqrt{10}\mathbb{M}_{2,2}^{(1,-1;a)}(E_u)\mathbb{M}_{1,2}^{(b)}(T_g)}{10} + \frac{\sqrt{10}\mathbb{M}_{2,3}^{(1,-1;a)}(T_u)\mathbb{M}_{1,1}^{(b)}(T_g)}{10}$$

$$\boxed{\text{z957}} \quad \mathbb{Q}_{1,3}^{(1,-1;c)}(T_u, c) = \frac{\sqrt{30}\mathbb{M}_{2,1}^{(1,-1;a)}(E_u)\mathbb{M}_{1,3}^{(b)}(T_g)}{15} + \frac{\sqrt{10}\mathbb{M}_{2,1}^{(1,-1;a)}(T_u)\mathbb{M}_{1,2}^{(b)}(T_g)}{10} + \frac{\sqrt{10}\mathbb{M}_{2,2}^{(1,-1;a)}(T_u)\mathbb{M}_{1,1}^{(b)}(T_g)}{10}$$

$$\boxed{\text{z958}} \quad \mathbb{Q}_{3,1}^{(1,-1;c)}(T_u, 1a) = \frac{\sqrt{10}\mathbb{G}_{2,1}^{(1,-1;a)}(E_u)\mathbb{Q}_{2,1}^{(b)}(T_g)}{20} - \frac{\sqrt{10}\mathbb{G}_{2,1}^{(1,-1;a)}(T_u)\mathbb{Q}_{2,1}^{(b)}(E_g)}{20} - \frac{\sqrt{30}\mathbb{G}_{2,1}^{(1,-1;a)}(T_u)\mathbb{Q}_{2,2}^{(b)}(E_g)}{60} \\ + \frac{\sqrt{30}\mathbb{G}_{2,2}^{(1,-1;a)}(E_u)\mathbb{Q}_{2,1}^{(b)}(T_g)}{60} - \frac{\sqrt{30}\mathbb{G}_{2,2}^{(1,-1;a)}(T_u)\mathbb{Q}_{2,3}^{(b)}(T_g)}{15} + \frac{\sqrt{30}\mathbb{G}_{2,3}^{(1,-1;a)}(T_u)\mathbb{Q}_{2,2}^{(b)}(T_g)}{15}$$

$$\boxed{\text{z959}} \quad \mathbb{Q}_{3,2}^{(1,-1;c)}(T_u, 1a) = -\frac{\sqrt{10}\mathbb{G}_{2,1}^{(1,-1;a)}(E_u)\mathbb{Q}_{2,2}^{(b)}(T_g)}{20} + \frac{\sqrt{30}\mathbb{G}_{2,1}^{(1,-1;a)}(T_u)\mathbb{Q}_{2,3}^{(b)}(T_g)}{15} + \frac{\sqrt{30}\mathbb{G}_{2,2}^{(1,-1;a)}(E_u)\mathbb{Q}_{2,2}^{(b)}(T_g)}{60} \\ + \frac{\sqrt{10}\mathbb{G}_{2,2}^{(1,-1;a)}(T_u)\mathbb{Q}_{2,1}^{(b)}(E_g)}{20} - \frac{\sqrt{30}\mathbb{G}_{2,2}^{(1,-1;a)}(T_u)\mathbb{Q}_{2,2}^{(b)}(E_g)}{60} - \frac{\sqrt{30}\mathbb{G}_{2,3}^{(1,-1;a)}(T_u)\mathbb{Q}_{2,1}^{(b)}(T_g)}{15}$$

$$\boxed{\text{z960}} \quad \mathbb{Q}_{3,3}^{(1,-1;c)}(T_u, 1a) = -\frac{\sqrt{30}\mathbb{G}_{2,1}^{(1,-1;a)}(T_u)\mathbb{Q}_{2,2}^{(b)}(T_g)}{15} - \frac{\sqrt{30}\mathbb{G}_{2,2}^{(1,-1;a)}(E_u)\mathbb{Q}_{2,3}^{(b)}(T_g)}{30} + \frac{\sqrt{30}\mathbb{G}_{2,2}^{(1,-1;a)}(T_u)\mathbb{Q}_{2,1}^{(b)}(T_g)}{15} + \frac{\sqrt{30}\mathbb{G}_{2,3}^{(1,-1;a)}(T_u)\mathbb{Q}_{2,2}^{(b)}(E_g)}{30}$$

$$\boxed{\text{z961}} \quad \mathbb{Q}_{3,1}^{(1,-1;c)}(T_u, 1b) = -\frac{\sqrt{5}\mathbb{M}_{2,1}^{(1,-1;a)}(E_u)\mathbb{M}_{1,1}^{(b)}(T_g)}{10} + \frac{\sqrt{15}\mathbb{M}_{2,2}^{(1,-1;a)}(E_u)\mathbb{M}_{1,1}^{(b)}(T_g)}{10} - \frac{\sqrt{15}\mathbb{M}_{2,2}^{(1,-1;a)}(T_u)\mathbb{M}_{1,3}^{(b)}(T_g)}{15} - \frac{\sqrt{15}\mathbb{M}_{2,3}^{(1,-1;a)}(T_u)\mathbb{M}_{1,2}^{(b)}(T_g)}{15}$$

$$\boxed{\text{z962}} \quad \mathbb{Q}_{3,2}^{(1,-1;c)}(T_u, 1b) = -\frac{\sqrt{5}\mathbb{M}_{2,1}^{(1,-1;a)}(E_u)\mathbb{M}_{1,2}^{(b)}(T_g)}{10} - \frac{\sqrt{15}\mathbb{M}_{2,1}^{(1,-1;a)}(T_u)\mathbb{M}_{1,3}^{(b)}(T_g)}{15} - \frac{\sqrt{15}\mathbb{M}_{2,2}^{(1,-1;a)}(E_u)\mathbb{M}_{1,2}^{(b)}(T_g)}{10} - \frac{\sqrt{15}\mathbb{M}_{2,3}^{(1,-1;a)}(T_u)\mathbb{M}_{1,1}^{(b)}(T_g)}{15}$$

$$\boxed{\text{z963}} \quad \mathbb{Q}_{3,3}^{(1,-1;c)}(T_u, 1b) = \frac{\sqrt{5}\mathbb{M}_{2,1}^{(1,-1;a)}(E_u)\mathbb{M}_{1,3}^{(b)}(T_g)}{5} - \frac{\sqrt{15}\mathbb{M}_{2,1}^{(1,-1;a)}(T_u)\mathbb{M}_{1,2}^{(b)}(T_g)}{15} - \frac{\sqrt{15}\mathbb{M}_{2,2}^{(1,-1;a)}(T_u)\mathbb{M}_{1,1}^{(b)}(T_g)}{15}$$

$$\boxed{\text{z964}} \quad \mathbb{Q}_{3,1}^{(1,-1;c)}(T_u, 2a) = \frac{\sqrt{6}\mathbb{G}_{2,1}^{(1,-1;a)}(E_u)\mathbb{Q}_{2,1}^{(b)}(T_g)}{12} - \frac{\sqrt{6}\mathbb{G}_{2,1}^{(1,-1;a)}(T_u)\mathbb{Q}_{2,1}^{(b)}(E_g)}{12} + \frac{\sqrt{2}\mathbb{G}_{2,1}^{(1,-1;a)}(T_u)\mathbb{Q}_{2,2}^{(b)}(E_g)}{4} - \frac{\sqrt{2}\mathbb{G}_{2,2}^{(1,-1;a)}(E_u)\mathbb{Q}_{2,1}^{(b)}(T_g)}{4}$$

$$\boxed{\text{z965}} \quad \mathbb{Q}_{3,2}^{(1,-1;c)}(T_u, 2a) = \frac{\sqrt{6}\mathbb{G}_{2,1}^{(1,-1;a)}(E_u)\mathbb{Q}_{2,2}^{(b)}(T_g)}{12} + \frac{\sqrt{2}\mathbb{G}_{2,2}^{(1,-1;a)}(E_u)\mathbb{Q}_{2,2}^{(b)}(T_g)}{4} - \frac{\sqrt{6}\mathbb{G}_{2,2}^{(1,-1;a)}(T_u)\mathbb{Q}_{2,1}^{(b)}(E_g)}{12} - \frac{\sqrt{2}\mathbb{G}_{2,2}^{(1,-1;a)}(T_u)\mathbb{Q}_{2,2}^{(b)}(E_g)}{4}$$

$$\boxed{\text{z966}} \quad \mathbb{Q}_{3,3}^{(1,-1;c)}(T_u, 2a) = -\frac{\sqrt{6}\mathbb{G}_{2,1}^{(1,-1;a)}(E_u)\mathbb{Q}_{2,3}^{(b)}(T_g)}{6} + \frac{\sqrt{6}\mathbb{G}_{2,3}^{(1,-1;a)}(T_u)\mathbb{Q}_{2,1}^{(b)}(E_g)}{6}$$

$$\boxed{\text{z967}} \quad \mathbb{Q}_{3,1}^{(1,-1;c)}(T_u, 2b) = -\frac{\sqrt{3}\mathbb{M}_{2,1}^{(1,-1;a)}(T_u)\mathbb{T}_{2,1}^{(b)}(E_g)}{6} + \frac{\mathbb{M}_{2,1}^{(1,-1;a)}(T_u)\mathbb{T}_{2,2}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z968}} \quad \mathbb{Q}_{3,2}^{(1,-1;c)}(T_u, 2b) = -\frac{\sqrt{3}\mathbb{M}_{2,2}^{(1,-1;a)}(T_u)\mathbb{T}_{2,1}^{(b)}(E_g)}{6} - \frac{\mathbb{M}_{2,2}^{(1,-1;a)}(T_u)\mathbb{T}_{2,2}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z969}} \quad \mathbb{Q}_{3,3}^{(1,-1;c)}(T_u, 2b) = \frac{\sqrt{3}\mathbb{M}_{2,3}^{(1,-1;a)}(T_u)\mathbb{T}_{2,1}^{(b)}(E_g)}{3}$$

$$\boxed{\text{z970}} \quad \mathbb{Q}_{3,1}^{(1,-1;c)}(T_u, 2c) = -\frac{\sqrt{3}\mathbb{M}_{2,1}^{(1,-1;a)}(E_u)\mathbb{M}_{1,1}^{(b)}(T_g)}{6} - \frac{\mathbb{M}_{2,2}^{(1,-1;a)}(E_u)\mathbb{M}_{1,1}^{(b)}(T_g)}{6} - \frac{\mathbb{M}_{2,2}^{(1,-1;a)}(T_u)\mathbb{M}_{1,3}^{(b)}(T_g)}{3} + \frac{\mathbb{M}_{2,3}^{(1,-1;a)}(T_u)\mathbb{M}_{1,2}^{(b)}(T_g)}{3}$$

$$\boxed{\text{z971}} \quad \mathbb{Q}_{3,2}^{(1,-1;c)}(T_u, 2c) = \frac{\sqrt{3}\mathbb{M}_{2,1}^{(1,-1;a)}(E_u)\mathbb{M}_{1,2}^{(b)}(T_g)}{6} + \frac{\mathbb{M}_{2,1}^{(1,-1;a)}(T_u)\mathbb{M}_{1,3}^{(b)}(T_g)}{3} - \frac{\mathbb{M}_{2,2}^{(1,-1;a)}(E_u)\mathbb{M}_{1,2}^{(b)}(T_g)}{6} - \frac{\mathbb{M}_{2,3}^{(1,-1;a)}(T_u)\mathbb{M}_{1,1}^{(b)}(T_g)}{3}$$

$$\boxed{\text{z972}} \quad \mathbb{Q}_{3,3}^{(1,-1;c)}(T_u, 2c) = -\frac{\mathbb{M}_{2,1}^{(1,-1;a)}(T_u)\mathbb{M}_{1,2}^{(b)}(T_g)}{3} + \frac{\mathbb{M}_{2,2}^{(1,-1;a)}(E_u)\mathbb{M}_{1,3}^{(b)}(T_g)}{3} + \frac{\mathbb{M}_{2,2}^{(1,-1;a)}(T_u)\mathbb{M}_{1,1}^{(b)}(T_g)}{3}$$

$$\boxed{\text{z973}} \quad \mathbb{Q}_{1,1}^{(1,0;c)}(T_u, a) = \frac{\sqrt{3}\mathbb{Q}_{1,1}^{(1,0;a)}(T_u)\mathbb{Q}_0^{(b)}(A_g)}{3}$$

$$\boxed{\text{z974}} \quad \mathbb{Q}_{1,2}^{(1,0;c)}(T_u, a) = \frac{\sqrt{3}\mathbb{Q}_{1,2}^{(1,0;a)}(T_u)\mathbb{Q}_0^{(b)}(A_g)}{3}$$

$$\boxed{\text{z975}} \quad \mathbb{Q}_{1,3}^{(1,0;c)}(T_u, a) = \frac{\sqrt{3}\mathbb{Q}_{1,3}^{(1,0;a)}(T_u)\mathbb{Q}_0^{(b)}(A_g)}{3}$$

$$\boxed{\text{z976}} \quad \mathbb{Q}_{1,1}^{(1,0;c)}(T_u, b) = -\frac{\sqrt{30}\mathbb{Q}_{1,1}^{(1,0;a)}(T_u)\mathbb{Q}_{2,1}^{(b)}(E_g)}{30} + \frac{\sqrt{10}\mathbb{Q}_{1,1}^{(1,0;a)}(T_u)\mathbb{Q}_{2,2}^{(b)}(E_g)}{10} + \frac{\sqrt{10}\mathbb{Q}_{1,2}^{(1,0;a)}(T_u)\mathbb{Q}_{2,3}^{(b)}(T_g)}{10} + \frac{\sqrt{10}\mathbb{Q}_{1,3}^{(1,0;a)}(T_u)\mathbb{Q}_{2,2}^{(b)}(T_g)}{10}$$

$$\boxed{\text{z977}} \quad \mathbb{Q}_{1,2}^{(1,0;c)}(T_u, b) = \frac{\sqrt{10}\mathbb{Q}_{1,1}^{(1,0;a)}(T_u)\mathbb{Q}_{2,3}^{(b)}(T_g)}{10} - \frac{\sqrt{30}\mathbb{Q}_{1,2}^{(1,0;a)}(T_u)\mathbb{Q}_{2,1}^{(b)}(E_g)}{30} - \frac{\sqrt{10}\mathbb{Q}_{1,2}^{(1,0;a)}(T_u)\mathbb{Q}_{2,2}^{(b)}(E_g)}{10} + \frac{\sqrt{10}\mathbb{Q}_{1,3}^{(1,0;a)}(T_u)\mathbb{Q}_{2,1}^{(b)}(T_g)}{10}$$

$$\boxed{\text{z978}} \quad \mathbb{Q}_{1,3}^{(1,0;c)}(T_u, b) = \frac{\sqrt{10}\mathbb{Q}_{1,1}^{(1,0;a)}(T_u)\mathbb{Q}_{2,2}^{(b)}(T_g)}{10} + \frac{\sqrt{10}\mathbb{Q}_{1,2}^{(1,0;a)}(T_u)\mathbb{Q}_{2,1}^{(b)}(T_g)}{10} + \frac{\sqrt{30}\mathbb{Q}_{1,3}^{(1,0;a)}(T_u)\mathbb{Q}_{2,1}^{(b)}(E_g)}{15}$$

$$\boxed{\text{z979}} \quad \mathbb{Q}_{1,1}^{(1,0;c)}(T_u, c) = \frac{\sqrt{3}\mathbb{T}_{1,1}^{(1,0;a)}(T_u)\mathbb{T}_0^{(b)}(A_g)}{3}$$

$$\boxed{\text{z980}} \quad \mathbb{Q}_{1,2}^{(1,0;c)}(T_u, c) = \frac{\sqrt{3}\mathbb{T}_{1,2}^{(1,0;a)}(T_u)\mathbb{T}_0^{(b)}(A_g)}{3}$$

$$\boxed{\text{z981}} \quad \mathbb{Q}_{1,3}^{(1,0;c)}(T_u, c) = \frac{\sqrt{3}\mathbb{T}_{1,3}^{(1,0;a)}(T_u)\mathbb{T}_0^{(b)}(A_g)}{3}$$

$$\boxed{\text{z982}} \quad \mathbb{Q}_{1,1}^{(1,0;c)}(T_u, d) = -\frac{\sqrt{3}\mathbb{T}_{1,1}^{(1,0;a)}(T_u)\mathbb{T}_{2,1}^{(b)}(E_g)}{6} + \frac{\mathbb{T}_{1,1}^{(1,0;a)}(T_u)\mathbb{T}_{2,2}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z983}} \quad \mathbb{Q}_{1,2}^{(1,0;c)}(T_u, d) = -\frac{\sqrt{3}\mathbb{T}_{1,2}^{(1,0;a)}(T_u)\mathbb{T}_{2,1}^{(b)}(E_g)}{6} - \frac{\mathbb{T}_{1,2}^{(1,0;a)}(T_u)\mathbb{T}_{2,2}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z984}} \quad \mathbb{Q}_{1,3}^{(1,0;c)}(T_u, d) = \frac{\sqrt{3}\mathbb{T}_{1,3}^{(1,0;a)}(T_u)\mathbb{T}_{2,1}^{(b)}(E_g)}{3}$$

$$\boxed{\text{z985}} \quad \mathbb{Q}_{1,1}^{(1,0;c)}(T_u, e) = \frac{\sqrt{6}\mathbb{T}_{1,2}^{(1,0;a)}(T_u)\mathbb{M}_{1,3}^{(b)}(T_g)}{6} - \frac{\sqrt{6}\mathbb{T}_{1,3}^{(1,0;a)}(T_u)\mathbb{M}_{1,2}^{(b)}(T_g)}{6}$$

$$\boxed{\text{z986}} \quad \mathbb{Q}_{1,2}^{(1,0;c)}(T_u, e) = -\frac{\sqrt{6}\mathbb{T}_{1,1}^{(1,0;a)}(T_u)\mathbb{M}_{1,3}^{(b)}(T_g)}{6} + \frac{\sqrt{6}\mathbb{T}_{1,3}^{(1,0;a)}(T_u)\mathbb{M}_{1,1}^{(b)}(T_g)}{6}$$

$$\boxed{\text{z987}} \quad \mathbb{Q}_{1,3}^{(1,0;c)}(T_u, e) = \frac{\sqrt{6}\mathbb{T}_{1,1}^{(1,0;a)}(T_u)\mathbb{M}_{1,2}^{(b)}(T_g)}{6} - \frac{\sqrt{6}\mathbb{T}_{1,2}^{(1,0;a)}(T_u)\mathbb{M}_{1,1}^{(b)}(T_g)}{6}$$

$$\boxed{\text{z988}} \quad \mathbb{Q}_{3,1}^{(1,0;c)}(T_u, 1) = -\frac{\sqrt{5}\mathbb{Q}_{1,1}^{(1,0;a)}(T_u)\mathbb{Q}_{2,1}^{(b)}(E_g)}{10} + \frac{\sqrt{15}\mathbb{Q}_{1,1}^{(1,0;a)}(T_u)\mathbb{Q}_{2,2}^{(b)}(E_g)}{10} - \frac{\sqrt{15}\mathbb{Q}_{1,2}^{(1,0;a)}(T_u)\mathbb{Q}_{2,3}^{(b)}(T_g)}{15} - \frac{\sqrt{15}\mathbb{Q}_{1,3}^{(1,0;a)}(T_u)\mathbb{Q}_{2,2}^{(b)}(T_g)}{15}$$

$$\boxed{\text{z989}} \quad \mathbb{Q}_{3,2}^{(1,0;c)}(T_u, 1) = -\frac{\sqrt{15}\mathbb{Q}_{1,1}^{(1,0;a)}(T_u)\mathbb{Q}_{2,3}^{(b)}(T_g)}{15} - \frac{\sqrt{5}\mathbb{Q}_{1,2}^{(1,0;a)}(T_u)\mathbb{Q}_{2,1}^{(b)}(E_g)}{10} - \frac{\sqrt{15}\mathbb{Q}_{1,2}^{(1,0;a)}(T_u)\mathbb{Q}_{2,2}^{(b)}(E_g)}{10} - \frac{\sqrt{15}\mathbb{Q}_{1,3}^{(1,0;a)}(T_u)\mathbb{Q}_{2,1}^{(b)}(T_g)}{15}$$

$$\boxed{\text{z990}} \quad \mathbb{Q}_{3,3}^{(1,0;c)}(T_u, 1) = -\frac{\sqrt{15}\mathbb{Q}_{1,1}^{(1,0;a)}(T_u)\mathbb{Q}_{2,2}^{(b)}(T_g)}{15} - \frac{\sqrt{15}\mathbb{Q}_{1,2}^{(1,0;a)}(T_u)\mathbb{Q}_{2,1}^{(b)}(T_g)}{15} + \frac{\sqrt{5}\mathbb{Q}_{1,3}^{(1,0;a)}(T_u)\mathbb{Q}_{2,1}^{(b)}(E_g)}{5}$$

$$\boxed{\text{z991}} \quad \mathbb{Q}_{3,1}^{(1,0;c)}(T_u, 2a) = -\frac{\sqrt{3}\mathbb{Q}_{1,1}^{(1,0;a)}(T_u)\mathbb{Q}_{2,1}^{(b)}(E_g)}{6} - \frac{\mathbb{Q}_{1,1}^{(1,0;a)}(T_u)\mathbb{Q}_{2,2}^{(b)}(E_g)}{6} + \frac{\mathbb{Q}_{1,2}^{(1,0;a)}(T_u)\mathbb{Q}_{2,3}^{(b)}(T_g)}{3} - \frac{\mathbb{Q}_{1,3}^{(1,0;a)}(T_u)\mathbb{Q}_{2,2}^{(b)}(T_g)}{3}$$

$$\boxed{\text{z992}} \quad \mathbb{Q}_{3,2}^{(1,0;c)}(T_u, 2a) = -\frac{\mathbb{Q}_{1,1}^{(1,0;a)}(T_u)\mathbb{Q}_{2,3}^{(b)}(T_g)}{3} + \frac{\sqrt{3}\mathbb{Q}_{1,2}^{(1,0;a)}(T_u)\mathbb{Q}_{2,1}^{(b)}(E_g)}{6} - \frac{\mathbb{Q}_{1,2}^{(1,0;a)}(T_u)\mathbb{Q}_{2,2}^{(b)}(E_g)}{6} + \frac{\mathbb{Q}_{1,3}^{(1,0;a)}(T_u)\mathbb{Q}_{2,1}^{(b)}(T_g)}{3}$$

$$\boxed{\text{z993}} \quad \mathbb{Q}_{3,3}^{(1,0;c)}(T_u, 2a) = \frac{\mathbb{Q}_{1,1}^{(1,0;a)}(T_u)\mathbb{Q}_{2,2}^{(b)}(T_g)}{3} - \frac{\mathbb{Q}_{1,2}^{(1,0;a)}(T_u)\mathbb{Q}_{2,1}^{(b)}(T_g)}{3} + \frac{\mathbb{Q}_{1,3}^{(1,0;a)}(T_u)\mathbb{Q}_{2,2}^{(b)}(E_g)}{3}$$

$$\boxed{\text{z994}} \quad \mathbb{Q}_{3,1}^{(1,0;c)}(T_u, 2b) = -\frac{\mathbb{T}_{1,1}^{(1,0;a)}(T_u)\mathbb{T}_{2,1}^{(b)}(E_g)}{2} - \frac{\sqrt{3}\mathbb{T}_{1,1}^{(1,0;a)}(T_u)\mathbb{T}_{2,2}^{(b)}(E_g)}{6}$$

$$\boxed{\text{z995}} \quad \mathbb{Q}_{3,2}^{(1,0;c)}(T_u, 2b) = \frac{\mathbb{T}_{1,2}^{(1,0;a)}(T_u)\mathbb{T}_{2,1}^{(b)}(E_g)}{2} - \frac{\sqrt{3}\mathbb{T}_{1,2}^{(1,0;a)}(T_u)\mathbb{T}_{2,2}^{(b)}(E_g)}{6}$$

$$\boxed{\text{z996}} \quad \mathbb{Q}_{3,3}^{(1,0;c)}(T_u, 2b) = \frac{\sqrt{3}\mathbb{T}_{1,3}^{(1,0;a)}(T_u)\mathbb{T}_{2,2}^{(b)}(E_g)}{3}$$

$$\boxed{\text{z997}} \quad \mathbb{Q}_{1,1}^{(1,1;c)}(T_u) = \frac{\sqrt{3}\mathbb{M}_0^{(1,1;a)}(A_u)\mathbb{M}_{1,1}^{(b)}(T_g)}{3}$$

$$\boxed{\text{z998}} \quad \mathbb{Q}_{1,2}^{(1,1;c)}(T_u) = \frac{\sqrt{3}\mathbb{M}_0^{(1,1;a)}(A_u)\mathbb{M}_{1,2}^{(b)}(T_g)}{3}$$

$$\boxed{\text{z999}} \quad \mathbb{Q}_{1,3}^{(1,1;c)}(T_u) = \frac{\sqrt{3}\mathbb{M}_0^{(1,1;a)}(A_u)\mathbb{M}_{1,3}^{(b)}(T_g)}{3}$$

$$\boxed{\text{z1000}} \quad \mathbb{G}_{2,1}^{(c)}(T_u, a) = -\frac{\sqrt{6}\mathbb{Q}_{1,1}^{(a)}(T_u)\mathbb{Q}_{2,1}^{(b)}(E_g)}{6} - \frac{\sqrt{2}\mathbb{Q}_{1,1}^{(a)}(T_u)\mathbb{Q}_{2,2}^{(b)}(E_g)}{6} - \frac{\sqrt{2}\mathbb{Q}_{1,2}^{(a)}(T_u)\mathbb{Q}_{2,3}^{(b)}(T_g)}{6} + \frac{\sqrt{2}\mathbb{Q}_{1,3}^{(a)}(T_u)\mathbb{Q}_{2,2}^{(b)}(T_g)}{6}$$

$$\boxed{\text{z1001}} \quad \mathbb{G}_{2,2}^{(c)}(T_u, a) = \frac{\sqrt{2}\mathbb{Q}_{1,1}^{(a)}(T_u)\mathbb{Q}_{2,3}^{(b)}(T_g)}{6} + \frac{\sqrt{6}\mathbb{Q}_{1,2}^{(a)}(T_u)\mathbb{Q}_{2,1}^{(b)}(E_g)}{6} - \frac{\sqrt{2}\mathbb{Q}_{1,2}^{(a)}(T_u)\mathbb{Q}_{2,2}^{(b)}(E_g)}{6} - \frac{\sqrt{2}\mathbb{Q}_{1,3}^{(a)}(T_u)\mathbb{Q}_{2,1}^{(b)}(T_g)}{6}$$

$$\boxed{\text{z1002}} \quad \mathbb{G}_{2,3}^{(c)}(T_u, a) = -\frac{\sqrt{2}\mathbb{Q}_{1,1}^{(a)}(T_u)\mathbb{Q}_{2,2}^{(b)}(T_g)}{6} + \frac{\sqrt{2}\mathbb{Q}_{1,2}^{(a)}(T_u)\mathbb{Q}_{2,1}^{(b)}(T_g)}{6} + \frac{\sqrt{2}\mathbb{Q}_{1,3}^{(a)}(T_u)\mathbb{Q}_{2,2}^{(b)}(E_g)}{3}$$

$$\boxed{\text{z1003}} \quad \mathbb{G}_{2,1}^{(c)}(T_u, b) = \frac{\sqrt{6}\mathbb{T}_{1,2}^{(a)}(T_u)\mathbb{M}_{1,3}^{(b)}(T_g)}{6} + \frac{\sqrt{6}\mathbb{T}_{1,3}^{(a)}(T_u)\mathbb{M}_{1,2}^{(b)}(T_g)}{6}$$

$$\boxed{\text{z1004}} \quad \mathbb{G}_{2,2}^{(c)}(T_u, b) = \frac{\sqrt{6}\mathbb{T}_{1,1}^{(a)}(T_u)\mathbb{M}_{1,3}^{(b)}(T_g)}{6} + \frac{\sqrt{6}\mathbb{T}_{1,3}^{(a)}(T_u)\mathbb{M}_{1,1}^{(b)}(T_g)}{6}$$

$$\boxed{\text{z1005}} \quad \mathbb{G}_{2,3}^{(c)}(T_u, b) = \frac{\sqrt{6}\mathbb{T}_{1,1}^{(a)}(T_u)\mathbb{M}_{1,2}^{(b)}(T_g)}{6} + \frac{\sqrt{6}\mathbb{T}_{1,2}^{(a)}(T_u)\mathbb{M}_{1,1}^{(b)}(T_g)}{6}$$

$$\boxed{\text{z1006}} \quad \mathbb{G}_{2,1}^{(1,-1;c)}(T_u, a) = \frac{\sqrt{3}\mathbb{G}_{2,1}^{(1,-1;a)}(T_u)\mathbb{Q}_0^{(b)}(A_g)}{3}$$

$$\boxed{\text{z1007}} \quad \mathbb{G}_{2,2}^{(1,-1;c)}(T_u, a) = \frac{\sqrt{3}\mathbb{G}_{2,2}^{(1,-1;a)}(T_u)\mathbb{Q}_0^{(b)}(A_g)}{3}$$

$$\boxed{\text{z1008}} \quad \mathbb{G}_{2,3}^{(1,-1;c)}(T_u, a) = \frac{\sqrt{3}\mathbb{G}_{2,3}^{(1,-1;a)}(T_u)\mathbb{Q}_0^{(b)}(A_g)}{3}$$

$$\begin{aligned} \boxed{\text{z1009}} \quad \mathbb{G}_{2,1}^{(1,-1;c)}(T_u, b) &= \frac{\sqrt{42}\mathbb{G}_{2,1}^{(1,-1;a)}(E_u)\mathbb{Q}_{2,1}^{(b)}(T_g)}{42} + \frac{\sqrt{42}\mathbb{G}_{2,1}^{(1,-1;a)}(T_u)\mathbb{Q}_{2,1}^{(b)}(E_g)}{42} - \frac{\sqrt{14}\mathbb{G}_{2,1}^{(1,-1;a)}(T_u)\mathbb{Q}_{2,2}^{(b)}(E_g)}{14} \\ &\quad - \frac{\sqrt{14}\mathbb{G}_{2,2}^{(1,-1;a)}(E_u)\mathbb{Q}_{2,1}^{(b)}(T_g)}{14} + \frac{\sqrt{14}\mathbb{G}_{2,2}^{(1,-1;a)}(T_u)\mathbb{Q}_{2,3}^{(b)}(T_g)}{14} + \frac{\sqrt{14}\mathbb{G}_{2,3}^{(1,-1;a)}(T_u)\mathbb{Q}_{2,2}^{(b)}(T_g)}{14} \end{aligned}$$

$$\boxed{\text{z1010}} \quad \mathbb{G}_{2,2}^{(1,-1;c)}(T_u, b) = \frac{\sqrt{42}\mathbb{G}_{2,1}^{(1,-1;a)}(E_u)\mathbb{Q}_{2,2}^{(b)}(T_g)}{42} + \frac{\sqrt{14}\mathbb{G}_{2,1}^{(1,-1;a)}(T_u)\mathbb{Q}_{2,3}^{(b)}(T_g)}{14} + \frac{\sqrt{14}\mathbb{G}_{2,2}^{(1,-1;a)}(E_u)\mathbb{Q}_{2,2}^{(b)}(T_g)}{14} \\ + \frac{\sqrt{42}\mathbb{G}_{2,2}^{(1,-1;a)}(T_u)\mathbb{Q}_{2,1}^{(b)}(E_g)}{42} + \frac{\sqrt{14}\mathbb{G}_{2,2}^{(1,-1;a)}(T_u)\mathbb{Q}_{2,2}^{(b)}(E_g)}{14} + \frac{\sqrt{14}\mathbb{G}_{2,3}^{(1,-1;a)}(T_u)\mathbb{Q}_{2,1}^{(b)}(T_g)}{14}$$

$$\boxed{\text{z1011}} \quad \mathbb{G}_{2,3}^{(1,-1;c)}(T_u, b) = -\frac{\sqrt{42}\mathbb{G}_{2,1}^{(1,-1;a)}(E_u)\mathbb{Q}_{2,3}^{(b)}(T_g)}{21} + \frac{\sqrt{14}\mathbb{G}_{2,1}^{(1,-1;a)}(T_u)\mathbb{Q}_{2,2}^{(b)}(T_g)}{14} + \frac{\sqrt{14}\mathbb{G}_{2,2}^{(1,-1;a)}(T_u)\mathbb{Q}_{2,1}^{(b)}(T_g)}{14} - \frac{\sqrt{42}\mathbb{G}_{2,3}^{(1,-1;a)}(T_u)\mathbb{Q}_{2,1}^{(b)}(E_g)}{21}$$

$$\boxed{\text{z1012}} \quad \mathbb{G}_{2,1}^{(1,-1;c)}(T_u, c) = \frac{\sqrt{3}\mathbb{M}_{2,1}^{(1,-1;a)}(T_u)\mathbb{T}_0^{(b)}(A_g)}{3}$$

$$\boxed{\text{z1013}} \quad \mathbb{G}_{2,2}^{(1,-1;c)}(T_u, c) = \frac{\sqrt{3}\mathbb{M}_{2,2}^{(1,-1;a)}(T_u)\mathbb{T}_0^{(b)}(A_g)}{3}$$

$$\boxed{\text{z1014}} \quad \mathbb{G}_{2,3}^{(1,-1;c)}(T_u, c) = \frac{\sqrt{3}\mathbb{M}_{2,3}^{(1,-1;a)}(T_u)\mathbb{T}_0^{(b)}(A_g)}{3}$$

$$\boxed{\text{z1015}} \quad \mathbb{G}_{2,1}^{(1,-1;c)}(T_u, d) = \frac{\sqrt{6}\mathbb{M}_{2,1}^{(1,-1;a)}(E_u)\mathbb{M}_{1,1}^{(b)}(T_g)}{6} + \frac{\sqrt{2}\mathbb{M}_{2,2}^{(1,-1;a)}(E_u)\mathbb{M}_{1,1}^{(b)}(T_g)}{6} - \frac{\sqrt{2}\mathbb{M}_{2,2}^{(1,-1;a)}(T_u)\mathbb{M}_{1,3}^{(b)}(T_g)}{6} + \frac{\sqrt{2}\mathbb{M}_{2,3}^{(1,-1;a)}(T_u)\mathbb{M}_{1,2}^{(b)}(T_g)}{6}$$

$$\boxed{\text{z1016}} \quad \mathbb{G}_{2,2}^{(1,-1;c)}(T_u, d) = -\frac{\sqrt{6}\mathbb{M}_{2,1}^{(1,-1;a)}(E_u)\mathbb{M}_{1,2}^{(b)}(T_g)}{6} + \frac{\sqrt{2}\mathbb{M}_{2,1}^{(1,-1;a)}(T_u)\mathbb{M}_{1,3}^{(b)}(T_g)}{6} + \frac{\sqrt{2}\mathbb{M}_{2,2}^{(1,-1;a)}(E_u)\mathbb{M}_{1,2}^{(b)}(T_g)}{6} - \frac{\sqrt{2}\mathbb{M}_{2,3}^{(1,-1;a)}(T_u)\mathbb{M}_{1,1}^{(b)}(T_g)}{6}$$

$$\boxed{\text{z1017}} \quad \mathbb{G}_{2,3}^{(1,-1;c)}(T_u, d) = -\frac{\sqrt{2}\mathbb{M}_{2,1}^{(1,-1;a)}(T_u)\mathbb{M}_{1,2}^{(b)}(T_g)}{6} - \frac{\sqrt{2}\mathbb{M}_{2,2}^{(1,-1;a)}(E_u)\mathbb{M}_{1,3}^{(b)}(T_g)}{3} + \frac{\sqrt{2}\mathbb{M}_{2,2}^{(1,-1;a)}(T_u)\mathbb{M}_{1,1}^{(b)}(T_g)}{6}$$

$$\boxed{\text{z1018}} \quad \mathbb{G}_{4,1}^{(1,-1;c)}(T_u, 1) = -\frac{\sqrt{2}\mathbb{G}_{2,1}^{(1,-1;a)}(E_u)\mathbb{Q}_{2,1}^{(b)}(T_g)}{4} - \frac{\sqrt{2}\mathbb{G}_{2,1}^{(1,-1;a)}(T_u)\mathbb{Q}_{2,1}^{(b)}(E_g)}{4} - \frac{\sqrt{6}\mathbb{G}_{2,1}^{(1,-1;a)}(T_u)\mathbb{Q}_{2,2}^{(b)}(E_g)}{12} - \frac{\sqrt{6}\mathbb{G}_{2,2}^{(1,-1;a)}(E_u)\mathbb{Q}_{2,1}^{(b)}(T_g)}{12}$$

$$\boxed{\text{z1019}} \quad \mathbb{G}_{4,2}^{(1,-1;c)}(T_u, 1) = \frac{\sqrt{2}\mathbb{G}_{2,1}^{(1,-1;a)}(E_u)\mathbb{Q}_{2,2}^{(b)}(T_g)}{4} - \frac{\sqrt{6}\mathbb{G}_{2,2}^{(1,-1;a)}(E_u)\mathbb{Q}_{2,2}^{(b)}(T_g)}{12} + \frac{\sqrt{2}\mathbb{G}_{2,2}^{(1,-1;a)}(T_u)\mathbb{Q}_{2,1}^{(b)}(E_g)}{4} - \frac{\sqrt{6}\mathbb{G}_{2,2}^{(1,-1;a)}(T_u)\mathbb{Q}_{2,2}^{(b)}(E_g)}{12}$$

$$\boxed{\text{z1020}} \quad \mathbb{G}_{4,3}^{(1,-1;c)}(T_u, 1) = \frac{\sqrt{6}\mathbb{G}_{2,2}^{(1,-1;a)}(E_u)\mathbb{Q}_{2,3}^{(b)}(T_g)}{6} + \frac{\sqrt{6}\mathbb{G}_{2,3}^{(1,-1;a)}(T_u)\mathbb{Q}_{2,2}^{(b)}(E_g)}{6}$$

$$\boxed{\text{z1021}} \quad \mathbb{G}_{4,1}^{(1,-1;c)}(T_u, 2) = -\frac{\sqrt{14}\mathbb{G}_{2,1}^{(1,-1;a)}(E_u)\mathbb{Q}_{2,1}^{(b)}(T_g)}{28} - \frac{\sqrt{14}\mathbb{G}_{2,1}^{(1,-1;a)}(T_u)\mathbb{Q}_{2,1}^{(b)}(E_g)}{28} + \frac{\sqrt{42}\mathbb{G}_{2,1}^{(1,-1;a)}(T_u)\mathbb{Q}_{2,2}^{(b)}(E_g)}{28} \\ + \frac{\sqrt{42}\mathbb{G}_{2,2}^{(1,-1;a)}(E_u)\mathbb{Q}_{2,1}^{(b)}(T_g)}{28} + \frac{\sqrt{42}\mathbb{G}_{2,2}^{(1,-1;a)}(T_u)\mathbb{Q}_{2,3}^{(b)}(T_g)}{21} + \frac{\sqrt{42}\mathbb{G}_{2,3}^{(1,-1;a)}(T_u)\mathbb{Q}_{2,2}^{(b)}(T_g)}{21}$$

$$\boxed{\text{z1022}} \quad \mathbb{G}_{4,2}^{(1,-1;c)}(T_u, 2) = -\frac{\sqrt{14}\mathbb{G}_{2,1}^{(1,-1;a)}(E_u)\mathbb{Q}_{2,2}^{(b)}(T_g)}{28} + \frac{\sqrt{42}\mathbb{G}_{2,1}^{(1,-1;a)}(T_u)\mathbb{Q}_{2,3}^{(b)}(T_g)}{21} - \frac{\sqrt{42}\mathbb{G}_{2,2}^{(1,-1;a)}(E_u)\mathbb{Q}_{2,2}^{(b)}(T_g)}{28} \\ - \frac{\sqrt{14}\mathbb{G}_{2,2}^{(1,-1;a)}(T_u)\mathbb{Q}_{2,1}^{(b)}(E_g)}{28} - \frac{\sqrt{42}\mathbb{G}_{2,2}^{(1,-1;a)}(T_u)\mathbb{Q}_{2,2}^{(b)}(E_g)}{28} + \frac{\sqrt{42}\mathbb{G}_{2,3}^{(1,-1;a)}(T_u)\mathbb{Q}_{2,1}^{(b)}(T_g)}{21}$$

$$\boxed{\text{z1023}} \quad \mathbb{G}_{4,3}^{(1,-1;c)}(T_u, 2) = \frac{\sqrt{14}\mathbb{G}_{2,1}^{(1,-1;a)}(E_u)\mathbb{Q}_{2,3}^{(b)}(T_g)}{14} + \frac{\sqrt{42}\mathbb{G}_{2,1}^{(1,-1;a)}(T_u)\mathbb{Q}_{2,2}^{(b)}(T_g)}{21} + \frac{\sqrt{42}\mathbb{G}_{2,2}^{(1,-1;a)}(T_u)\mathbb{Q}_{2,1}^{(b)}(T_g)}{21} + \frac{\sqrt{14}\mathbb{G}_{2,3}^{(1,-1;a)}(T_u)\mathbb{Q}_{2,1}^{(b)}(E_g)}{14}$$

$$\boxed{\text{z1024}} \quad \mathbb{G}_{2,1}^{(1,0;c)}(T_u, a) = -\frac{\sqrt{6}\mathbb{Q}_{1,1}^{(1,0;a)}(T_u)\mathbb{Q}_{2,1}^{(b)}(E_g)}{6} - \frac{\sqrt{2}\mathbb{Q}_{1,1}^{(1,0;a)}(T_u)\mathbb{Q}_{2,2}^{(b)}(E_g)}{6} - \frac{\sqrt{2}\mathbb{Q}_{1,2}^{(1,0;a)}(T_u)\mathbb{Q}_{2,3}^{(b)}(T_g)}{6} + \frac{\sqrt{2}\mathbb{Q}_{1,3}^{(1,0;a)}(T_u)\mathbb{Q}_{2,2}^{(b)}(T_g)}{6}$$

$$\boxed{\text{z1025}} \quad \mathbb{G}_{2,2}^{(1,0;c)}(T_u, a) = \frac{\sqrt{2}\mathbb{Q}_{1,1}^{(1,0;a)}(T_u)\mathbb{Q}_{2,3}^{(b)}(T_g)}{6} + \frac{\sqrt{6}\mathbb{Q}_{1,2}^{(1,0;a)}(T_u)\mathbb{Q}_{2,1}^{(b)}(E_g)}{6} - \frac{\sqrt{2}\mathbb{Q}_{1,2}^{(1,0;a)}(T_u)\mathbb{Q}_{2,2}^{(b)}(E_g)}{6} - \frac{\sqrt{2}\mathbb{Q}_{1,3}^{(1,0;a)}(T_u)\mathbb{Q}_{2,1}^{(b)}(T_g)}{6}$$

$$\boxed{\text{z1026}} \quad \mathbb{G}_{2,3}^{(1,0;c)}(T_u, a) = -\frac{\sqrt{2}\mathbb{Q}_{1,1}^{(1,0;a)}(T_u)\mathbb{Q}_{2,2}^{(b)}(T_g)}{6} + \frac{\sqrt{2}\mathbb{Q}_{1,2}^{(1,0;a)}(T_u)\mathbb{Q}_{2,1}^{(b)}(T_g)}{6} + \frac{\sqrt{2}\mathbb{Q}_{1,3}^{(1,0;a)}(T_u)\mathbb{Q}_{2,2}^{(b)}(E_g)}{3}$$

$$\boxed{\text{z1027}} \quad \mathbb{G}_{2,1}^{(1,0;c)}(T_u, b) = \frac{\sqrt{6}\mathbb{T}_{1,2}^{(1,0;a)}(T_u)\mathbb{M}_{1,3}^{(b)}(T_g)}{6} + \frac{\sqrt{6}\mathbb{T}_{1,3}^{(1,0;a)}(T_u)\mathbb{M}_{1,2}^{(b)}(T_g)}{6}$$

$$\boxed{\text{z1028}} \quad \mathbb{G}_{2,2}^{(1,0;c)}(T_u, b) = \frac{\sqrt{6}\mathbb{T}_{1,1}^{(1,0;a)}(T_u)\mathbb{M}_{1,3}^{(b)}(T_g)}{6} + \frac{\sqrt{6}\mathbb{T}_{1,3}^{(1,0;a)}(T_u)\mathbb{M}_{1,1}^{(b)}(T_g)}{6}$$

$$\boxed{\text{z1029}} \quad \mathbb{G}_{2,3}^{(1,0;c)}(T_u, b) = \frac{\sqrt{6}\mathbb{T}_{1,1}^{(1,0;a)}(T_u)\mathbb{M}_{1,2}^{(b)}(T_g)}{6} + \frac{\sqrt{6}\mathbb{T}_{1,2}^{(1,0;a)}(T_u)\mathbb{M}_{1,1}^{(b)}(T_g)}{6}$$

$$\boxed{\text{z1030}} \quad \mathbb{G}_{2,1}^{(1,1;c)}(T_u) = \frac{\sqrt{3}\mathbb{G}_0^{(1,1;a)}(A_u)\mathbb{Q}_{2,1}^{(b)}(T_g)}{3}$$

$$\boxed{\text{z1031}} \quad \mathbb{G}_{2,2}^{(1,1;c)}(T_u) = \frac{\sqrt{3}\mathbb{G}_0^{(1,1;a)}(A_u)\mathbb{Q}_{2,2}^{(b)}(T_g)}{3}$$

$$\boxed{\text{z1032}} \quad \mathbb{G}_{2,3}^{(1,1;c)}(T_u) = \frac{\sqrt{3}\mathbb{G}_0^{(1,1;a)}(A_u)\mathbb{Q}_{2,3}^{(b)}(T_g)}{3}$$

• 'A-'A' bond-cluster : A;A_001_1

* bra: $\langle p_x, \uparrow |, \langle p_x, \downarrow |, \langle p_y, \uparrow |, \langle p_y, \downarrow |, \langle p_z, \uparrow |, \langle p_z, \downarrow |$

* ket: $|p_x, \uparrow \rangle, |p_x, \downarrow \rangle, |p_y, \uparrow \rangle, |p_y, \downarrow \rangle, |p_z, \uparrow \rangle, |p_z, \downarrow \rangle$

* wyckoff: 12a@12j

$$\boxed{\text{z22}} \quad \mathbb{Q}_0^{(c)}(A_g, a) = \mathbb{Q}_0^{(a)}(A_g)\mathbb{Q}_0^{(b)}(A_g)$$

$$\boxed{\text{z23}} \quad \mathbb{Q}_0^{(c)}(A_g, b) = \frac{\sqrt{5}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{5} + \frac{\sqrt{5}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{5} + \frac{\sqrt{5}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{5} + \frac{\sqrt{5}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{5} + \frac{\sqrt{5}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{5}$$

$$\boxed{\text{z24}} \quad \mathbb{Q}_0^{(c)}(A_g, c) = \frac{\sqrt{3}\mathbb{M}_{1,1}^{(a)}(T_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{3} + \frac{\sqrt{3}\mathbb{M}_{1,2}^{(a)}(T_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{3} + \frac{\sqrt{3}\mathbb{M}_{1,3}^{(a)}(T_g)\mathbb{M}_{1,3}^{(b)}(T_g)}{3}$$

$$\boxed{\text{z25}} \quad \mathbb{Q}_4^{(c)}(A_g) = \frac{\sqrt{30}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{10} - \frac{\sqrt{30}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{15} + \frac{\sqrt{30}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{10} - \frac{\sqrt{30}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{15} - \frac{\sqrt{30}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{15}$$

$$\boxed{\text{z26}} \quad \mathbb{Q}_0^{(1,-1;c)}(A_g, a) = \frac{\sqrt{5}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{5} + \frac{\sqrt{5}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{5} + \frac{\sqrt{5}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{5} + \frac{\sqrt{5}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{5} + \frac{\sqrt{5}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{5}$$

$$\boxed{\text{z27}} \quad \mathbb{Q}_0^{(1,-1;c)}(A_g, b) = \frac{\sqrt{3}\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{3} + \frac{\sqrt{3}\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{3} + \frac{\sqrt{3}\mathbb{M}_{1,3}^{(1,-1;a)}(T_g)\mathbb{M}_{1,3}^{(b)}(T_g)}{3}$$

$$\boxed{\text{z28}} \quad \mathbb{Q}_4^{(1,-1;c)}(A_g, a) = \frac{\sqrt{30}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{10} - \frac{\sqrt{30}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{15} + \frac{\sqrt{30}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{10} - \frac{\sqrt{30}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{15} - \frac{\sqrt{30}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{15}$$

$$\boxed{\text{z29}} \quad \mathbb{Q}_4^{(1,-1;c)}(A_g, b) = \frac{\sqrt{3}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,1}^{(b)}(T_g)}{3} + \frac{\sqrt{3}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,2}^{(b)}(T_g)}{3} + \frac{\sqrt{3}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,3}^{(b)}(T_g)}{3}$$

$$\boxed{\text{z30}} \quad \mathbb{Q}_0^{(1,0;c)}(A_g) = \frac{\sqrt{2}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{T}_{2,1}^{(b)}(E_g)}{2} + \frac{\sqrt{2}\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{T}_{2,2}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z31}} \quad \mathbb{Q}_0^{(1,1;c)}(A_g, a) = \mathbb{Q}_0^{(1,1;a)}(A_g)\mathbb{Q}_0^{(b)}(A_g)$$

$$\boxed{\text{z32}} \quad \mathbb{Q}_0^{(1,1;c)}(A_g, b) = \frac{\sqrt{3}\mathbb{M}_{1,1}^{(1,1;a)}(T_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{3} + \frac{\sqrt{3}\mathbb{M}_{1,2}^{(1,1;a)}(T_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{3} + \frac{\sqrt{3}\mathbb{M}_{1,3}^{(1,1;a)}(T_g)\mathbb{M}_{1,3}^{(b)}(T_g)}{3}$$

$$\boxed{\text{z33}} \quad \mathbb{G}_3^{(c)}(A_g) = \frac{\sqrt{2}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{2} - \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z34}} \quad \mathbb{G}_3^{(1,-1;c)}(A_g, a) = \frac{\sqrt{2}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{2} - \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z35}} \quad \mathbb{G}_3^{(1,-1;c)}(A_g, b) = \mathbb{M}_3^{(1,-1;a)}(A_g)\mathbb{T}_0^{(b)}(A_g)$$

$$\boxed{\text{z36}} \quad \mathbb{G}_3^{(1,-1;c)}(A_g, c) = -\frac{\sqrt{3}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,1}^{(b)}(T_g)}{3} - \frac{\sqrt{3}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,2}^{(b)}(T_g)}{3} - \frac{\sqrt{3}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,3}^{(b)}(T_g)}{3}$$

$$\boxed{\text{z37}} \quad \mathbb{G}_3^{(1,0;c)}(A_g, a) = \frac{\sqrt{3}\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{3} + \frac{\sqrt{3}\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{3} + \frac{\sqrt{3}\mathbb{G}_{1,3}^{(1,0;a)}(T_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{3}$$

$$\boxed{\text{z38}} \quad \mathbb{G}_3^{(1,0;c)}(A_g, b) = \frac{\sqrt{2}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{T}_{2,2}^{(b)}(E_g)}{2} - \frac{\sqrt{2}\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{T}_{2,1}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z39}} \quad \mathbb{G}_3^{(1,0;c)}(A_g, c) = \frac{\sqrt{3}\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{3} + \frac{\sqrt{3}\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{3} + \frac{\sqrt{3}\mathbb{T}_{2,3}^{(1,0;a)}(T_g)\mathbb{M}_{1,3}^{(b)}(T_g)}{3}$$

$$\boxed{\text{z112}} \quad \mathbb{Q}_3^{(c)}(A_u, a) = \frac{\sqrt{3}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{3} + \frac{\sqrt{3}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{3} + \frac{\sqrt{3}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{1,3}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z113}} \quad \mathbb{Q}_3^{(c)}(A_u, b) = -\frac{\sqrt{3}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{3} - \frac{\sqrt{3}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{3} - \frac{\sqrt{3}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{3}$$

$$\boxed{\text{z114}} \quad \mathbb{Q}_3^{(1,-1;c)}(A_u, a) = \frac{\sqrt{3}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{3} + \frac{\sqrt{3}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{3} + \frac{\sqrt{3}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,3}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z115}} \quad \mathbb{Q}_3^{(1,-1;c)}(A_u, b) = -\frac{\sqrt{3}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{3} - \frac{\sqrt{3}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{3} - \frac{\sqrt{3}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{3}$$

$$\boxed{\text{z116}} \quad \mathbb{Q}_3^{(1,-1;c)}(A_u, c) = -\frac{\sqrt{3}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,1}^{(b)}(T_u, a)}{3} - \frac{\sqrt{3}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,2}^{(b)}(T_u, a)}{3} - \frac{\sqrt{3}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,3}^{(b)}(T_u, a)}{3}$$

$$\boxed{\text{z117}} \quad \mathbb{Q}_3^{(1,-1;c)}(A_u, d) = -\frac{\sqrt{3}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,1}^{(b)}(T_u, b)}{3} - \frac{\sqrt{3}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,2}^{(b)}(T_u, b)}{3} - \frac{\sqrt{3}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,3}^{(b)}(T_u, b)}{3}$$

$$\boxed{\text{z118}} \quad \mathbb{Q}_3^{(1,0;c)}(A_u, a) = \frac{\sqrt{3}\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u, a)}{3} + \frac{\sqrt{3}\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u, a)}{3} + \frac{\sqrt{3}\mathbb{T}_{2,3}^{(1,0;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u, a)}{3}$$

$$\boxed{\text{z119}} \quad \mathbb{Q}_3^{(1,0;c)}(A_u, b) = \frac{\sqrt{3}\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u, b)}{3} + \frac{\sqrt{3}\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u, b)}{3} + \frac{\sqrt{3}\mathbb{T}_{2,3}^{(1,0;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u, b)}{3}$$

$$\boxed{\text{z120}} \quad \mathbb{G}_0^{(c)}(A_u, a) = \frac{\sqrt{3}\mathbb{M}_{1,1}^{(a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u, a)}{3} + \frac{\sqrt{3}\mathbb{M}_{1,2}^{(a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u, a)}{3} + \frac{\sqrt{3}\mathbb{M}_{1,3}^{(a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u, a)}{3}$$

$$\boxed{\text{z121}} \quad \mathbb{G}_0^{(c)}(A_u, b) = \frac{\sqrt{3}\mathbb{M}_{1,1}^{(a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u, b)}{3} + \frac{\sqrt{3}\mathbb{M}_{1,2}^{(a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u, b)}{3} + \frac{\sqrt{3}\mathbb{M}_{1,3}^{(a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u, b)}{3}$$

$$\boxed{\text{z122}} \quad \mathbb{G}_0^{(1,-1;c)}(A_u, a) = \frac{\sqrt{3}\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u, a)}{3} + \frac{\sqrt{3}\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u, a)}{3} + \frac{\sqrt{3}\mathbb{M}_{1,3}^{(1,-1;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u, a)}{3}$$

$$\boxed{\text{z123}} \quad \mathbb{G}_0^{(1,-1;c)}(A_u, b) = \frac{\sqrt{3}\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u, b)}{3} + \frac{\sqrt{3}\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u, b)}{3} + \frac{\sqrt{3}\mathbb{M}_{1,3}^{(1,-1;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u, b)}{3}$$

$$\boxed{\text{z124}} \quad \mathbb{G}_4^{(1,-1;c)}(A_u, a) = \frac{\sqrt{3}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,1}^{(b)}(T_u, a)}{3} + \frac{\sqrt{3}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,2}^{(b)}(T_u, a)}{3} + \frac{\sqrt{3}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,3}^{(b)}(T_u, a)}{3}$$

$$\boxed{\text{z125}} \quad \mathbb{G}_4^{(1,-1;c)}(A_u, b) = \frac{\sqrt{3}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,1}^{(b)}(T_u, b)}{3} + \frac{\sqrt{3}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,2}^{(b)}(T_u, b)}{3} + \frac{\sqrt{3}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,3}^{(b)}(T_u, b)}{3}$$

$$\boxed{\text{z126}} \quad \mathbb{G}_0^{(1,0;c)}(A_u) = \frac{\sqrt{3}\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{3} + \frac{\sqrt{3}\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{3} + \frac{\sqrt{3}\mathbb{G}_{1,3}^{(1,0;a)}(T_g)\mathbb{Q}_{1,3}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z127}} \quad \mathbb{G}_4^{(1,0;c)}(A_u) = \frac{\sqrt{3}\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{3} + \frac{\sqrt{3}\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{3} + \frac{\sqrt{3}\mathbb{G}_{1,3}^{(1,0;a)}(T_g)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{3}$$

$$\boxed{\text{z128}} \quad \mathbb{G}_0^{(1,1;c)}(A_u, a) = \frac{\sqrt{3}\mathbb{M}_{1,1}^{(1,1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u, a)}{3} + \frac{\sqrt{3}\mathbb{M}_{1,2}^{(1,1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u, a)}{3} + \frac{\sqrt{3}\mathbb{M}_{1,3}^{(1,1;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u, a)}{3}$$

$$\boxed{\text{z129}} \quad \mathbb{G}_0^{(1,1;c)}(A_u, b) = \frac{\sqrt{3}\mathbb{M}_{1,1}^{(1,1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u, b)}{3} + \frac{\sqrt{3}\mathbb{M}_{1,2}^{(1,1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u, b)}{3} + \frac{\sqrt{3}\mathbb{M}_{1,3}^{(1,1;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u, b)}{3}$$

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

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

$$\boxed{\text{z132}} \quad \mathbb{Q}_{2,1}^{(c)}(E_g, b) = \frac{\sqrt{2}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_0^{(b)}(A_g)}{2}$$

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

$$\boxed{\text{z134}} \quad \mathbb{Q}_{2,1}^{(c)}(E_g, c) = \frac{\sqrt{7}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{7} + \frac{\sqrt{7}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{14} - \frac{\sqrt{7}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{7} + \frac{\sqrt{7}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{14} - \frac{\sqrt{7}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{7}$$

$$\boxed{\text{z135}} \quad \mathbb{Q}_{2,2}^{(c)}(E_g, c) = -\frac{\sqrt{7}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{7} - \frac{\sqrt{21}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{14} - \frac{\sqrt{7}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{7} + \frac{\sqrt{21}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{14}$$

$$\boxed{\text{z136}} \quad \mathbb{Q}_{2,1}^{(c)}(E_g, d) = -\frac{\sqrt{3}\mathbb{M}_{1,1}^{(a)}(T_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{6} - \frac{\sqrt{3}\mathbb{M}_{1,2}^{(a)}(T_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{6} + \frac{\sqrt{3}\mathbb{M}_{1,3}^{(a)}(T_g)\mathbb{M}_{1,3}^{(b)}(T_g)}{3}$$

$$\boxed{\text{z137}} \quad \mathbb{Q}_{2,2}^{(c)}(E_g, d) = \frac{\mathbb{M}_{1,1}^{(a)}(T_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{2} - \frac{\mathbb{M}_{1,2}^{(a)}(T_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{2}$$

$$\boxed{\text{z138}} \quad \mathbb{Q}_{4,1}^{(c)}(E_g) = \frac{\sqrt{21}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{14} - \frac{\sqrt{21}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{21} - \frac{\sqrt{21}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{14} - \frac{\sqrt{21}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{21} + \frac{2\sqrt{21}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{21}$$

$$\boxed{\text{z139}} \quad \mathbb{Q}_{4,2}^{(c)}(E_g) = -\frac{\sqrt{21}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{14} + \frac{\sqrt{7}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{7} - \frac{\sqrt{21}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{14} - \frac{\sqrt{7}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{7}$$

$$\boxed{\text{z140}} \quad \mathbb{Q}_{2,1}^{(1,-1;c)}(E_g, a) = \frac{\sqrt{2}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_0^{(b)}(A_g)}{2}$$

$$\boxed{\text{z141}} \quad \mathbb{Q}_{2,2}^{(1,-1;c)}(E_g, a) = \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_0^{(b)}(A_g)}{2}$$

$$\boxed{\text{z142}} \quad \mathbb{Q}_{2,1}^{(1,-1;c)}(E_g, b) = \frac{\sqrt{7}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{7} + \frac{\sqrt{7}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{14} - \frac{\sqrt{7}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{7} + \frac{\sqrt{7}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{14} - \frac{\sqrt{7}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{7}$$

$$\boxed{\text{z143}} \quad \mathbb{Q}_{2,2}^{(1,-1;c)}(E_g, b) = -\frac{\sqrt{7}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{7} - \frac{\sqrt{21}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{14} - \frac{\sqrt{7}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{7} + \frac{\sqrt{21}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{14}$$

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

$$\boxed{\text{z145}} \quad \mathbb{Q}_{2,2}^{(1,-1;c)}(E_g, c) = \frac{\sqrt{2}\mathbb{M}_3^{(1,-1;a)}(A_g)\mathbb{T}_{2,1}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z146}} \quad \mathbb{Q}_{2,1}^{(1,-1;c)}(E_g, d) = -\frac{\sqrt{42}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,1}^{(b)}(T_g)}{28} - \frac{\sqrt{70}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,1}^{(b)}(T_g)}{28} - \frac{\sqrt{42}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,2}^{(b)}(T_g)}{28} + \frac{\sqrt{70}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,2}^{(b)}(T_g)}{28} + \frac{\sqrt{42}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,3}^{(b)}(T_g)}{14}$$

$$\boxed{\text{z147}} \quad \mathbb{Q}_{2,2}^{(1,-1;c)}(E_g, d) = \frac{3\sqrt{14}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,1}^{(b)}(T_g)}{28} - \frac{\sqrt{210}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,1}^{(b)}(T_g)}{84} - \frac{3\sqrt{14}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,2}^{(b)}(T_g)}{28} \\ - \frac{\sqrt{210}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,2}^{(b)}(T_g)}{84} + \frac{\sqrt{210}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,3}^{(b)}(T_g)}{42}$$

$$\boxed{\text{z361}} \quad \mathbb{Q}_{2,1}^{(1,-1;c)}(E_g, e) = -\frac{\sqrt{3}\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{6} - \frac{\sqrt{3}\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{6} + \frac{\sqrt{3}\mathbb{M}_{1,3}^{(1,-1;a)}(T_g)\mathbb{M}_{1,3}^{(b)}(T_g)}{3}$$

$$\boxed{\text{z362}} \quad \mathbb{Q}_{2,2}^{(1,-1;c)}(E_g, e) = \frac{\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{2} - \frac{\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{2}$$

$$\boxed{\text{z363}} \quad \mathbb{Q}_{4,1}^{(1,-1;c)}(E_g, a) = \frac{\sqrt{21}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{14} - \frac{\sqrt{21}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{21} - \frac{\sqrt{21}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{14} - \frac{\sqrt{21}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{21} + \frac{2\sqrt{21}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{21}$$

$$\boxed{\text{z364}} \quad \mathbb{Q}_{4,2}^{(1,-1;c)}(E_g, a) = -\frac{\sqrt{21}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{14} + \frac{\sqrt{7}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{7} - \frac{\sqrt{21}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{14} - \frac{\sqrt{7}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{7}$$

$$\boxed{\text{z365}} \quad \mathbb{Q}_{4,1}^{(1,-1;c)}(E_g, b) = -\frac{\sqrt{210}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,1}^{(b)}(T_g)}{84} + \frac{3\sqrt{14}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,1}^{(b)}(T_g)}{28} - \frac{\sqrt{210}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,2}^{(b)}(T_g)}{84} \\ - \frac{3\sqrt{14}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,2}^{(b)}(T_g)}{28} + \frac{\sqrt{210}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,3}^{(b)}(T_g)}{42}$$

$$\boxed{\text{z366}} \quad \mathbb{Q}_{4,2}^{(1,-1;c)}(E_g, b) = \frac{\sqrt{70}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,1}^{(b)}(T_g)}{28} + \frac{\sqrt{42}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,1}^{(b)}(T_g)}{28} - \frac{\sqrt{70}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,2}^{(b)}(T_g)}{28} + \frac{\sqrt{42}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,2}^{(b)}(T_g)}{28} - \frac{\sqrt{42}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,3}^{(b)}(T_g)}{14}$$

$$\boxed{\text{z367}} \quad \mathbb{Q}_{2,1}^{(1,0;c)}(E_g, a) = \frac{\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{2} - \frac{\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{2}$$

$$\boxed{\text{z368}} \quad \mathbb{Q}_{2,2}^{(1,0;c)}(E_g, a) = \frac{\sqrt{3}\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{6} + \frac{\sqrt{3}\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{6} - \frac{\sqrt{3}\mathbb{G}_{1,3}^{(1,0;a)}(T_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{3}$$

$$\boxed{\text{z369}} \quad \mathbb{Q}_{2,1}^{(1,0;c)}(E_g, b) = \frac{\sqrt{2}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{T}_0^{(b)}(A_g)}{2}$$

$$\boxed{\text{z370}} \quad \mathbb{Q}_{2,2}^{(1,0;c)}(E_g, b) = \frac{\sqrt{2}\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{T}_0^{(b)}(A_g)}{2}$$

$$\boxed{\text{z371}} \quad \mathbb{Q}_{2,1}^{(1,0;c)}(E_g, c) = \frac{\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{T}_{2,1}^{(b)}(E_g)}{2} - \frac{\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{T}_{2,2}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z372}} \quad \mathbb{Q}_{2,2}^{(1,0;c)}(E_g, c) = -\frac{\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{T}_{2,2}^{(b)}(E_g)}{2} - \frac{\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{T}_{2,1}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z373}} \quad \mathbb{Q}_{2,1}^{(1,0;c)}(E_g, d) = -\frac{\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{2} + \frac{\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{2}$$

$$\boxed{\text{z374}} \quad \mathbb{Q}_{2,2}^{(1,0;c)}(E_g, d) = -\frac{\sqrt{3}\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{6} - \frac{\sqrt{3}\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{6} + \frac{\sqrt{3}\mathbb{T}_{2,3}^{(1,0;a)}(T_g)\mathbb{M}_{1,3}^{(b)}(T_g)}{3}$$

$$\boxed{\text{z375}} \quad \mathbb{Q}_{2,1}^{(1,1;c)}(E_g, a) = \frac{\sqrt{2}\mathbb{Q}_0^{(1,1;a)}(A_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z376}} \quad \mathbb{Q}_{2,2}^{(1,1;c)}(E_g, a) = \frac{\sqrt{2}\mathbb{Q}_0^{(1,1;a)}(A_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{2}$$

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

$$\boxed{\text{z378}} \quad \mathbb{Q}_{2,2}^{(1,1;c)}(E_g, b) = \frac{\mathbb{M}_{1,1}^{(1,1;a)}(T_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{2} - \frac{\mathbb{M}_{1,2}^{(1,1;a)}(T_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{2}$$

$$\boxed{\text{z379}} \quad \mathbb{Q}_{5,1}^{(c)}(E_u) = \frac{\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{2} - \frac{\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{2}$$

$$\boxed{\text{z380}} \quad \mathbb{Q}_{5,2}^{(c)}(E_u) = \frac{\sqrt{3}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{6} + \frac{\sqrt{3}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{6} - \frac{\sqrt{3}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{3}$$

$$\boxed{\text{z381}} \quad \mathbb{Q}_{5,1}^{(1,-1;c)}(E_u) = \frac{\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{2} - \frac{\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{2}$$

$$\boxed{\text{z382}} \quad \mathbb{Q}_{5,2}^{(1,-1;c)}(E_u) = \frac{\sqrt{3}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{6} + \frac{\sqrt{3}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{6} - \frac{\sqrt{3}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{3}$$

$$\boxed{\text{z383}} \quad \mathbb{G}_{2,1}^{(c)}(E_u, a) = -\frac{\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{2} + \frac{\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{2}$$

$$\boxed{\text{z384}} \quad \mathbb{G}_{2,2}^{(c)}(E_u, a) = -\frac{\sqrt{3}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{6} - \frac{\sqrt{3}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{6} + \frac{\sqrt{3}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{1,3}^{(b)}(T_u)}{3}$$

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

$$\boxed{\text{z386}} \quad \mathbb{G}_{2,2}^{(c)}(E_u, b) = \frac{\mathbb{M}_{1,1}^{(a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u, a)}{2} - \frac{\mathbb{M}_{1,2}^{(a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u, a)}{2}$$

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

$$\boxed{\text{z388}} \quad \mathbb{G}_{2,2}^{(c)}(E_u, c) = \frac{\mathbb{M}_{1,1}^{(a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u, b)}{2} - \frac{\mathbb{M}_{1,2}^{(a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u, b)}{2}$$

$$\boxed{\text{z389}} \quad \mathbb{G}_{2,1}^{(1,-1;c)}(E_u, a) = -\frac{\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{2} + \frac{\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{2}$$

$$\boxed{\text{z390}} \quad \mathbb{G}_{2,2}^{(1,-1;c)}(E_u, a) = -\frac{\sqrt{3}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{6} - \frac{\sqrt{3}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{6} + \frac{\sqrt{3}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,3}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z391}} \quad \begin{aligned} \mathbb{G}_{2,1}^{(1,-1;c)}(E_u, b) = & -\frac{\sqrt{42}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,1}^{(b)}(T_u, a)}{28} - \frac{\sqrt{70}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,1}^{(b)}(T_u, a)}{28} - \frac{\sqrt{42}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,2}^{(b)}(T_u, a)}{28} \\ & + \frac{\sqrt{70}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,2}^{(b)}(T_u, a)}{28} + \frac{\sqrt{42}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,3}^{(b)}(T_u, a)}{14} \end{aligned}$$

$$\boxed{\text{z392}} \quad \begin{aligned} \mathbb{G}_{2,2}^{(1,-1;c)}(E_u, b) = & \frac{3\sqrt{14}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,1}^{(b)}(T_u, a)}{28} - \frac{\sqrt{210}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,1}^{(b)}(T_u, a)}{84} - \frac{3\sqrt{14}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,2}^{(b)}(T_u, a)}{28} \\ & - \frac{\sqrt{210}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,2}^{(b)}(T_u, a)}{84} + \frac{\sqrt{210}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,3}^{(b)}(T_u, a)}{42} \end{aligned}$$

$$\boxed{\text{z393}} \quad \begin{aligned} \mathbb{G}_{2,1}^{(1,-1;c)}(E_u, c) = & -\frac{\sqrt{42}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,1}^{(b)}(T_u, b)}{28} - \frac{\sqrt{70}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,1}^{(b)}(T_u, b)}{28} - \frac{\sqrt{42}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,2}^{(b)}(T_u, b)}{28} \\ & + \frac{\sqrt{70}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,2}^{(b)}(T_u, b)}{28} + \frac{\sqrt{42}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,3}^{(b)}(T_u, b)}{14} \end{aligned}$$

$$\boxed{\text{z394}} \quad \begin{aligned} \mathbb{G}_{2,2}^{(1,-1;c)}(E_u, c) = & \frac{3\sqrt{14}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,1}^{(b)}(T_u, b)}{28} - \frac{\sqrt{210}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,1}^{(b)}(T_u, b)}{84} - \frac{3\sqrt{14}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,2}^{(b)}(T_u, b)}{28} \\ & - \frac{\sqrt{210}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,2}^{(b)}(T_u, b)}{84} + \frac{\sqrt{210}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,3}^{(b)}(T_u, b)}{42} \end{aligned}$$

$$\boxed{\text{z395}} \quad \mathbb{G}_{2,1}^{(1,-1;c)}(E_u, d) = -\frac{\sqrt{3}\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u, a)}{6} - \frac{\sqrt{3}\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u, a)}{6} + \frac{\sqrt{3}\mathbb{M}_{1,3}^{(1,-1;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u, a)}{3}$$

$$\boxed{\text{z396}} \quad \mathbb{G}_{2,2}^{(1,-1;c)}(E_u, d) = \frac{\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u, a)}{2} - \frac{\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u, a)}{2}$$

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

$$\boxed{\text{z398}} \quad \mathbb{G}_{2,2}^{(1,-1;c)}(E_u, e) = \frac{\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u, b)}{2} - \frac{\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u, b)}{2}$$

$$\boxed{\text{z399}} \quad \mathbb{G}_{4,1}^{(1,-1;c)}(E_u, a) = -\frac{\sqrt{210}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,1}^{(b)}(T_u, a)}{84} + \frac{3\sqrt{14}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,1}^{(b)}(T_u, a)}{28} - \frac{\sqrt{210}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,2}^{(b)}(T_u, a)}{84} \\ - \frac{3\sqrt{14}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,2}^{(b)}(T_u, a)}{28} + \frac{\sqrt{210}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,3}^{(b)}(T_u, a)}{42}$$

$$\boxed{\text{z400}} \quad \mathbb{G}_{4,2}^{(1,-1;c)}(E_u, a) = \frac{\sqrt{70}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,1}^{(b)}(T_u, a)}{28} + \frac{\sqrt{42}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,1}^{(b)}(T_u, a)}{28} - \frac{\sqrt{70}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,2}^{(b)}(T_u, a)}{28} \\ + \frac{\sqrt{42}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,2}^{(b)}(T_u, a)}{28} - \frac{\sqrt{42}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,3}^{(b)}(T_u, a)}{14}$$

$$\boxed{\text{z401}} \quad \mathbb{G}_{4,1}^{(1,-1;c)}(E_u, b) = -\frac{\sqrt{210}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,1}^{(b)}(T_u, b)}{84} + \frac{3\sqrt{14}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,1}^{(b)}(T_u, b)}{28} - \frac{\sqrt{210}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,2}^{(b)}(T_u, b)}{84} \\ - \frac{3\sqrt{14}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,2}^{(b)}(T_u, b)}{28} + \frac{\sqrt{210}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,3}^{(b)}(T_u, b)}{42}$$

$$\boxed{\text{z402}} \quad \mathbb{G}_{4,2}^{(1,-1;c)}(E_u, b) = \frac{\sqrt{70}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,1}^{(b)}(T_u, b)}{28} + \frac{\sqrt{42}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,1}^{(b)}(T_u, b)}{28} - \frac{\sqrt{70}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,2}^{(b)}(T_u, b)}{28} \\ + \frac{\sqrt{42}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,2}^{(b)}(T_u, b)}{28} - \frac{\sqrt{42}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,3}^{(b)}(T_u, b)}{14}$$

$$\boxed{\text{z403}} \quad \mathbb{G}_{2,1}^{(1,0;c)}(E_u, a) = -\frac{\sqrt{3}\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{6} - \frac{\sqrt{3}\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{6} + \frac{\sqrt{3}\mathbb{G}_{1,3}^{(1,0;a)}(T_g)\mathbb{Q}_{1,3}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z404}} \quad \mathbb{G}_{2,2}^{(1,0;c)}(E_u, a) = \frac{\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{2} - \frac{\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{2}$$

$$\boxed{\text{z405}} \quad \mathbb{G}_{2,1}^{(1,0;c)}(E_u, b) = -\frac{\sqrt{3}\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{6} - \frac{\sqrt{3}\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{6} + \frac{\sqrt{3}\mathbb{G}_{1,3}^{(1,0;a)}(T_g)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{3}$$

$$\boxed{\text{z406}} \quad \mathbb{G}_{2,2}^{(1,0;c)}(E_u, b) = \frac{\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{2} - \frac{\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{2}$$

$$\boxed{\text{z407}} \quad \mathbb{G}_{2,1}^{(1,0;c)}(E_u, c) = -\frac{\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u, a)}{2} + \frac{\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u, a)}{2}$$

$$\boxed{\text{z408}} \quad \mathbb{G}_{2,2}^{(1,0;c)}(E_u, c) = -\frac{\sqrt{3}\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u, a)}{6} - \frac{\sqrt{3}\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u, a)}{6} + \frac{\sqrt{3}\mathbb{T}_{2,3}^{(1,0;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u, a)}{3}$$

$$\boxed{\text{z409}} \quad \mathbb{G}_{2,1}^{(1,0;c)}(E_u, d) = -\frac{\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u, b)}{2} + \frac{\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u, b)}{2}$$

$$\boxed{\text{z410}} \quad \mathbb{G}_{2,2}^{(1,0;c)}(E_u, d) = -\frac{\sqrt{3}\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u, b)}{6} - \frac{\sqrt{3}\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u, b)}{6} + \frac{\sqrt{3}\mathbb{T}_{2,3}^{(1,0;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u, b)}{3}$$

$$\boxed{\text{z411}} \quad \mathbb{G}_{2,1}^{(1,1;c)}(E_u, a) = -\frac{\sqrt{3}\mathbb{M}_{1,1}^{(1,1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u, a)}{6} - \frac{\sqrt{3}\mathbb{M}_{1,2}^{(1,1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u, a)}{6} + \frac{\sqrt{3}\mathbb{M}_{1,3}^{(1,1;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u, a)}{3}$$

$$\boxed{\text{z412}} \quad \mathbb{G}_{2,2}^{(1,1;c)}(E_u, a) = \frac{\mathbb{M}_{1,1}^{(1,1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u, a)}{2} - \frac{\mathbb{M}_{1,2}^{(1,1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u, a)}{2}$$

$$\boxed{\text{z413}} \quad \mathbb{G}_{2,1}^{(1,1;c)}(E_u, b) = -\frac{\sqrt{3}\mathbb{M}_{1,1}^{(1,1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u, b)}{6} - \frac{\sqrt{3}\mathbb{M}_{1,2}^{(1,1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u, b)}{6} + \frac{\sqrt{3}\mathbb{M}_{1,3}^{(1,1;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u, b)}{3}$$

$$\boxed{\text{z414}} \quad \mathbb{G}_{2,2}^{(1,1;c)}(E_u, b) = \frac{\mathbb{M}_{1,1}^{(1,1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u, b)}{2} - \frac{\mathbb{M}_{1,2}^{(1,1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u, b)}{2}$$

$$\boxed{\text{z415}} \quad \mathbb{Q}_{2,1}^{(c)}(T_g, a) = \frac{\sqrt{3}\mathbb{Q}_0^{(a)}(A_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{3}$$

$$\boxed{\text{z416}} \quad \mathbb{Q}_{2,2}^{(c)}(T_g, a) = \frac{\sqrt{3}\mathbb{Q}_0^{(a)}(A_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{3}$$

$$\boxed{\text{z417}} \quad \mathbb{Q}_{2,3}^{(c)}(T_g, a) = \frac{\sqrt{3}\mathbb{Q}_0^{(a)}(A_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{3}$$

$$\boxed{\text{z418}} \quad \mathbb{Q}_{2,1}^{(c)}(T_g, b) = \frac{\sqrt{3}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_0^{(b)}(A_g)}{3}$$

$$\boxed{\text{z419}} \quad \mathbb{Q}_{2,2}^{(c)}(T_g, b) = \frac{\sqrt{3}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_0^{(b)}(A_g)}{3}$$

$$\boxed{\text{z420}} \quad \mathbb{Q}_{2,3}^{(c)}(T_g, b) = \frac{\sqrt{3}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_0^{(b)}(A_g)}{3}$$

$$\boxed{\text{z421}} \quad \mathbb{Q}_{2,1}^{(c)}(T_g, c) = \frac{\sqrt{42}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{42} + \frac{\sqrt{42}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{42} - \frac{\sqrt{14}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{14} - \frac{\sqrt{14}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{14} + \frac{\sqrt{14}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{14} + \frac{\sqrt{14}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{14}$$

$$\boxed{\text{z422}} \quad \mathbb{Q}_{2,2}^{(c)}(T_g, c) = \frac{\sqrt{42}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{42} + \frac{\sqrt{14}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{14} + \frac{\sqrt{14}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{14} + \frac{\sqrt{42}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{42} + \frac{\sqrt{14}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{14} + \frac{\sqrt{14}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{14}$$

$$\boxed{\text{z423}} \quad \mathbb{Q}_{2,3}^{(c)}(T_g, c) = -\frac{\sqrt{42}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{21} + \frac{\sqrt{14}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{14} + \frac{\sqrt{14}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{14} - \frac{\sqrt{42}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{21}$$

$$\boxed{\text{z424}} \quad \mathbb{Q}_{2,1}^{(c)}(T_g, d) = -\frac{\mathbb{M}_{1,1}^{(a)}(T_g)\mathbb{T}_{2,1}^{(b)}(E_g)}{2} - \frac{\sqrt{3}\mathbb{M}_{1,1}^{(a)}(T_g)\mathbb{T}_{2,2}^{(b)}(E_g)}{6}$$

$$\boxed{\text{z425}} \quad \mathbb{Q}_{2,2}^{(c)}(T_g, d) = \frac{\mathbb{M}_{1,2}^{(a)}(T_g)\mathbb{T}_{2,1}^{(b)}(E_g)}{2} - \frac{\sqrt{3}\mathbb{M}_{1,2}^{(a)}(T_g)\mathbb{T}_{2,2}^{(b)}(E_g)}{6}$$

$$\boxed{\text{z426}} \quad \mathbb{Q}_{2,3}^{(c)}(T_g, d) = \frac{\sqrt{3}\mathbb{M}_{1,3}^{(a)}(T_g)\mathbb{T}_{2,2}^{(b)}(E_g)}{3}$$

$$\boxed{\text{z427}} \quad \mathbb{Q}_{2,1}^{(c)}(T_g, e) = \frac{\sqrt{6}\mathbb{M}_{1,2}^{(a)}(T_g)\mathbb{M}_{1,3}^{(b)}(T_g)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(a)}(T_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{6}$$

$$\boxed{\text{z428}} \quad \mathbb{Q}_{2,2}^{(c)}(T_g, e) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(a)}(T_g)\mathbb{M}_{1,3}^{(b)}(T_g)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(a)}(T_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{6}$$

$$\boxed{\text{z429}} \quad \mathbb{Q}_{2,3}^{(c)}(T_g, e) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(a)}(T_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,2}^{(a)}(T_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{6}$$

$$\boxed{\text{z430}} \quad \mathbb{Q}_{4,1}^{(c)}(T_g, 1) = -\frac{\sqrt{2}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{4} - \frac{\sqrt{2}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{4} - \frac{\sqrt{6}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{12} - \frac{\sqrt{6}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{12}$$

$$\boxed{\text{z431}} \quad \mathbb{Q}_{4,2}^{(c)}(T_g, 1) = \frac{\sqrt{2}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{4} - \frac{\sqrt{6}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{12} + \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{4} - \frac{\sqrt{6}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{12}$$

$$\boxed{\text{z432}} \quad \mathbb{Q}_{4,3}^{(c)}(T_g, 1) = \frac{\sqrt{6}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{6} + \frac{\sqrt{6}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{6}$$

$$\boxed{\text{z433}} \quad \mathbb{Q}_{4,1}^{(c)}(T_g, 2) = -\frac{\sqrt{14}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{28} - \frac{\sqrt{14}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{28} + \frac{\sqrt{42}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{28} + \frac{\sqrt{42}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{28} + \frac{\sqrt{42}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{21} + \frac{\sqrt{42}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{21}$$

$$\boxed{\text{z434}} \quad \mathbb{Q}_{4,2}^{(c)}(T_g, 2) = -\frac{\sqrt{14}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{28} + \frac{\sqrt{42}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{21} - \frac{\sqrt{42}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{28} - \frac{\sqrt{14}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{28} - \frac{\sqrt{42}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{28} + \frac{\sqrt{42}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{21}$$

$$\boxed{\text{z435}} \quad \mathbb{Q}_{4,3}^{(c)}(T_g, 2) = \frac{\sqrt{14}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{14} + \frac{\sqrt{42}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{21} + \frac{\sqrt{42}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{21} + \frac{\sqrt{14}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{14}$$

$$\boxed{\text{z436}} \quad \mathbb{Q}_{2,1}^{(1,-1;c)}(T_g, a) = \frac{\sqrt{3}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_0^{(b)}(A_g)}{3}$$

$$\boxed{\text{z437}} \quad \mathbb{Q}_{2,2}^{(1,-1;c)}(T_g, a) = \frac{\sqrt{3}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_0^{(b)}(A_g)}{3}$$

$$\boxed{\text{z438}} \quad \mathbb{Q}_{2,3}^{(1,-1;c)}(T_g, a) = \frac{\sqrt{3}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_0^{(b)}(A_g)}{3}$$

$$\boxed{\text{z439}} \quad \mathbb{Q}_{2,1}^{(1,-1;c)}(T_g, b) = \frac{\sqrt{42}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{42} + \frac{\sqrt{42}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{42} - \frac{\sqrt{14}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{14} \\ - \frac{\sqrt{14}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{14} + \frac{\sqrt{14}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{14} + \frac{\sqrt{14}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{14}$$

$$\boxed{\text{z440}} \quad \mathbb{Q}_{2,2}^{(1,-1;c)}(T_g, b) = \frac{\sqrt{42}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{42} + \frac{\sqrt{14}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{14} + \frac{\sqrt{14}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{14} \\ + \frac{\sqrt{42}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{42} + \frac{\sqrt{14}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{14} + \frac{\sqrt{14}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{14}$$

$$\boxed{\text{z441}} \quad \mathbb{Q}_{2,3}^{(1,-1;c)}(T_g, b) = -\frac{\sqrt{42}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{21} + \frac{\sqrt{14}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{14} + \frac{\sqrt{14}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{14} - \frac{\sqrt{42}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{21}$$

$$\boxed{\text{z442}} \quad \mathbb{Q}_{2,1}^{(1,-1;c)}(T_g, c) = \frac{\sqrt{6}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{2,1}^{(b)}(E_g)}{12} + \frac{\sqrt{2}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{2,2}^{(b)}(E_g)}{12} + \frac{\sqrt{10}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{2,1}^{(b)}(E_g)}{12} - \frac{\sqrt{30}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{2,2}^{(b)}(E_g)}{12}$$

$$\boxed{\text{z443}} \quad \mathbb{Q}_{2,2}^{(1,-1;c)}(T_g, c) = -\frac{\sqrt{6}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{2,1}^{(b)}(E_g)}{12} + \frac{\sqrt{2}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{2,2}^{(b)}(E_g)}{12} + \frac{\sqrt{10}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{2,1}^{(b)}(E_g)}{12} + \frac{\sqrt{30}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{2,2}^{(b)}(E_g)}{12}$$

$$\boxed{\text{z444}} \quad \mathbb{Q}_{2,3}^{(1,-1;c)}(T_g, c) = -\frac{\sqrt{2}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{2,1}^{(b)}(E_g)}{6} - \frac{\sqrt{10}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{2,1}^{(b)}(E_g)}{6}$$

$$\boxed{\text{z445}} \quad \mathbb{Q}_{2,1}^{(1,-1;c)}(T_g, d) = -\frac{\sqrt{21}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,3}^{(b)}(T_g)}{21} + \frac{\sqrt{35}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,3}^{(b)}(T_g)}{21} - \frac{\sqrt{21}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,2}^{(b)}(T_g)}{21} - \frac{\sqrt{35}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,2}^{(b)}(T_g)}{21} + \frac{\sqrt{35}\mathbb{M}_3^{(1,-1;a)}(A_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{21}$$

$$\boxed{\text{z446}} \quad \mathbb{Q}_{2,2}^{(1,-1;c)}(T_g, d) = -\frac{\sqrt{21}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,3}^{(b)}(T_g)}{21} - \frac{\sqrt{35}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,3}^{(b)}(T_g)}{21} - \frac{\sqrt{21}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,1}^{(b)}(T_g)}{21} + \frac{\sqrt{35}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,1}^{(b)}(T_g)}{21} + \frac{\sqrt{35}\mathbb{M}_3^{(1,-1;a)}(A_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{21}$$

$$\boxed{\text{z447}} \quad \mathbb{Q}_{2,3}^{(1,-1;c)}(T_g, d) = -\frac{\sqrt{21}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,2}^{(b)}(T_g)}{21} + \frac{\sqrt{35}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,2}^{(b)}(T_g)}{21} - \frac{\sqrt{21}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,1}^{(b)}(T_g)}{21} - \frac{\sqrt{35}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,1}^{(b)}(T_g)}{21} + \frac{\sqrt{35}\mathbb{M}_3^{(1,-1;a)}(A_g)\mathbb{M}_{1,3}^{(b)}(T_g)}{21}$$

$$\boxed{\text{z448}} \quad \mathbb{Q}_{2,1}^{(1,-1;c)}(T_g, e) = -\frac{\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{T}_{2,1}^{(b)}(E_g)}{2} - \frac{\sqrt{3}\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{T}_{2,2}^{(b)}(E_g)}{6}$$

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

$$\boxed{\text{z450}} \quad \mathbb{Q}_{2,3}^{(1,-1;c)}(T_g, e) = \frac{\sqrt{3}\mathbb{M}_{1,3}^{(1,-1;a)}(T_g)\mathbb{T}_{2,2}^{(b)}(E_g)}{3}$$

$$\boxed{\text{z451}} \quad \mathbb{Q}_{2,1}^{(1,-1;c)}(T_g, f) = \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{M}_{1,3}^{(b)}(T_g)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,-1;a)}(T_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{6}$$

$$\boxed{\text{z452}} \quad \mathbb{Q}_{2,2}^{(1,-1;c)}(T_g, f) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{M}_{1,3}^{(b)}(T_g)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,-1;a)}(T_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{6}$$

$$\boxed{\text{z453}} \quad \mathbb{Q}_{2,3}^{(1,-1;c)}(T_g, f) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{6}$$

$$\boxed{\text{z454}} \quad \mathbb{Q}_{4,1}^{(1,-1;c)}(T_g, 1a) = -\frac{\sqrt{2}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{4} - \frac{\sqrt{2}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{4} - \frac{\sqrt{6}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{12} - \frac{\sqrt{6}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{12}$$

$$\boxed{\text{z455}} \quad \mathbb{Q}_{4,2}^{(1,-1;c)}(T_g, 1a) = \frac{\sqrt{2}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{4} - \frac{\sqrt{6}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{12} + \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{4} - \frac{\sqrt{6}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{12}$$

$$\boxed{\text{z456}} \quad \mathbb{Q}_{4,3}^{(1,-1;c)}(T_g, 1a) = \frac{\sqrt{6}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{6} + \frac{\sqrt{6}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{6}$$

$$\boxed{\text{z457}} \quad \mathbb{Q}_{4,1}^{(1,-1;c)}(T_g, 1b) = -\frac{\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{2,1}^{(b)}(E_g)}{2} - \frac{\sqrt{3}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{2,2}^{(b)}(E_g)}{6}$$

$$\boxed{\text{z458}} \quad \mathbb{Q}_{4,2}^{(1,-1;c)}(T_g, 1b) = \frac{\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{2,1}^{(b)}(E_g)}{2} - \frac{\sqrt{3}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{2,2}^{(b)}(E_g)}{6}$$

$$\boxed{\text{z459}} \quad \mathbb{Q}_{4,3}^{(1,-1;c)}(T_g, 1b) = \frac{\sqrt{3}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{2,2}^{(b)}(E_g)}{3}$$

$$\boxed{\text{z460}} \quad \mathbb{Q}_{4,1}^{(1,-1;c)}(T_g, 1c) = \frac{\sqrt{15}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,3}^{(b)}(T_g)}{12} - \frac{\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,3}^{(b)}(T_g)}{4} - \frac{\sqrt{15}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,2}^{(b)}(T_g)}{12} - \frac{\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,2}^{(b)}(T_g)}{4}$$

$$\boxed{\text{z461}} \quad \mathbb{Q}_{4,2}^{(1,-1;c)}(T_g, 1c) = -\frac{\sqrt{15}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,3}^{(b)}(T_g)}{12} - \frac{\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,3}^{(b)}(T_g)}{4} + \frac{\sqrt{15}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,1}^{(b)}(T_g)}{12} - \frac{\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,1}^{(b)}(T_g)}{4}$$

$$\boxed{\text{z462}} \quad \mathbb{Q}_{4,3}^{(1,-1;c)}(T_g, 1c) = \frac{\sqrt{15}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,2}^{(b)}(T_g)}{12} - \frac{\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,2}^{(b)}(T_g)}{4} - \frac{\sqrt{15}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,1}^{(b)}(T_g)}{12} - \frac{\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,1}^{(b)}(T_g)}{4}$$

$$\begin{aligned} \text{z463} \quad \mathbb{Q}_{4,1}^{(1,-1;c)}(T_g, 2a) = & -\frac{\sqrt{14}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{28} - \frac{\sqrt{14}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{28} + \frac{\sqrt{42}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{28} \\ & + \frac{\sqrt{42}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{28} + \frac{\sqrt{42}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{21} + \frac{\sqrt{42}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{21} \end{aligned}$$

$$\begin{aligned} \text{z464} \quad \mathbb{Q}_{4,2}^{(1,-1;c)}(T_g, 2a) = & -\frac{\sqrt{14}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{28} + \frac{\sqrt{42}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{21} - \frac{\sqrt{42}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{28} \\ & - \frac{\sqrt{14}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{28} - \frac{\sqrt{42}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{28} + \frac{\sqrt{42}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{21} \end{aligned}$$

$$\begin{aligned} \text{z465} \quad \mathbb{Q}_{4,3}^{(1,-1;c)}(T_g, 2a) = & \frac{\sqrt{14}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{14} + \frac{\sqrt{42}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{21} + \frac{\sqrt{42}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{21} + \frac{\sqrt{14}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{14} \end{aligned}$$

$$\begin{aligned} \text{z466} \quad \mathbb{Q}_{4,1}^{(1,-1;c)}(T_g, 2b) = & -\frac{\sqrt{30}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{2,1}^{(b)}(E_g)}{12} - \frac{\sqrt{10}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{2,2}^{(b)}(E_g)}{12} + \frac{\sqrt{2}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{2,1}^{(b)}(E_g)}{12} - \frac{\sqrt{6}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{2,2}^{(b)}(E_g)}{12} \end{aligned}$$

$$\begin{aligned} \text{z467} \quad \mathbb{Q}_{4,2}^{(1,-1;c)}(T_g, 2b) = & \frac{\sqrt{30}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{2,1}^{(b)}(E_g)}{12} - \frac{\sqrt{10}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{2,2}^{(b)}(E_g)}{12} + \frac{\sqrt{2}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{2,1}^{(b)}(E_g)}{12} + \frac{\sqrt{6}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{2,2}^{(b)}(E_g)}{12} \end{aligned}$$

$$\begin{aligned} \text{z468} \quad \mathbb{Q}_{4,3}^{(1,-1;c)}(T_g, 2b) = & \frac{\sqrt{10}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{2,2}^{(b)}(E_g)}{6} - \frac{\sqrt{2}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{2,1}^{(b)}(E_g)}{6} \end{aligned}$$

$$\begin{aligned} \text{z469} \quad \mathbb{Q}_{4,1}^{(1,-1;c)}(T_g, 2c) = & -\frac{\sqrt{105}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,3}^{(b)}(T_g)}{84} - \frac{3\sqrt{7}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,3}^{(b)}(T_g)}{28} - \frac{\sqrt{105}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,2}^{(b)}(T_g)}{84} + \frac{3\sqrt{7}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,2}^{(b)}(T_g)}{28} + \frac{\sqrt{7}\mathbb{M}_3^{(1,-1;a)}(A_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{7} \end{aligned}$$

$$\begin{aligned} \text{z470} \quad \mathbb{Q}_{4,2}^{(1,-1;c)}(T_g, 2c) = & -\frac{\sqrt{105}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,3}^{(b)}(T_g)}{84} + \frac{3\sqrt{7}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,3}^{(b)}(T_g)}{28} - \frac{\sqrt{105}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,1}^{(b)}(T_g)}{84} - \frac{3\sqrt{7}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,1}^{(b)}(T_g)}{28} + \frac{\sqrt{7}\mathbb{M}_3^{(1,-1;a)}(A_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{7} \end{aligned}$$

$$\begin{aligned} \text{z471} \quad \mathbb{Q}_{4,3}^{(1,-1;c)}(T_g, 2c) = & -\frac{\sqrt{105}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,2}^{(b)}(T_g)}{84} - \frac{3\sqrt{7}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,2}^{(b)}(T_g)}{28} - \frac{\sqrt{105}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,1}^{(b)}(T_g)}{84} + \frac{3\sqrt{7}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,1}^{(b)}(T_g)}{28} + \frac{\sqrt{7}\mathbb{M}_3^{(1,-1;a)}(A_g)\mathbb{M}_{1,3}^{(b)}(T_g)}{7} \end{aligned}$$

$$\begin{aligned} \text{z472} \quad \mathbb{Q}_{2,1}^{(1,0;c)}(T_g, a) = & -\frac{\sqrt{6}\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{6} - \frac{\sqrt{2}\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{6} - \frac{\sqrt{2}\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{6} + \frac{\sqrt{2}\mathbb{G}_{1,3}^{(1,0;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{6} \end{aligned}$$

$$\begin{aligned} \text{z473} \quad \mathbb{Q}_{2,2}^{(1,0;c)}(T_g, a) = & \frac{\sqrt{2}\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{6} + \frac{\sqrt{6}\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{6} - \frac{\sqrt{2}\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{6} - \frac{\sqrt{2}\mathbb{G}_{1,3}^{(1,0;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{6} \end{aligned}$$

$$\begin{aligned} \text{z474} \quad \mathbb{Q}_{2,3}^{(1,0;c)}(T_g, a) = & -\frac{\sqrt{2}\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{6} + \frac{\sqrt{2}\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{6} + \frac{\sqrt{2}\mathbb{G}_{1,3}^{(1,0;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{3} \end{aligned}$$

$$\boxed{\text{z475}} \quad \mathbb{Q}_{2,1}^{(1,0;c)}(T_g, b) = \frac{\sqrt{3}\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{T}_0^{(b)}(A_g)}{3}$$

$$\boxed{\text{z476}} \quad \mathbb{Q}_{2,2}^{(1,0;c)}(T_g, b) = \frac{\sqrt{3}\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{T}_0^{(b)}(A_g)}{3}$$

$$\boxed{\text{z477}} \quad \mathbb{Q}_{2,3}^{(1,0;c)}(T_g, b) = \frac{\sqrt{3}\mathbb{T}_{2,3}^{(1,0;a)}(T_g)\mathbb{T}_0^{(b)}(A_g)}{3}$$

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

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

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

$$\boxed{\text{z481}} \quad \mathbb{Q}_{2,1}^{(1,0;c)}(T_g, d) = \frac{\sqrt{6}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{6} + \frac{\sqrt{2}\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{6} - \frac{\sqrt{2}\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{M}_{1,3}^{(b)}(T_g)}{6} + \frac{\sqrt{2}\mathbb{T}_{2,3}^{(1,0;a)}(T_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{6}$$

$$\boxed{\text{z482}} \quad \mathbb{Q}_{2,2}^{(1,0;c)}(T_g, d) = -\frac{\sqrt{6}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{6} + \frac{\sqrt{2}\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{M}_{1,3}^{(b)}(T_g)}{6} + \frac{\sqrt{2}\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{6} - \frac{\sqrt{2}\mathbb{T}_{2,3}^{(1,0;a)}(T_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{6}$$

$$\boxed{\text{z483}} \quad \mathbb{Q}_{2,3}^{(1,0;c)}(T_g, d) = -\frac{\sqrt{2}\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{6} - \frac{\sqrt{2}\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{M}_{1,3}^{(b)}(T_g)}{3} + \frac{\sqrt{2}\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{6}$$

$$\boxed{\text{z484}} \quad \mathbb{Q}_{4,1}^{(1,0;c)}(T_g, 1) = -\frac{\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{T}_{2,1}^{(b)}(E_g)}{2} - \frac{\sqrt{3}\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{T}_{2,2}^{(b)}(E_g)}{6}$$

$$\boxed{\text{z485}} \quad \mathbb{Q}_{4,2}^{(1,0;c)}(T_g, 1) = \frac{\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{T}_{2,1}^{(b)}(E_g)}{2} - \frac{\sqrt{3}\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{T}_{2,2}^{(b)}(E_g)}{6}$$

$$\boxed{\text{z486}} \quad \mathbb{Q}_{4,3}^{(1,0;c)}(T_g, 1) = \frac{\sqrt{3}\mathbb{T}_{2,3}^{(1,0;a)}(T_g)\mathbb{T}_{2,2}^{(b)}(E_g)}{3}$$

$$\boxed{\text{z487}} \quad \mathbb{Q}_{2,1}^{(1,1;c)}(T_g, a) = \frac{\sqrt{3}\mathbb{Q}_0^{(1,1;a)}(A_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{3}$$

$$\boxed{\text{z488}} \quad \mathbb{Q}_{2,2}^{(1,1;c)}(T_g, a) = \frac{\sqrt{3}\mathbb{Q}_0^{(1,1;a)}(A_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{3}$$

$$\boxed{\text{z489}} \quad \mathbb{Q}_{2,3}^{(1,1;c)}(T_g, a) = \frac{\sqrt{3}\mathbb{Q}_0^{(1,1;a)}(A_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{3}$$

$$\boxed{\text{z490}} \quad \mathbb{Q}_{2,1}^{(1,1;c)}(T_g, b) = -\frac{\mathbb{M}_{1,1}^{(1,1;a)}(T_g)\mathbb{T}_{2,1}^{(b)}(E_g)}{2} - \frac{\sqrt{3}\mathbb{M}_{1,1}^{(1,1;a)}(T_g)\mathbb{T}_{2,2}^{(b)}(E_g)}{6}$$

$$\boxed{\text{z491}} \quad \mathbb{Q}_{2,2}^{(1,1;c)}(T_g, b) = \frac{\mathbb{M}_{1,2}^{(1,1;a)}(T_g)\mathbb{T}_{2,1}^{(b)}(E_g)}{2} - \frac{\sqrt{3}\mathbb{M}_{1,2}^{(1,1;a)}(T_g)\mathbb{T}_{2,2}^{(b)}(E_g)}{6}$$

$$\boxed{\text{z492}} \quad \mathbb{Q}_{2,3}^{(1,1;c)}(T_g, b) = \frac{\sqrt{3}\mathbb{M}_{1,3}^{(1,1;a)}(T_g)\mathbb{T}_{2,2}^{(b)}(E_g)}{3}$$

$$\boxed{\text{z493}} \quad \mathbb{Q}_{2,1}^{(1,1;c)}(T_g, c) = \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,1;a)}(T_g)\mathbb{M}_{1,3}^{(b)}(T_g)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,1;a)}(T_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{6}$$

$$\boxed{\text{z494}} \quad \mathbb{Q}_{2,2}^{(1,1;c)}(T_g, c) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,1;a)}(T_g)\mathbb{M}_{1,3}^{(b)}(T_g)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,1;a)}(T_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{6}$$

$$\boxed{\text{z495}} \quad \mathbb{Q}_{2,3}^{(1,1;c)}(T_g, c) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,1;a)}(T_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,1;a)}(T_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{6}$$

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

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

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

$$\boxed{\text{z499}} \quad \mathbb{G}_{1,1}^{(c)}(T_g, b) = \frac{\sqrt{3}\mathbb{M}_{1,1}^{(a)}(T_g)\mathbb{T}_0^{(b)}(A_g)}{3}$$

$$\boxed{\text{z500}} \quad \mathbb{G}_{1,2}^{(c)}(T_g, b) = \frac{\sqrt{3}\mathbb{M}_{1,2}^{(a)}(T_g)\mathbb{T}_0^{(b)}(A_g)}{3}$$

$$\boxed{\text{z501}} \quad \mathbb{G}_{1,3}^{(c)}(T_g, b) = \frac{\sqrt{3}\mathbb{M}_{1,3}^{(a)}(T_g)\mathbb{T}_0^{(b)}(A_g)}{3}$$

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

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

$$\boxed{\text{z504}} \quad \mathbb{G}_{1,3}^{(c)}(T_g, c) = \frac{\sqrt{3}\mathbb{M}_{1,3}^{(a)}(T_g)\mathbb{T}_{2,1}^{(b)}(E_g)}{3}$$

$$\boxed{\text{z505}} \quad \mathbb{G}_{1,1}^{(c)}(T_g, d) = \frac{\sqrt{6}\mathbb{M}_{1,2}^{(a)}(T_g)\mathbb{M}_{1,3}^{(b)}(T_g)}{6} - \frac{\sqrt{6}\mathbb{M}_{1,3}^{(a)}(T_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{6}$$

$$\boxed{\text{z506}} \quad \mathbb{G}_{1,2}^{(c)}(T_g, d) = -\frac{\sqrt{6}\mathbb{M}_{1,1}^{(a)}(T_g)\mathbb{M}_{1,3}^{(b)}(T_g)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(a)}(T_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{6}$$

$$\boxed{\text{z507}} \quad \mathbb{G}_{1,3}^{(c)}(T_g, d) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(a)}(T_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{6} - \frac{\sqrt{6}\mathbb{M}_{1,2}^{(a)}(T_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{6}$$

$$\boxed{\text{z508}} \quad \mathbb{G}_{3,1}^{(c)}(T_g, 1) = \frac{\sqrt{10}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{20} - \frac{\sqrt{10}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{20} - \frac{\sqrt{30}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{60} + \frac{\sqrt{30}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{60} - \frac{\sqrt{30}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{15} + \frac{\sqrt{30}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{15}$$

$$\boxed{\text{z509}} \quad \mathbb{G}_{3,2}^{(c)}(T_g, 1) = -\frac{\sqrt{10}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{20} + \frac{\sqrt{30}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{15} + \frac{\sqrt{30}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{60} + \frac{\sqrt{10}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{20} - \frac{\sqrt{30}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{60} - \frac{\sqrt{30}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{15}$$

$$\boxed{\text{z510}} \quad \mathbb{G}_{3,3}^{(c)}(T_g, 1) = -\frac{\sqrt{30}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{15} - \frac{\sqrt{30}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{30} + \frac{\sqrt{30}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{15} + \frac{\sqrt{30}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{30}$$

$$\boxed{\text{z511}} \quad \mathbb{G}_{3,1}^{(c)}(T_g, 2) = \frac{\sqrt{6}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{12} - \frac{\sqrt{6}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{12} + \frac{\sqrt{2}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{4} - \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{4}$$

$$\boxed{\text{z512}} \quad \mathbb{G}_{3,2}^{(c)}(T_g, 2) = \frac{\sqrt{6}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{12} + \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{4} - \frac{\sqrt{6}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{12} - \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{4}$$

$$\boxed{\text{z513}} \quad \mathbb{G}_{3,3}^{(c)}(T_g, 2) = -\frac{\sqrt{6}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{6} + \frac{\sqrt{6}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{6}$$

$$\boxed{\text{z514}} \quad \begin{aligned} \mathbb{G}_{1,1}^{(1,-1;c)}(T_g, a) = & -\frac{\sqrt{10}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{10} + \frac{\sqrt{10}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{10} + \frac{\sqrt{30}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{30} \\ & - \frac{\sqrt{30}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{30} - \frac{\sqrt{30}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{30} + \frac{\sqrt{30}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{30} \end{aligned}$$

$$\boxed{\text{z515}} \quad \mathbb{G}_{1,2}^{(1,-1;c)}(T_g, a) = \frac{\sqrt{10}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{10} + \frac{\sqrt{30}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{30} - \frac{\sqrt{30}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{30} \\ - \frac{\sqrt{10}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{10} + \frac{\sqrt{30}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{30} - \frac{\sqrt{30}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{30}$$

$$\boxed{\text{z516}} \quad \mathbb{G}_{1,3}^{(1,-1;c)}(T_g, a) = -\frac{\sqrt{30}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{30} + \frac{\sqrt{30}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{15} + \frac{\sqrt{30}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{30} - \frac{\sqrt{30}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{15}$$

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

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

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

$$\boxed{\text{z520}} \quad \mathbb{G}_{1,1}^{(1,-1;c)}(T_g, c) = \frac{\sqrt{3}\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{T}_0^{(b)}(A_g)}{3}$$

$$\boxed{\text{z521}} \quad \mathbb{G}_{1,2}^{(1,-1;c)}(T_g, c) = \frac{\sqrt{3}\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{T}_0^{(b)}(A_g)}{3}$$

$$\boxed{\text{z522}} \quad \mathbb{G}_{1,3}^{(1,-1;c)}(T_g, c) = \frac{\sqrt{3}\mathbb{M}_{1,3}^{(1,-1;a)}(T_g)\mathbb{T}_0^{(b)}(A_g)}{3}$$

$$\boxed{\text{z702}} \quad \mathbb{G}_{1,1}^{(1,-1;c)}(T_g, d) = -\frac{\sqrt{3}\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{T}_{2,1}^{(b)}(E_g)}{6} + \frac{\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{T}_{2,2}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z703}} \quad \mathbb{G}_{1,2}^{(1,-1;c)}(T_g, d) = -\frac{\sqrt{3}\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{T}_{2,1}^{(b)}(E_g)}{6} - \frac{\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{T}_{2,2}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z704}} \quad \mathbb{G}_{1,3}^{(1,-1;c)}(T_g, d) = \frac{\sqrt{3}\mathbb{M}_{1,3}^{(1,-1;a)}(T_g)\mathbb{T}_{2,1}^{(b)}(E_g)}{3}$$

$$\boxed{\text{z705}} \quad \mathbb{G}_{1,1}^{(1,-1;c)}(T_g, e) = \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{M}_{1,3}^{(b)}(T_g)}{6} - \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,-1;a)}(T_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{6}$$

$$\boxed{\text{z706}} \quad \mathbb{G}_{1,2}^{(1,-1;c)}(T_g, e) = -\frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{M}_{1,3}^{(b)}(T_g)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,-1;a)}(T_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{6}$$

$$\boxed{\text{z707}} \quad \mathbb{G}_{1,3}^{(1,-1;c)}(T_g, e) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{6} - \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{6}$$

$$\boxed{\text{z708}} \quad \mathbb{G}_{3,1}^{(1,-1;c)}(T_g, 1a) = \frac{\sqrt{10}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{20} - \frac{\sqrt{10}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{20} - \frac{\sqrt{30}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{60} \\ + \frac{\sqrt{30}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{60} - \frac{\sqrt{30}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{15} + \frac{\sqrt{30}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{15}$$

$$\boxed{\text{z709}} \quad \mathbb{G}_{3,2}^{(1,-1;c)}(T_g, 1a) = -\frac{\sqrt{10}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{20} + \frac{\sqrt{30}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{15} + \frac{\sqrt{30}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{60} \\ + \frac{\sqrt{10}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{20} - \frac{\sqrt{30}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{60} - \frac{\sqrt{30}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{15}$$

$$\boxed{\text{z710}} \quad \mathbb{G}_{3,3}^{(1,-1;c)}(T_g, 1a) = -\frac{\sqrt{30}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{15} - \frac{\sqrt{30}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{30} + \frac{\sqrt{30}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{15} + \frac{\sqrt{30}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{30}$$

$$\boxed{\text{z711}} \quad \mathbb{G}_{3,1}^{(1,-1;c)}(T_g, 1b) = \frac{\sqrt{3}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{T}_0^{(b)}(A_g)}{3}$$

$$\boxed{\text{z712}} \quad \mathbb{G}_{3,2}^{(1,-1;c)}(T_g, 1b) = \frac{\sqrt{3}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_0^{(b)}(A_g)}{3}$$

$$\boxed{\text{z713}} \quad \mathbb{G}_{3,3}^{(1,-1;c)}(T_g, 1b) = \frac{\sqrt{3}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{T}_0^{(b)}(A_g)}{3}$$

$$\boxed{\text{z714}} \quad \mathbb{G}_{3,1}^{(1,-1;c)}(T_g, 1c) = -\frac{\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,3}^{(b)}(T_g)}{4} - \frac{\sqrt{15}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,3}^{(b)}(T_g)}{12} + \frac{\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,2}^{(b)}(T_g)}{4} - \frac{\sqrt{15}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,2}^{(b)}(T_g)}{12}$$

$$\boxed{\text{z715}} \quad \mathbb{G}_{3,2}^{(1,-1;c)}(T_g, 1c) = \frac{\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,3}^{(b)}(T_g)}{4} - \frac{\sqrt{15}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,3}^{(b)}(T_g)}{12} - \frac{\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,1}^{(b)}(T_g)}{4} - \frac{\sqrt{15}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,1}^{(b)}(T_g)}{12}$$

$$\boxed{\text{z716}} \quad \mathbb{G}_{3,3}^{(1,-1;c)}(T_g, 1c) = -\frac{\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,2}^{(b)}(T_g)}{4} - \frac{\sqrt{15}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,2}^{(b)}(T_g)}{12} + \frac{\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,1}^{(b)}(T_g)}{4} - \frac{\sqrt{15}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,1}^{(b)}(T_g)}{12}$$

$$\boxed{\text{z717}} \quad \mathbb{G}_{3,1}^{(1,-1;c)}(T_g, 2a) = \frac{\sqrt{6}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{12} - \frac{\sqrt{6}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{12} + \frac{\sqrt{2}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{4} - \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{4}$$

$$\boxed{\text{z718}} \quad \mathbb{G}_{3,2}^{(1,-1;c)}(T_g, 2a) = \frac{\sqrt{6}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{12} + \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{4} - \frac{\sqrt{6}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{12} - \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{4}$$

$$\boxed{\text{z719}} \quad \mathbb{G}_{3,3}^{(1,-1;c)}(T_g, 2a) = -\frac{\sqrt{6}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{6} + \frac{\sqrt{6}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{6}$$

$$\boxed{\text{z784}} \quad \mathbb{G}_{3,1}^{(1,-1;c)}(T_g, 2b) = \frac{\sqrt{3}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_0^{(b)}(A_g)}{3}$$

$$\boxed{\text{z785}} \quad \mathbb{G}_{3,2}^{(1,-1;c)}(T_g, 2b) = \frac{\sqrt{3}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_0^{(b)}(A_g)}{3}$$

$$\boxed{\text{z786}} \quad \mathbb{G}_{3,3}^{(1,-1;c)}(T_g, 2b) = \frac{\sqrt{3}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{T}_0^{(b)}(A_g)}{3}$$

$$\boxed{\text{z787}} \quad \mathbb{G}_{3,1}^{(1,-1;c)}(T_g, 2c) = \frac{\sqrt{15}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,3}^{(b)}(T_g)}{12} + \frac{\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,3}^{(b)}(T_g)}{12} + \frac{\sqrt{15}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,2}^{(b)}(T_g)}{12} - \frac{\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,2}^{(b)}(T_g)}{12} + \frac{\mathbb{M}_3^{(1,-1;a)}(A_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{3}$$

$$\boxed{\text{z788}} \quad \mathbb{G}_{3,2}^{(1,-1;c)}(T_g, 2c) = \frac{\sqrt{15}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,3}^{(b)}(T_g)}{12} - \frac{\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,3}^{(b)}(T_g)}{12} + \frac{\sqrt{15}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,1}^{(b)}(T_g)}{12} + \frac{\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,1}^{(b)}(T_g)}{12} + \frac{\mathbb{M}_3^{(1,-1;a)}(A_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{3}$$

$$\boxed{\text{z789}} \quad \mathbb{G}_{3,3}^{(1,-1;c)}(T_g, 2c) = \frac{\sqrt{15}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,2}^{(b)}(T_g)}{12} + \frac{\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,2}^{(b)}(T_g)}{12} + \frac{\sqrt{15}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{M}_{1,1}^{(b)}(T_g)}{12} - \frac{\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{M}_{1,1}^{(b)}(T_g)}{12} + \frac{\mathbb{M}_3^{(1,-1;a)}(A_g)\mathbb{M}_{1,3}^{(b)}(T_g)}{3}$$

$$\boxed{\text{z790}} \quad \mathbb{G}_{1,1}^{(1,0;c)}(T_g, a) = \frac{\sqrt{3}\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_0^{(b)}(A_g)}{3}$$

$$\boxed{\text{z791}} \quad \mathbb{G}_{1,2}^{(1,0;c)}(T_g, a) = \frac{\sqrt{3}\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_0^{(b)}(A_g)}{3}$$

$$\boxed{\text{z792}} \quad \mathbb{G}_{1,3}^{(1,0;c)}(T_g, a) = \frac{\sqrt{3}\mathbb{G}_{1,3}^{(1,0;a)}(T_g)\mathbb{Q}_0^{(b)}(A_g)}{3}$$

$$\boxed{\text{z793}} \quad \mathbb{G}_{1,1}^{(1,0;c)}(T_g, b) = -\frac{\sqrt{30}\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{30} + \frac{\sqrt{10}\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{10} + \frac{\sqrt{10}\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{10} + \frac{\sqrt{10}\mathbb{G}_{1,3}^{(1,0;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{10}$$

$$\boxed{\text{z794}} \quad \mathbb{G}_{1,2}^{(1,0;c)}(T_g, b) = \frac{\sqrt{10}\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{10} - \frac{\sqrt{30}\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{30} - \frac{\sqrt{10}\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{10} + \frac{\sqrt{10}\mathbb{G}_{1,3}^{(1,0;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{10}$$

$$\boxed{\text{z795}} \quad \mathbb{G}_{1,3}^{(1,0;c)}(T_g, b) = \frac{\sqrt{10}\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{10} + \frac{\sqrt{10}\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{10} + \frac{\sqrt{30}\mathbb{G}_{1,3}^{(1,0;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{15}$$

$$\boxed{\text{z796}} \quad \mathbb{G}_{1,1}^{(1,0;c)}(T_g, c) = -\frac{\sqrt{30}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{30} + \frac{\sqrt{10}\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{10} + \frac{\sqrt{10}\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{M}_{1,3}^{(b)}(T_g)}{10} + \frac{\sqrt{10}\mathbb{T}_{2,3}^{(1,0;a)}(T_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{10}$$

$$\boxed{\text{z797}} \quad \mathbb{G}_{1,2}^{(1,0;c)}(T_g, c) = -\frac{\sqrt{30}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{30} + \frac{\sqrt{10}\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{M}_{1,3}^{(b)}(T_g)}{10} - \frac{\sqrt{10}\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{10} + \frac{\sqrt{10}\mathbb{T}_{2,3}^{(1,0;a)}(T_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{10}$$

$$\boxed{\text{z798}} \quad \mathbb{G}_{1,3}^{(1,0;c)}(T_g, c) = \frac{\sqrt{30}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{M}_{1,3}^{(b)}(T_g)}{15} + \frac{\sqrt{10}\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{10} + \frac{\sqrt{10}\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{10}$$

$$\boxed{\text{z799}} \quad \mathbb{G}_{3,1}^{(1,0;c)}(T_g, 1a) = -\frac{\sqrt{5}\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{10} + \frac{\sqrt{15}\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{10} - \frac{\sqrt{15}\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{15} - \frac{\sqrt{15}\mathbb{G}_{1,3}^{(1,0;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{15}$$

$$\boxed{\text{z800}} \quad \mathbb{G}_{3,2}^{(1,0;c)}(T_g, 1a) = -\frac{\sqrt{15}\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{15} - \frac{\sqrt{5}\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{10} - \frac{\sqrt{15}\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{10} - \frac{\sqrt{15}\mathbb{G}_{1,3}^{(1,0;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{15}$$

$$\boxed{\text{z801}} \quad \mathbb{G}_{3,3}^{(1,0;c)}(T_g, 1a) = -\frac{\sqrt{15}\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{15} - \frac{\sqrt{15}\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{15} + \frac{\sqrt{5}\mathbb{G}_{1,3}^{(1,0;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{5}$$

$$\boxed{\text{z802}} \quad \mathbb{G}_{3,1}^{(1,0;c)}(T_g, 1b) = -\frac{\sqrt{5}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{10} + \frac{\sqrt{15}\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{10} - \frac{\sqrt{15}\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{M}_{1,3}^{(b)}(T_g)}{15} - \frac{\sqrt{15}\mathbb{T}_{2,3}^{(1,0;a)}(T_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{15}$$

$$\boxed{\text{z803}} \quad \mathbb{G}_{3,2}^{(1,0;c)}(T_g, 1b) = -\frac{\sqrt{5}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{10} - \frac{\sqrt{15}\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{M}_{1,3}^{(b)}(T_g)}{15} - \frac{\sqrt{15}\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{10} - \frac{\sqrt{15}\mathbb{T}_{2,3}^{(1,0;a)}(T_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{15}$$

$$\boxed{\text{z804}} \quad \mathbb{G}_{3,3}^{(1,0;c)}(T_g, 1b) = \frac{\sqrt{5}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{M}_{1,3}^{(b)}(T_g)}{5} - \frac{\sqrt{15}\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{15} - \frac{\sqrt{15}\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{15}$$

$$\boxed{\text{z805}} \quad \mathbb{G}_{3,1}^{(1,0;c)}(T_g, 2a) = -\frac{\sqrt{3}\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{6} - \frac{\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{6} + \frac{\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{3} - \frac{\mathbb{G}_{1,3}^{(1,0;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{3}$$

$$\boxed{\text{z806}} \quad \mathbb{G}_{3,2}^{(1,0;c)}(T_g, 2a) = -\frac{\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{2,3}^{(b)}(T_g)}{3} + \frac{\sqrt{3}\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{6} - \frac{\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{6} + \frac{\mathbb{G}_{1,3}^{(1,0;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{3}$$

$$\boxed{\text{z807}} \quad \mathbb{G}_{3,3}^{(1,0;c)}(T_g, 2a) = \frac{\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(T_g)}{3} - \frac{\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(T_g)}{3} + \frac{\mathbb{G}_{1,3}^{(1,0;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{3}$$

$$\boxed{\text{z808}} \quad \mathbb{G}_{3,1}^{(1,0;c)}(T_g, 2b) = -\frac{\sqrt{3}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{6} - \frac{\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{6} - \frac{\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{M}_{1,3}^{(b)}(T_g)}{3} + \frac{\mathbb{T}_{2,3}^{(1,0;a)}(T_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{3}$$

$$\boxed{\text{z809}} \quad \mathbb{G}_{3,2}^{(1,0;c)}(T_g, 2b) = \frac{\sqrt{3}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{6} + \frac{\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{M}_{1,3}^{(b)}(T_g)}{3} - \frac{\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{6} - \frac{\mathbb{T}_{2,3}^{(1,0;a)}(T_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{3}$$

$$\boxed{\text{z810}} \quad \mathbb{G}_{3,3}^{(1,0;c)}(T_g, 2b) = -\frac{\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{3} + \frac{\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{M}_{1,3}^{(b)}(T_g)}{3} + \frac{\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{3}$$

$$\boxed{\text{z811}} \quad \mathbb{G}_{1,1}^{(1,1;c)}(T_g, a) = \frac{\sqrt{3}\mathbb{M}_{1,1}^{(1,1;a)}(T_g)\mathbb{T}_0^{(b)}(A_g)}{3}$$

$$\boxed{\text{z812}} \quad \mathbb{G}_{1,2}^{(1,1;c)}(T_g, a) = \frac{\sqrt{3}\mathbb{M}_{1,2}^{(1,1;a)}(T_g)\mathbb{T}_0^{(b)}(A_g)}{3}$$

$$\boxed{\text{z813}} \quad \mathbb{G}_{1,3}^{(1,1;c)}(T_g, a) = \frac{\sqrt{3}\mathbb{M}_{1,3}^{(1,1;a)}(T_g)\mathbb{T}_0^{(b)}(A_g)}{3}$$

$$\boxed{\text{z814}} \quad \mathbb{G}_{1,1}^{(1,1;c)}(T_g, b) = -\frac{\sqrt{3}\mathbb{M}_{1,1}^{(1,1;a)}(T_g)\mathbb{T}_{2,1}^{(b)}(E_g)}{6} + \frac{\mathbb{M}_{1,1}^{(1,1;a)}(T_g)\mathbb{T}_{2,2}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z815}} \quad \mathbb{G}_{1,2}^{(1,1;c)}(T_g, b) = -\frac{\sqrt{3}\mathbb{M}_{1,2}^{(1,1;a)}(T_g)\mathbb{T}_{2,1}^{(b)}(E_g)}{6} - \frac{\mathbb{M}_{1,2}^{(1,1;a)}(T_g)\mathbb{T}_{2,2}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z816}} \quad \mathbb{G}_{1,3}^{(1,1;c)}(T_g, b) = \frac{\sqrt{3}\mathbb{M}_{1,3}^{(1,1;a)}(T_g)\mathbb{T}_{2,1}^{(b)}(E_g)}{3}$$

$$\boxed{\text{z817}} \quad \mathbb{G}_{1,1}^{(1,1;c)}(T_g, c) = \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,1;a)}(T_g)\mathbb{M}_{1,3}^{(b)}(T_g)}{6} - \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,1;a)}(T_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{6}$$

$$\boxed{\text{z818}} \quad \mathbb{G}_{1,2}^{(1,1;c)}(T_g, c) = -\frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,1;a)}(T_g)\mathbb{M}_{1,3}^{(b)}(T_g)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,1;a)}(T_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{6}$$

$$\boxed{\text{z819}} \quad \mathbb{G}_{1,3}^{(1,1;c)}(T_g, c) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,1;a)}(T_g)\mathbb{M}_{1,2}^{(b)}(T_g)}{6} - \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,1;a)}(T_g)\mathbb{M}_{1,1}^{(b)}(T_g)}{6}$$

$$\boxed{\text{z1033}} \quad \mathbb{Q}_{1,1}^{(c)}(T_u, a) = \frac{\sqrt{3}\mathbb{Q}_0^{(a)}(A_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z1034}} \quad \mathbb{Q}_{1,2}^{(c)}(T_u, a) = \frac{\sqrt{3}\mathbb{Q}_0^{(a)}(A_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z1035}} \quad \mathbb{Q}_{1,3}^{(c)}(T_u, a) = \frac{\sqrt{3}\mathbb{Q}_0^{(a)}(A_g)\mathbb{Q}_{1,3}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z1036}} \quad \mathbb{Q}_{1,1}^{(c)}(T_u, b) = -\frac{\sqrt{30}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{30} + \frac{\sqrt{10}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{10} + \frac{\sqrt{10}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{1,3}^{(b)}(T_u)}{10} + \frac{\sqrt{10}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{10}$$

$$\boxed{\text{z1037}} \quad \mathbb{Q}_{1,2}^{(c)}(T_u, b) = -\frac{\sqrt{30}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{30} + \frac{\sqrt{10}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{1,3}^{(b)}(T_u)}{10} - \frac{\sqrt{10}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{10} + \frac{\sqrt{10}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{10}$$

$$\boxed{\text{z1038}} \quad \mathbb{Q}_{1,3}^{(c)}(T_u, b) = \frac{\sqrt{30}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{1,3}^{(b)}(T_u)}{15} + \frac{\sqrt{10}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{10} + \frac{\sqrt{10}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{10}$$

$$\boxed{\text{z1039}} \quad \mathbb{Q}_{1,1}^{(c)}(T_u, c) = -\frac{\sqrt{5}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{10} + \frac{\sqrt{15}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{10} - \frac{\sqrt{15}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{15} - \frac{\sqrt{15}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{15}$$

$$\boxed{\text{z1040}} \quad \mathbb{Q}_{1,2}^{(c)}(T_u, c) = -\frac{\sqrt{5}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{10} - \frac{\sqrt{15}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{15} - \frac{\sqrt{15}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{10} - \frac{\sqrt{15}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{15}$$

$$\boxed{\text{z1041}} \quad \mathbb{Q}_{1,3}^{(c)}(T_u, c) = \frac{\sqrt{5}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{5} - \frac{\sqrt{15}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{15} - \frac{\sqrt{15}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{15}$$

$$\boxed{\text{z1042}} \quad \mathbb{Q}_{1,1}^{(c)}(T_u, d) = \frac{\sqrt{6}\mathbb{M}_{1,2}^{(a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u, a)}{6} - \frac{\sqrt{6}\mathbb{M}_{1,3}^{(a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u, a)}{6}$$

$$\boxed{\text{z1043}} \quad \mathbb{Q}_{1,2}^{(c)}(T_u, d) = -\frac{\sqrt{6}\mathbb{M}_{1,1}^{(a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u, a)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u, a)}{6}$$

$$\boxed{\text{z1044}} \quad \mathbb{Q}_{1,3}^{(c)}(T_u, d) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u, a)}{6} - \frac{\sqrt{6}\mathbb{M}_{1,2}^{(a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u, a)}{6}$$

$$\boxed{\text{z1045}} \quad \mathbb{Q}_{1,1}^{(c)}(T_u, e) = \frac{\sqrt{6}\mathbb{M}_{1,2}^{(a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u, b)}{6} - \frac{\sqrt{6}\mathbb{M}_{1,3}^{(a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u, b)}{6}$$

$$\boxed{\text{z1046}} \quad \mathbb{Q}_{1,2}^{(c)}(T_u, e) = -\frac{\sqrt{6}\mathbb{M}_{1,1}^{(a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u, b)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u, b)}{6}$$

$$\boxed{\text{z1047}} \quad \mathbb{Q}_{1,3}^{(c)}(T_u, e) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u, b)}{6} - \frac{\sqrt{6}\mathbb{M}_{1,2}^{(a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u, b)}{6}$$

$$\boxed{\text{z1048}} \quad \mathbb{Q}_{3,1}^{(c)}(T_u, 1a) = \frac{\sqrt{3}\mathbb{Q}_0^{(a)}(A_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{3}$$

$$\boxed{\text{z1049}} \quad \mathbb{Q}_{3,2}^{(c)}(T_u, 1a) = \frac{\sqrt{3}\mathbb{Q}_0^{(a)}(A_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{3}$$

$$\boxed{\text{z1050}} \quad \mathbb{Q}_{3,3}^{(c)}(T_u, 1a) = \frac{\sqrt{3}\mathbb{Q}_0^{(a)}(A_g)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{3}$$

$$\boxed{\text{z1051}} \quad \mathbb{Q}_{3,1}^{(c)}(T_u, 1b) = -\frac{\sqrt{5}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{10} + \frac{\sqrt{15}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{10} - \frac{\sqrt{15}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{1,3}^{(b)}(T_u)}{15} - \frac{\sqrt{15}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{15}$$

$$\boxed{\text{z1052}} \quad \mathbb{Q}_{3,2}^{(c)}(T_u, 1b) = -\frac{\sqrt{5}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{10} - \frac{\sqrt{15}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{1,3}^{(b)}(T_u)}{15} - \frac{\sqrt{15}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{10} - \frac{\sqrt{15}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{15}$$

$$\boxed{\text{z1053}} \quad \mathbb{Q}_{3,3}^{(c)}(T_u, 1b) = \frac{\sqrt{5}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{1,3}^{(b)}(T_u)}{5} - \frac{\sqrt{15}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{15} - \frac{\sqrt{15}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{15}$$

$$\boxed{\text{z1054}} \quad \mathbb{Q}_{3,1}^{(c)}(T_u, 1c) = -\frac{\sqrt{30}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{30} + \frac{\sqrt{10}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{10} + \frac{\sqrt{10}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{10} + \frac{\sqrt{10}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{10}$$

$$\boxed{\text{z1055}} \quad \mathbb{Q}_{3,2}^{(c)}(T_u, 1c) = -\frac{\sqrt{30}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{30} + \frac{\sqrt{10}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{10} - \frac{\sqrt{10}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{10} + \frac{\sqrt{10}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{10}$$

$$\boxed{\text{z1056}} \quad \mathbb{Q}_{3,3}^{(c)}(T_u, 1c) = \frac{\sqrt{30}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{15} + \frac{\sqrt{10}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{10} + \frac{\sqrt{10}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{10}$$

$$\boxed{\text{z1057}} \quad \mathbb{Q}_{3,1}^{(c)}(T_u, 2a) = -\frac{\sqrt{3}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{6} - \frac{\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{6} - \frac{\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{1,3}^{(b)}(T_u)}{3} + \frac{\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z1058}} \quad \mathbb{Q}_{3,2}^{(c)}(T_u, 2a) = \frac{\sqrt{3}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{6} + \frac{\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{1,3}^{(b)}(T_u)}{3} - \frac{\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{6} - \frac{\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z1059}} \quad \mathbb{Q}_{3,3}^{(c)}(T_u, 2a) = -\frac{\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{3} + \frac{\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{1,3}^{(b)}(T_u)}{3} + \frac{\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z1060}} \quad \mathbb{Q}_{3,1}^{(c)}(T_u, 2b) = \frac{\sqrt{2}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{3} + \frac{\sqrt{6}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{9} - \frac{\sqrt{6}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{18} + \frac{\sqrt{6}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{18}$$

$$\boxed{\text{z1061}} \quad \mathbb{Q}_{3,2}^{(c)}(T_u, 2b) = -\frac{\sqrt{2}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{3} + \frac{\sqrt{6}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{18} + \frac{\sqrt{6}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{9} - \frac{\sqrt{6}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{18}$$

$$\boxed{\text{z1062}} \quad \mathbb{Q}_{3,3}^{(c)}(T_u, 2b) = -\frac{\sqrt{6}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{18} - \frac{2\sqrt{6}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{9} + \frac{\sqrt{6}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{18}$$

$$\boxed{\text{z1063}} \quad \mathbb{Q}_{5,1}^{(c)}(T_u, 3) = \frac{\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{6} + \frac{\sqrt{3}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{18} + \frac{2\sqrt{3}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{9} - \frac{2\sqrt{3}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{9}$$

$$\boxed{\text{z1064}} \quad \mathbb{Q}_{5,2}^{(c)}(T_u, 3) = -\frac{\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{6} - \frac{2\sqrt{3}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{9} + \frac{\sqrt{3}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{18} + \frac{2\sqrt{3}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{9}$$

$$\boxed{\text{z1065}} \quad \mathbb{Q}_{5,3}^{(c)}(T_u, 3) = \frac{2\sqrt{3}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{9} - \frac{\sqrt{3}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{9} - \frac{2\sqrt{3}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{9}$$

$$\text{z1066} \quad \mathbb{Q}_{1,1}^{(1,-1;c)}(T_u, a) = -\frac{\sqrt{30}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{30} + \frac{\sqrt{10}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{10} + \frac{\sqrt{10}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,3}^{(b)}(T_u)}{10} + \frac{\sqrt{10}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{10}$$

$$\text{z1067} \quad \mathbb{Q}_{1,2}^{(1,-1;c)}(T_u, a) = -\frac{\sqrt{30}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{30} + \frac{\sqrt{10}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,3}^{(b)}(T_u)}{10} - \frac{\sqrt{10}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{10} + \frac{\sqrt{10}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{10}$$

$$\text{z1068} \quad \mathbb{Q}_{1,3}^{(1,-1;c)}(T_u, a) = \frac{\sqrt{30}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{1,3}^{(b)}(T_u)}{15} + \frac{\sqrt{10}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{10} + \frac{\sqrt{10}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{10}$$

$$\boxed{z1069} \quad \mathbb{Q}_{1,1}^{(1,-1;c)}(T_u, b) = -\frac{\sqrt{5}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)} + \frac{\sqrt{15}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)} - \frac{\sqrt{15}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)} - \frac{\sqrt{15}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}$$

$$\boxed{z1070} \quad \mathbb{Q}_{1,2}^{(1,-1;c)}(T_u, b) = -\frac{\sqrt{5}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{} - \frac{\sqrt{15}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{} - \frac{\sqrt{15}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{} - \frac{\sqrt{15}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{}$$

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

$$\boxed{z1072} \quad \mathbb{Q}_{\mathbb{C}}^{(1,-1;c)}(T_u, c) = \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u, a)}{\sqrt{6}\mathbb{M}_{1,3}^{(1,-1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u, a)}$$

$$z1073 \quad \mathbb{O}^{(1,-1;c)}(T-c) = -\frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u,a)}{} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,-1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u,a)}{}$$

$$\left[\begin{smallmatrix} z & 1 & 0 & 7 & 4 \\ \end{smallmatrix} \right] \cap {}^{(1,-1;c)}(T_{-c}) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u,a)}{\sqrt{6}\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u,a)}$$

$$\cap^{(1,-1;c)}(T_d) = \sqrt{6}\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u,b) - \sqrt{6}\mathbb{M}_{1,3}^{(1,-1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u,b)$$

$$\cap_{\mathcal{C} \in \mathcal{C}_0}^{(1,-1;c)} \subset \mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u,b) \cap \mathbb{M}_{1,3}^{(1,-1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u,b)$$

$$\begin{array}{ccccc} & & \mathbf{6} & & \\ \fbox{\fbox{}} & (1,-1;a) & \sqrt{6}\mathbb{M}_{\frac{1}{2},\frac{1}{2}}^{(1,-1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u,b) & \sqrt{6}\mathbb{M}_{\frac{1}{2},\frac{1}{2}}^{(1,-1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u,b) & \end{array}$$

$$\overline{\text{---}} \quad (1,-1,\infty) \qquad \qquad \sqrt{5} \mathbb{O}_{\text{---}}^{(1,-1;a)}(E_G) \mathbb{O}_{\text{---}}^{(b)}(T_{\text{---}}) = \sqrt{15} \mathbb{O}_{\text{---}}^{(1,-1;a)}(E_G) \mathbb{O}_{\text{---}}^{(b)}(T_{\text{---}})$$

z1019 $\Psi_{3,2}$ ($I_u, 1d$) = —————— 10 —————— 15 —————— 10 —————— 15

$$\text{z1080} \quad \mathbb{Q}_{3,3}^{(1,-1;c)}(T_u, 1a) = \frac{\sqrt{5}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{1,3}^{(b)}(T_u)}{5} - \frac{\sqrt{15}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{15} - \frac{\sqrt{15}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{15}$$

$$\text{z1081} \quad \mathbb{Q}_{3,1}^{(1,-1;c)}(T_u, 1b) = -\frac{\sqrt{30}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{30} + \frac{\sqrt{10}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{10} + \frac{\sqrt{10}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{10} + \frac{\sqrt{10}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{10}$$

$$\text{z1082} \quad \mathbb{Q}_{3,2}^{(1,-1;c)}(T_u, 1b) = -\frac{\sqrt{30}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{30} + \frac{\sqrt{10}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{10} - \frac{\sqrt{10}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{10} + \frac{\sqrt{10}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{10}$$

$$\text{z1083} \quad \mathbb{Q}_{3,3}^{(1,-1;c)}(T_u, 1b) = \frac{\sqrt{30}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{15} + \frac{\sqrt{10}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{10} + \frac{\sqrt{10}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{10}$$

$$\boxed{\text{z1084}} \quad \mathbb{Q}_{3,1}^{(1,-1;c)}(T_u, 1c) = -\frac{\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,3}^{(b)}(T_u, a)}{\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)} - \frac{\sqrt{15}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,3}^{(b)}(T_u, a)}{\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)} + \frac{\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,2}^{(b)}(T_u, a)}{\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)} - \frac{\sqrt{15}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,2}^{(b)}(T_u, a)}{\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)}$$

$$\boxed{\text{z1085}} \quad \mathbb{Q}_{3,2}^{(1,-1;c)}(T_u, 1c) = \frac{\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,3}^{(b)}(T_u, a)}{1} - \frac{\sqrt{15}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,3}^{(b)}(T_u, a)}{1} - \frac{\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,1}^{(b)}(T_u, a)}{1} - \frac{\sqrt{15}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,1}^{(b)}(T_u, a)}{1}$$

$$\text{z1086} \quad \mathbb{Q}_{3,2}^{(1,-1;c)}(T_u, 1c) = -\frac{\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,2}^{(b)}(T_u, a)}{} - \frac{\sqrt{15}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,2}^{(b)}(T_u, a)}{} + \frac{\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,1}^{(b)}(T_u, a)}{} - \frac{\sqrt{15}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,1}^{(b)}(T_u, a)}{}$$

$$\text{z1087} \quad \mathbb{Q}_{3,1}^{(1,-1;c)}(T_u, 1d) = -\frac{-3z}{4} - \frac{(-3z)}{12} + \frac{3z}{4} - \frac{(-3z)}{12}$$

$$\boxed{z1088} \quad \mathbb{Q}_{3,2}^{(1,-1;e)}(T_u, 1d) = \frac{\tau_{\alpha3,1} - (\tau g, \tau) \pm 1,3(\tau u, \sigma)}{4} - \frac{\sqrt{15}\tau_{23,1} - (\tau g, \tau) \pm 1,3(\tau u, \sigma)}{12} - \frac{\tau_{\alpha3,3} - (\tau g, \tau) \pm 1,1(\tau u, \sigma)}{4} - \frac{\sqrt{15}\tau_{3,3} - (\tau g, \tau) \pm 1,1(\tau u, \sigma)}{12}$$

$$\boxed{z1089} \quad \mathbb{Q}_{3,3}^{(1,-1;c)}(Tu, 1d) = -\frac{\text{iv}_{3,1}}{4} \frac{(\text{v}_g, \text{v})_{1,2}(\text{v}_u, \text{o})}{12} - \frac{\sqrt{15}\text{iv}_{3,1}}{12} \frac{(\text{v}_g, \text{z})_{1,2}(\text{v}_u, \text{o})}{+} + \frac{\text{iv}_{3,2}}{4} \frac{(\text{v}_g, \text{v})_{1,1}(\text{v}_u, \text{o})}{12} - \frac{\sqrt{15}\text{iv}_{3,2}}{12} \frac{(\text{v}_g, \text{z})_{1,1}(\text{v}_u, \text{o})}{}$$

$$\boxed{z1090} \quad \mathbb{Q}_{3,1}^{(1,-1;c)}(Tu, 2a) = -\frac{\sqrt{3}\mathbb{Q}_{2,1}}{6} - \frac{\mathbb{Q}_{2,2}}{6} - \frac{(Eg)\mathbb{Q}_{1,1}(Tu)}{3} + \frac{\mathbb{Q}_{2,3}}{3} + \frac{(Ig)\mathbb{Q}_{1,3}(Tu)}{3}$$

$$\boxed{z1091} \quad \mathbb{Q}_{3,2}^{(1,-1;c)}(T_u, 2a) = \frac{\sqrt{3}\mathbb{Q}_{2,1}}{6} (E_g)\mathbb{Q}_{1,2}(T_u) + \frac{\mathbb{Q}_{2,1}}{3} (I_g)\mathbb{Q}_{1,3}(T_u) - \frac{\mathbb{Q}_{2,2}}{6} (E_g)\mathbb{Q}_{1,2}(T_u) - \frac{\mathbb{Q}_{2,3}}{3} (I_g)\mathbb{Q}_{1,1}(T_u)$$

$$\boxed{z1092} \quad \mathbb{Q}_{3,3}^{(1,-1;c)}(T_u, 2a) = -\frac{\mathbb{Q}_{2,1}^{(1,-1,c)}(T_g)\mathbb{Q}_{1,2}^{(1,-1)}(T_u)}{3} + \frac{\mathbb{Q}_{2,2}^{(1,-1,c)}(E_g)\mathbb{Q}_{1,3}^{(1,-1)}(T_u)}{3} + \frac{\mathbb{Q}_{2,2}^{(1,-1,c)}(T_g)\mathbb{Q}_{1,1}^{(1,-1)}(T_u)}{3}$$

$$\boxed{\text{z1093}} \quad \mathbb{Q}_{3,1}^{(1,-1;c)}(T_u, 2b) = \frac{\sqrt{2}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{3} + \frac{\sqrt{6}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{9} - \frac{\sqrt{6}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{18} + \frac{\sqrt{6}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{18}$$

$$\text{z1094} \quad \mathbb{Q}_{3,2}^{(1,-1;c)}(T_u, 2b) = -\frac{\sqrt{2}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{3} + \frac{\sqrt{6}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{18} + \frac{\sqrt{6}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{9} - \frac{\sqrt{6}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{18}$$

$$\text{z1095} \quad \mathbb{Q}_{3,3}^{(1,-1;c)}(T_u, 2b) = -\frac{\sqrt{6}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{18} - \frac{2\sqrt{6}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{9} + \frac{\sqrt{6}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{18}$$

$$\text{z1096} \quad \mathbb{Q}_{3,1}^{(1,-1;c)}(T_u, 2c) = \frac{\sqrt{15}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,3}^{(b)}(T_u, a)}{12} + \frac{\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,3}^{(b)}(T_u, a)}{12} + \frac{\sqrt{15}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,2}^{(b)}(T_u, a)}{12} - \frac{\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,2}^{(b)}(T_u, a)}{12} + \frac{\mathbb{M}_3^{(1,-1;a)}(A_g)\mathbb{T}_{1,1}^{(b)}(T_u, a)}{2}$$

$$\boxed{\text{z1097}} \quad \mathbb{Q}_{3,2}^{(1,-1;c)}(T_u, 2c) = \frac{\sqrt{15}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,3}^{(b)}(T_u, a)}{12} - \frac{\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,3}^{(b)}(T_u, a)}{12} + \frac{\sqrt{15}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,1}^{(b)}(T_u, a)}{12} + \frac{\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,1}^{(b)}(T_u, a)}{12} + \frac{\mathbb{M}_3^{(1,-1;a)}(A_g)\mathbb{T}_{1,2}^{(b)}(T_u, a)}{2}$$

$$\boxed{z1098} \quad \mathbb{Q}_{3,3}^{(1,-1;c)}(T_u, 2c) = \frac{\sqrt{15}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,2}^{(b)}(T_u, a)}{+} + \frac{\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,2}^{(b)}(T_u, a)}{+} + \frac{\sqrt{15}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,1}^{(b)}(T_u, a)}{-} - \frac{\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,1}^{(b)}(T_u, a)}{+} + \frac{\mathbb{M}_3^{(1,-1;a)}(A_g)\mathbb{T}_{1,3}^{(b)}(T_u, a)}{}$$

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

$$\boxed{z_{1100}} \quad \mathbb{O}^{(1,-1;c)}(T, -2d) = \frac{\sqrt{15}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,3}^{(b)}(T_u, b)}{} - \frac{\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,3}^{(b)}(T_u, b)}{} + \frac{\sqrt{15}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,1}^{(b)}(T_u, b)}{} + \frac{\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,1}^{(b)}(T_u, b)}{} + \frac{\mathbb{M}_3^{(1,-1;a)}(A_g)\mathbb{T}_{1,2}^{(b)}(T_u, b)}{}$$

$$\mathbb{M}_{3,1}^{(1,-1;a)}(T_g,1)\mathbb{T}_{1,2}^{(b)}(T_u,b) + \mathbb{M}_{3,1}^{(1,-1;a)}(T_g,2)\mathbb{T}_{1,2}^{(b)}(T_u,b) + \sqrt{15}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g,1)\mathbb{T}_{1,1}^{(b)}(T_u,b) + \mathbb{M}_{3,2}^{(1,-1;a)}(T_g,2)\mathbb{T}_{1,1}^{(b)}(T_u,b) + \mathbb{M}_3^{(1,-1;a)}(A_g)\mathbb{T}_{1,3}^{(b)}(T_u,b)$$

$$\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{3,1}^{(b)}(T_u,1) + \sqrt{3}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{3,1}^{(b)}(T_u,1) + 2\sqrt{3}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{3,3}^{(b)}(T_u,1) + 2\sqrt{3}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{3,2}^{(b)}(T_u,1)$$

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$$\text{z1103} \quad \mathbb{Q}_{5,2}^{(1,-1;c)}(T_u, 3) = -\frac{\varphi_{2,1}}{6} - \frac{(\varphi_g)\varphi_{3,2}(Tu, 1)}{9} + \frac{\varphi\varphi_{2,2}}{18} + \frac{(\varphi_g)\varphi_{3,2}(Tu, 1)}{9}$$

$$\boxed{z1104} \quad \mathbb{Q}_{5,3}^{(1,-1;c)}(T_u, 3) = \frac{2\sqrt{3}\mathbb{Q}_{2,1}}{9}(I_g)\mathbb{Q}_{3,2}(T_u, 1) - \frac{\sqrt{3}\mathbb{Q}_{2,2}}{9}(E_g)\mathbb{Q}_{3,3}(T_u, 1) - \frac{2\sqrt{3}\mathbb{Q}_{2,2}}{9}(I_g)\mathbb{Q}_{3,1}(T_u, 1)$$

$$\boxed{z1105} \quad \mathbb{Q}_{1,1}^{(1,0;c)}(T_u, a) = \frac{\sqrt{6}\mathbb{G}_{1,2}^{(1,0;c)}(T_g)\mathbb{Q}_{1,3}^{(o)}(T_u)}{6} - \frac{\sqrt{6}\mathbb{G}_{1,3}^{(1,0;c)}(T_g)\mathbb{Q}_{1,2}^{(o)}(T_u)}{6}$$

$$\boxed{\text{z1106}} \quad \mathbb{Q}_{1,2}^{(1,0;c)}(T_u, a) = -\frac{\sqrt{6}\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{1,3}^{(b)}(T_u)}{6} + \frac{\sqrt{6}\mathbb{G}_{1,3}^{(1,0;a)}(T_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{6}$$

$$\boxed{z1107} \quad \mathbb{Q}_{1,3}^{(1,0;c)}(T_u, a) = \frac{\sqrt{6}\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{6} - \frac{\sqrt{6}\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{6}$$

$$\text{z1108} \quad \mathbb{Q}_{1,1}^{(1,0;c)}(T_u, b) = -\frac{\sqrt{30}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{T}_{1,1}^{(b)}(T_u, a)}{30} + \frac{\sqrt{10}\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{T}_{1,1}^{(b)}(T_u, a)}{10} + \frac{\sqrt{10}\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u, a)}{10} + \frac{\sqrt{10}\mathbb{T}_{2,3}^{(1,0;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u, a)}{10}$$

$$\text{z1109} \quad \mathbb{Q}_{1,2}^{(1,0;c)}(T_u, b) = -\frac{\sqrt{30}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{T}_{1,2}^{(b)}(T_u, a)}{30} + \frac{\sqrt{10}\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u, a)}{10} - \frac{\sqrt{10}\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{T}_{1,2}^{(b)}(T_u, a)}{10} + \frac{\sqrt{10}\mathbb{T}_{2,3}^{(1,0;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u, a)}{10}$$

$$\boxed{z1110} \quad \mathbb{Q}_{1,3}^{(1,0;c)}(T_u, b) = \frac{\sqrt{30}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{T}_{1,3}^{(b)}(T_u, a)}{15} + \frac{\sqrt{10}\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u, a)}{10} + \frac{\sqrt{10}\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u, a)}{10}$$

$$\mathbb{Q}_{1,1}^{(1,0;c)}(T_u,c) = -\frac{\sqrt{30}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{T}_{1,1}^{(b)}(T_u,b)}{20} + \frac{\sqrt{10}\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{T}_{1,1}^{(b)}(T_u,b)}{10} + \frac{\sqrt{10}\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u,b)}{10} + \frac{\sqrt{10}\mathbb{T}_{2,3}^{(1,0;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u,b)}{10}$$

$$\mathbb{z}_{1112} \quad \mathbb{Q}_{1,2}^{(1,0;c)}(T_u,c) = -\frac{\sqrt{30}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{T}_{1,2}^{(b)}(T_u,b)}{30} + \frac{\sqrt{10}\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u,b)}{10} - \frac{\sqrt{10}\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{T}_{1,2}^{(b)}(T_u,b)}{10} + \frac{\sqrt{10}\mathbb{T}_{2,3}^{(1,0;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u,b)}{10}$$

$$\boxed{z1113} \quad \mathbb{Q}_{1,3}^{(1,0;c)}(T_u, c) = \frac{\sqrt{30}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{T}_{1,3}^{(b)}(T_u, b)}{-15} + \frac{\sqrt{10}\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u, b)}{-10} + \frac{\sqrt{10}\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u, b)}{-10}$$

$$\boxed{z1114} \quad \mathbb{Q}_{3,1}^{(1,0;c)}(Tu,1a) = -\frac{\sqrt{6}\mathbb{G}_{1,2}^{(1,0;a)}(Tg)\mathbb{Q}_{3,3}^{(b)}(Tu,1)}{c} + \frac{\sqrt{6}\mathbb{G}_{1,3}^{(1,0;a)}(Tg)\mathbb{Q}_{3,2}^{(b)}(Tu,1)}{c}$$

$$\boxed{z1115} \quad \mathbb{Q}_{3,2}^{(1,0;c)}(T_u, 1a) = \frac{\sqrt{6}\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{\mathcal{C}} - \frac{\sqrt{6}\mathbb{G}_{1,3}^{(1,0;a)}(T_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{\mathcal{C}}$$

$$\boxed{z1116} \quad \mathbb{Q}_{3,3}^{(1,0;c)}(Tu,1a) = -\frac{\sqrt{6}\mathbb{G}_{1,1}^{(1,0;a)}(Tg)\mathbb{Q}_{3,2}^{(b)}(Tu,1)}{c} + \frac{\sqrt{6}\mathbb{G}_{1,2}^{(1,0;a)}(Tg)\mathbb{Q}_{3,1}^{(b)}(Tu,1)}{c}$$

$$\boxed{z1117} \quad \mathbb{O}_{3,1}^{(1,0;c)}(T_u, 1b) = -\frac{\sqrt{5}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{T}_{1,1}^{(b)}(T_u, a)}{} + \frac{\sqrt{15}\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{T}_{1,1}^{(b)}(T_u, a)}{}$$

$$\left[z_{1118} \right] \mathbb{O}^{(1,0;c)}(T_1, -1b) = -\frac{\sqrt{5}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{T}_{1,2}^{(b)}(Tu,a)}{} - \frac{\sqrt{15}\mathbb{T}_{2,1}^{(1,0;a)}(Tg)\mathbb{T}_{1,3}^{(b)}(Tu,a)}{} - \frac{\sqrt{15}\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{T}_{1,2}^{(b)}(Tu,a)}{} - \frac{\sqrt{15}\mathbb{T}_{2,3}^{(1,0;a)}(Tg)\mathbb{T}_{1,1}^{(b)}(Tu,a)}{}$$

$$\left[\begin{smallmatrix} 1 & 1 & 1 & 1 & 0 \end{smallmatrix} \right] \cap {}^{(1,0;c)}(T_{-1}h) = \frac{\sqrt{5}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{T}_{1,3}^{(b)}(Tu,a)}{\sqrt{15}\mathbb{T}_{2,1}^{(1,0;a)}(Tg)\mathbb{T}_{1,2}^{(b)}(Tu,a)} - \frac{\sqrt{15}\mathbb{T}_{2,2}^{(1,0;a)}(Tg)\mathbb{T}_{1,1}^{(b)}(Tu,a)}{\sqrt{15}\mathbb{T}_{2,2}^{(1,0;a)}(Tg)\mathbb{T}_{1,1}^{(b)}(Tu,a)}$$

$$\cap^{(1,0;c)}_{T=1} = \sqrt{5}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{T}_{1,1}^{(b)}(T_u, b) - \sqrt{15}\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{T}_{1,1}^{(b)}(T_u, b) + \sqrt{15}\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u, b)$$

$$\boxed{\text{---}} \quad (1,0; \alpha) \quad \sqrt{5} \mathbb{T}_{2,1}^{(1,0;a)}(E_q) \mathbb{T}_{1,2}^{(b)}(T_u, b) \quad \sqrt{15} \mathbb{T}_{2,1}^{(1,0;a)}(T_q) \mathbb{T}_{1,2}^{(b)}(T_u, b) \quad \sqrt{15} \mathbb{T}_{2,2}^{(1,0;a)}(E_q) \mathbb{T}_{1,2}^{(b)}(T_u, b) \quad \sqrt{15} \mathbb{T}_{2,3}^{(1,0;a)}(T_q) \mathbb{T}_{1,1}^{(b)}(T_u, b)$$

$$\boxed{\text{z1122}} \quad \mathbb{Q}_{3,3}^{(1,0;c)}(T_u, 1c) = \frac{\sqrt{5}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{T}_{1,3}^{(b)}(T_u, b)}{5} - \frac{\sqrt{15}\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u, b)}{15} - \frac{\sqrt{15}\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u, b)}{15}$$

$$\boxed{\text{z1123}} \quad \mathbb{Q}_{3,1}^{(1,0;c)}(T_u, 2a) = -\frac{\sqrt{6}\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{6} - \frac{\sqrt{6}\mathbb{G}_{1,3}^{(1,0;a)}(T_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{6}$$

$$\boxed{\text{z1124}} \quad \mathbb{Q}_{3,2}^{(1,0;c)}(T_u, 2a) = -\frac{\sqrt{6}\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{6} - \frac{\sqrt{6}\mathbb{G}_{1,3}^{(1,0;a)}(T_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{6}$$

$$\boxed{\text{z1125}} \quad \mathbb{Q}_{3,3}^{(1,0;c)}(T_u, 2a) = -\frac{\sqrt{6}\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{6} - \frac{\sqrt{6}\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{6}$$

$$\boxed{\text{z1126}} \quad \mathbb{Q}_{3,1}^{(1,0;c)}(T_u, 2b) = -\frac{\sqrt{3}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{T}_{1,1}^{(b)}(T_u, a)}{6} - \frac{\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{T}_{1,1}^{(b)}(T_u, a)}{6} - \frac{\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u, a)}{3} + \frac{\mathbb{T}_{2,3}^{(1,0;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u, a)}{3}$$

$$\boxed{\text{z1127}} \quad \mathbb{Q}_{3,2}^{(1,0;c)}(T_u, 2b) = \frac{\sqrt{3}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{T}_{1,2}^{(b)}(T_u, a)}{6} + \frac{\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u, a)}{3} - \frac{\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{T}_{1,2}^{(b)}(T_u, a)}{6} - \frac{\mathbb{T}_{2,3}^{(1,0;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u, a)}{3}$$

$$\boxed{\text{z1128}} \quad \mathbb{Q}_{3,3}^{(1,0;c)}(T_u, 2b) = -\frac{\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u, a)}{3} + \frac{\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{T}_{1,3}^{(b)}(T_u, a)}{3} + \frac{\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u, a)}{3}$$

$$\boxed{\text{z1129}} \quad \mathbb{Q}_{3,1}^{(1,0;c)}(T_u, 2c) = -\frac{\sqrt{3}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{T}_{1,1}^{(b)}(T_u, b)}{6} - \frac{\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{T}_{1,1}^{(b)}(T_u, b)}{6} - \frac{\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u, b)}{3} + \frac{\mathbb{T}_{2,3}^{(1,0;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u, b)}{3}$$

$$\boxed{\text{z1130}} \quad \mathbb{Q}_{3,2}^{(1,0;c)}(T_u, 2c) = \frac{\sqrt{3}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{T}_{1,2}^{(b)}(T_u, b)}{6} + \frac{\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u, b)}{3} - \frac{\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{T}_{1,2}^{(b)}(T_u, b)}{6} - \frac{\mathbb{T}_{2,3}^{(1,0;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u, b)}{3}$$

$$\boxed{\text{z1131}} \quad \mathbb{Q}_{3,3}^{(1,0;c)}(T_u, 2c) = -\frac{\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u, b)}{3} + \frac{\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{T}_{1,3}^{(b)}(T_u, b)}{3} + \frac{\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u, b)}{3}$$

$$\boxed{\text{z1132}} \quad \mathbb{Q}_{1,1}^{(1,1;c)}(T_u, a) = \frac{\sqrt{3}\mathbb{Q}_0^{(1,1;a)}(A_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z1133}} \quad \mathbb{Q}_{1,2}^{(1,1;c)}(T_u, a) = \frac{\sqrt{3}\mathbb{Q}_0^{(1,1;a)}(A_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z1134}} \quad \mathbb{Q}_{1,3}^{(1,1;c)}(T_u, a) = \frac{\sqrt{3}\mathbb{Q}_0^{(1,1;a)}(A_g)\mathbb{Q}_{1,3}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z1135}} \quad \mathbb{Q}_{1,1}^{(1,1;c)}(T_u, b) = \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,1;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u, a)}{6} - \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u, a)}{6}$$

$$\boxed{\text{z1136}} \quad \mathbb{Q}_{1,2}^{(1,1;c)}(T_u, b) = -\frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,1;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u, a)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u, a)}{6}$$

$$\boxed{\text{z1137}} \quad \mathbb{Q}_{1,3}^{(1,1;c)}(T_u, b) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u, a)}{6} - \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u, a)}{6}$$

$$\boxed{\text{z1138}} \quad \mathbb{Q}_{1,1}^{(1,1;c)}(T_u, c) = \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,1;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u, b)}{6} - \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u, b)}{6}$$

$$\boxed{\text{z1139}} \quad \mathbb{Q}_{1,2}^{(1,1;c)}(T_u, c) = -\frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,1;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u, b)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u, b)}{6}$$

$$\boxed{\text{z1140}} \quad \mathbb{Q}_{1,3}^{(1,1;c)}(T_u, c) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u, b)}{6} - \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u, b)}{6}$$

$$\boxed{\text{z1141}} \quad \mathbb{Q}_{3,1}^{(1,1;c)}(T_u, 1) = \frac{\sqrt{3}\mathbb{Q}_0^{(1,1;a)}(A_g)\mathbb{Q}_{3,1}^{(b)}(T_u, 1)}{3}$$

$$\boxed{\text{z1142}} \quad \mathbb{Q}_{3,2}^{(1,1;c)}(T_u, 1) = \frac{\sqrt{3}\mathbb{Q}_0^{(1,1;a)}(A_g)\mathbb{Q}_{3,2}^{(b)}(T_u, 1)}{3}$$

$$\boxed{\text{z1143}} \quad \mathbb{Q}_{3,3}^{(1,1;c)}(T_u, 1) = \frac{\sqrt{3}\mathbb{Q}_0^{(1,1;a)}(A_g)\mathbb{Q}_{3,3}^{(b)}(T_u, 1)}{3}$$

$$\boxed{\text{z1144}} \quad \mathbb{G}_{2,1}^{(c)}(T_u, a) = \frac{\sqrt{6}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{6} + \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{6} - \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{1,3}^{(b)}(T_u)}{6} + \frac{\sqrt{2}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z1145}} \quad \mathbb{G}_{2,2}^{(c)}(T_u, a) = -\frac{\sqrt{6}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{6} + \frac{\sqrt{2}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{1,3}^{(b)}(T_u)}{6} + \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{6} - \frac{\sqrt{2}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z1146}} \quad \mathbb{G}_{2,3}^{(c)}(T_u, a) = -\frac{\sqrt{2}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{6} - \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{1,3}^{(b)}(T_u)}{3} + \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z1147}} \quad \mathbb{G}_{2,1}^{(c)}(T_u, b) = \frac{\sqrt{6}\mathbb{M}_{1,2}^{(a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u, a)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u, a)}{6}$$

$$\boxed{\text{z1148}} \quad \mathbb{G}_{2,2}^{(c)}(T_u, b) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u, a)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u, a)}{6}$$

$$\boxed{\text{z1149}} \quad \mathbb{G}_{2,3}^{(c)}(T_u, b) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u, a)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,2}^{(a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u, a)}{6}$$

$$\boxed{\text{z1150}} \quad \mathbb{G}_{2,1}^{(c)}(T_u, c) = \frac{\sqrt{6}\mathbb{M}_{1,2}^{(a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u, b)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u, b)}{6}$$

$$\boxed{\text{z1151}} \quad \mathbb{G}_{2,2}^{(c)}(T_u, c) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u, b)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u, b)}{6}$$

$$\boxed{\text{z1152}} \quad \mathbb{G}_{2,3}^{(c)}(T_u, c) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u, b)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,2}^{(a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u, b)}{6}$$

$$\boxed{\text{z1153}} \quad \mathbb{G}_{2,1}^{(1,-1;c)}(T_u, a) = \frac{\sqrt{6}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{6} + \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{6} - \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,3}^{(b)}(T_u)}{6} + \frac{\sqrt{2}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z1154}} \quad \mathbb{G}_{2,2}^{(1,-1;c)}(T_u, a) = -\frac{\sqrt{6}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{6} + \frac{\sqrt{2}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,3}^{(b)}(T_u)}{6} + \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{6} - \frac{\sqrt{2}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z1155}} \quad \mathbb{G}_{2,3}^{(1,-1;c)}(T_u, a) = -\frac{\sqrt{2}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{6} - \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{1,3}^{(b)}(T_u)}{3} + \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{6}$$

$$\begin{aligned} \boxed{\text{z1156}} \quad & \mathbb{G}_{2,1}^{(1,-1;c)}(T_u, b) = -\frac{\sqrt{21}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,3}^{(b)}(T_u, a)}{21} + \frac{\sqrt{35}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,3}^{(b)}(T_u, a)}{21} \\ & - \frac{\sqrt{21}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,2}^{(b)}(T_u, a)}{21} - \frac{\sqrt{35}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,2}^{(b)}(T_u, a)}{21} + \frac{\sqrt{35}\mathbb{M}_3^{(1,-1;a)}(A_g)\mathbb{T}_{1,1}^{(b)}(T_u, a)}{21} \end{aligned}$$

$$\begin{aligned} \boxed{\text{z1157}} \quad & \mathbb{G}_{2,2}^{(1,-1;c)}(T_u, b) = -\frac{\sqrt{21}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,3}^{(b)}(T_u, a)}{21} - \frac{\sqrt{35}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,3}^{(b)}(T_u, a)}{21} \\ & - \frac{\sqrt{21}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,1}^{(b)}(T_u, a)}{21} + \frac{\sqrt{35}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,1}^{(b)}(T_u, a)}{21} + \frac{\sqrt{35}\mathbb{M}_3^{(1,-1;a)}(A_g)\mathbb{T}_{1,2}^{(b)}(T_u, a)}{21} \end{aligned}$$

$$\begin{aligned} \boxed{\text{z1158}} \quad & \mathbb{G}_{2,3}^{(1,-1;c)}(T_u, b) = -\frac{\sqrt{21}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,2}^{(b)}(T_u, a)}{21} + \frac{\sqrt{35}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,2}^{(b)}(T_u, a)}{21} \\ & - \frac{\sqrt{21}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,1}^{(b)}(T_u, a)}{21} - \frac{\sqrt{35}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,1}^{(b)}(T_u, a)}{21} + \frac{\sqrt{35}\mathbb{M}_3^{(1,-1;a)}(A_g)\mathbb{T}_{1,3}^{(b)}(T_u, a)}{21} \end{aligned}$$

$$\begin{aligned} \boxed{\text{z1159}} \quad & \mathbb{G}_{2,1}^{(1,-1;c)}(T_u, c) = -\frac{\sqrt{21}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,3}^{(b)}(T_u, b)}{21} + \frac{\sqrt{35}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,3}^{(b)}(T_u, b)}{21} \\ & - \frac{\sqrt{21}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,2}^{(b)}(T_u, b)}{21} - \frac{\sqrt{35}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,2}^{(b)}(T_u, b)}{21} + \frac{\sqrt{35}\mathbb{M}_3^{(1,-1;a)}(A_g)\mathbb{T}_{1,1}^{(b)}(T_u, b)}{21} \end{aligned}$$

$$\boxed{\text{z1160}} \quad \mathbb{G}_{2,2}^{(1,-1;c)}(T_u, c) = -\frac{\sqrt{21}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,3}^{(b)}(T_u, b)}{21} - \frac{\sqrt{35}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,3}^{(b)}(T_u, b)}{21} \\ - \frac{\sqrt{21}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,1}^{(b)}(T_u, b)}{21} + \frac{\sqrt{35}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,1}^{(b)}(T_u, b)}{21} + \frac{\sqrt{35}\mathbb{M}_3^{(1,-1;a)}(A_g)\mathbb{T}_{1,2}^{(b)}(T_u, b)}{21}$$

$$\boxed{\text{z1161}} \quad \mathbb{G}_{2,3}^{(1,-1;c)}(T_u, c) = -\frac{\sqrt{21}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,2}^{(b)}(T_u, b)}{21} + \frac{\sqrt{35}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,2}^{(b)}(T_u, b)}{21} \\ - \frac{\sqrt{21}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,1}^{(b)}(T_u, b)}{21} - \frac{\sqrt{35}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,1}^{(b)}(T_u, b)}{21} + \frac{\sqrt{35}\mathbb{M}_3^{(1,-1;a)}(A_g)\mathbb{T}_{1,3}^{(b)}(T_u, b)}{21}$$

$$\boxed{\text{z1162}} \quad \mathbb{G}_{2,1}^{(1,-1;c)}(T_u, d) = \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u, a)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,-1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u, a)}{6}$$

$$\boxed{\text{z1163}} \quad \mathbb{G}_{2,2}^{(1,-1;c)}(T_u, d) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u, a)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,-1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u, a)}{6}$$

$$\boxed{\text{z1164}} \quad \mathbb{G}_{2,3}^{(1,-1;c)}(T_u, d) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u, a)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u, a)}{6}$$

$$\boxed{\text{z1165}} \quad \mathbb{G}_{2,1}^{(1,-1;c)}(T_u, e) = \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u, b)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,-1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u, b)}{6}$$

$$\boxed{\text{z1166}} \quad \mathbb{G}_{2,2}^{(1,-1;c)}(T_u, e) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u, b)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,-1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u, b)}{6}$$

$$\boxed{\text{z1167}} \quad \mathbb{G}_{2,3}^{(1,-1;c)}(T_u, e) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u, b)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u, b)}{6}$$

$$\boxed{\text{z1168}} \quad \mathbb{G}_{4,1}^{(1,-1;c)}(T_u, 1a) = \frac{\sqrt{15}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,3}^{(b)}(T_u, a)}{12} - \frac{\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,3}^{(b)}(T_u, a)}{4} - \frac{\sqrt{15}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,2}^{(b)}(T_u, a)}{12} - \frac{\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,2}^{(b)}(T_u, a)}{4}$$

$$\boxed{\text{z1169}} \quad \mathbb{G}_{4,2}^{(1,-1;c)}(T_u, 1a) = -\frac{\sqrt{15}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,3}^{(b)}(T_u, a)}{12} - \frac{\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,3}^{(b)}(T_u, a)}{4} + \frac{\sqrt{15}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,1}^{(b)}(T_u, a)}{12} - \frac{\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,1}^{(b)}(T_u, a)}{4}$$

$$\boxed{\text{z1170}} \quad \mathbb{G}_{4,3}^{(1,-1;c)}(T_u, 1a) = \frac{\sqrt{15}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,2}^{(b)}(T_u, a)}{12} - \frac{\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,2}^{(b)}(T_u, a)}{4} - \frac{\sqrt{15}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,1}^{(b)}(T_u, a)}{12} - \frac{\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,1}^{(b)}(T_u, a)}{4}$$

$$\boxed{\text{z1171}} \quad \mathbb{G}_{4,1}^{(1,-1;c)}(T_u, 1b) = \frac{\sqrt{15}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,3}^{(b)}(T_u, b)}{12} - \frac{\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,3}^{(b)}(T_u, b)}{4} - \frac{\sqrt{15}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,2}^{(b)}(T_u, b)}{12} - \frac{\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,2}^{(b)}(T_u, b)}{4}$$

$$\boxed{\text{z1172}} \quad \mathbb{G}_{4,2}^{(1,-1;c)}(T_u, 1b) = -\frac{\sqrt{15}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,3}^{(b)}(T_u, b)}{12} - \frac{\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,3}^{(b)}(T_u, b)}{4} + \frac{\sqrt{15}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,1}^{(b)}(T_u, b)}{12} - \frac{\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,1}^{(b)}(T_u, b)}{4}$$

$$\boxed{\text{z1173}} \quad \mathbb{G}_{4,3}^{(1,-1;c)}(T_u, 1b) = \frac{\sqrt{15}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,2}^{(b)}(T_u, b)}{12} - \frac{\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,2}^{(b)}(T_u, b)}{4} - \frac{\sqrt{15}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,1}^{(b)}(T_u, b)}{12} - \frac{\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,1}^{(b)}(T_u, b)}{4}$$

$$\boxed{\text{z1174}} \quad \begin{aligned} \mathbb{G}_{4,1}^{(1,-1;c)}(T_u, 2a) = & -\frac{\sqrt{105}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,3}^{(b)}(T_u, a)}{84} - \frac{3\sqrt{7}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,3}^{(b)}(T_u, a)}{28} - \frac{\sqrt{105}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,2}^{(b)}(T_u, a)}{84} \\ & + \frac{3\sqrt{7}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,2}^{(b)}(T_u, a)}{28} + \frac{\sqrt{7}\mathbb{M}_3^{(1,-1;a)}(A_g)\mathbb{T}_{1,1}^{(b)}(T_u, a)}{7} \end{aligned}$$

$$\boxed{\text{z1175}} \quad \begin{aligned} \mathbb{G}_{4,2}^{(1,-1;c)}(T_u, 2a) = & -\frac{\sqrt{105}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,3}^{(b)}(T_u, a)}{84} + \frac{3\sqrt{7}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,3}^{(b)}(T_u, a)}{28} - \frac{\sqrt{105}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,1}^{(b)}(T_u, a)}{84} \\ & - \frac{3\sqrt{7}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,1}^{(b)}(T_u, a)}{28} + \frac{\sqrt{7}\mathbb{M}_3^{(1,-1;a)}(A_g)\mathbb{T}_{1,2}^{(b)}(T_u, a)}{7} \end{aligned}$$

$$\boxed{\text{z1176}} \quad \begin{aligned} \mathbb{G}_{4,3}^{(1,-1;c)}(T_u, 2a) = & -\frac{\sqrt{105}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,2}^{(b)}(T_u, a)}{84} - \frac{3\sqrt{7}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,2}^{(b)}(T_u, a)}{28} - \frac{\sqrt{105}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,1}^{(b)}(T_u, a)}{84} \\ & + \frac{3\sqrt{7}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,1}^{(b)}(T_u, a)}{28} + \frac{\sqrt{7}\mathbb{M}_3^{(1,-1;a)}(A_g)\mathbb{T}_{1,3}^{(b)}(T_u, a)}{7} \end{aligned}$$

$$\boxed{\text{z1177}} \quad \begin{aligned} \mathbb{G}_{4,1}^{(1,-1;c)}(T_u, 2b) = & -\frac{\sqrt{105}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,3}^{(b)}(T_u, b)}{84} - \frac{3\sqrt{7}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,3}^{(b)}(T_u, b)}{28} - \frac{\sqrt{105}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,2}^{(b)}(T_u, b)}{84} \\ & + \frac{3\sqrt{7}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,2}^{(b)}(T_u, b)}{28} + \frac{\sqrt{7}\mathbb{M}_3^{(1,-1;a)}(A_g)\mathbb{T}_{1,1}^{(b)}(T_u, b)}{7} \end{aligned}$$

$$\boxed{\text{z1178}} \quad \begin{aligned} \mathbb{G}_{4,2}^{(1,-1;c)}(T_u, 2b) = & -\frac{\sqrt{105}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,3}^{(b)}(T_u, b)}{84} + \frac{3\sqrt{7}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,3}^{(b)}(T_u, b)}{28} - \frac{\sqrt{105}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,1}^{(b)}(T_u, b)}{84} \\ & - \frac{3\sqrt{7}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,1}^{(b)}(T_u, b)}{28} + \frac{\sqrt{7}\mathbb{M}_3^{(1,-1;a)}(A_g)\mathbb{T}_{1,2}^{(b)}(T_u, b)}{7} \end{aligned}$$

$$\boxed{\text{z1179}} \quad \begin{aligned} \mathbb{G}_{4,3}^{(1,-1;c)}(T_u, 2b) = & -\frac{\sqrt{105}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,2}^{(b)}(T_u, b)}{84} - \frac{3\sqrt{7}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,2}^{(b)}(T_u, b)}{28} - \frac{\sqrt{105}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,1}^{(b)}(T_u, b)}{84} \\ & + \frac{3\sqrt{7}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,1}^{(b)}(T_u, b)}{28} + \frac{\sqrt{7}\mathbb{M}_3^{(1,-1;a)}(A_g)\mathbb{T}_{1,3}^{(b)}(T_u, b)}{7} \end{aligned}$$

$$\boxed{\text{z1180}} \quad \mathbb{G}_{2,1}^{(1,0;c)}(T_u, a) = \frac{\sqrt{6}\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{1,3}^{(b)}(T_u)}{6} + \frac{\sqrt{6}\mathbb{G}_{1,3}^{(1,0;a)}(T_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{6}$$

$$\boxed{z1181} \quad \mathbb{G}_{2,2}^{(1,0;c)}(T_u, a) = \frac{\sqrt{6}\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{1,3}^{(b)}(T_u)}{6} + \frac{\sqrt{6}\mathbb{G}_{1,3}^{(1,0;a)}(T_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z1182}} \quad \mathbb{G}_{2,3}^{(1,0;c)}(T_u, a) = \frac{\sqrt{6}\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{1,2}^{(b)}(T_u)}{6} + \frac{\sqrt{6}\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{1,1}^{(b)}(T_u)}{6}$$

$$\text{z1183} \quad \mathbb{G}_{2,1}^{(1,0;c)}(T_u, b) = \frac{\sqrt{6}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{T}_{1,1}^{(b)}(T_u, a)}{c} + \frac{\sqrt{2}\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{T}_{1,1}^{(b)}(T_u, a)}{c} - \frac{\sqrt{2}\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u, a)}{c} + \frac{\sqrt{2}\mathbb{T}_{2,3}^{(1,0;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u, a)}{c}$$

$$\mathbb{z}_{1184} \quad \mathbb{G}_{2,2}^{(1,0;a)}(T_u,b) = -\frac{\sqrt{6}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{T}_{1,2}^{(b)}(T_u,a)}{\mathbb{T}_{1,1}^{(b)}(T_u,a)} + \frac{\sqrt{2}\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u,a)}{\mathbb{T}_{1,1}^{(b)}(T_u,a)} + \frac{\sqrt{2}\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{T}_{1,2}^{(b)}(T_u,a)}{\mathbb{T}_{1,1}^{(b)}(T_u,a)} - \frac{\sqrt{2}\mathbb{T}_{2,3}^{(1,0;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u,a)}{\mathbb{T}_{1,1}^{(b)}(T_u,a)}$$

$$\boxed{z1185} \quad \mathbb{G}_{2,3}^{(1,0;c)}(T_u, b) = -\frac{\sqrt{2}\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u, a)}{\mathbb{T}_{1,2}^{(b)}(T_u, a)} - \frac{\sqrt{2}\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{T}_{1,3}^{(b)}(T_u, a)}{\mathbb{T}_{1,3}^{(b)}(T_u, a)} + \frac{\sqrt{2}\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u, a)}{\mathbb{T}_{1,1}^{(b)}(T_u, a)}$$

$$\left| z_{1186} \right\rangle = \mathbb{G}_{\text{S.i.}}^{(1,0;c)}(T_u, c) = \frac{\sqrt{6}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{T}_{1,1}^{(b)}(T_u, b)}{} + \frac{\sqrt{2}\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{T}_{1,1}^{(b)}(T_u, b)}{} - \frac{\sqrt{2}\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u, b)}{} + \frac{\sqrt{2}\mathbb{T}_{2,3}^{(1,0;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u, b)}{}$$

$$\mathbb{G}_{\mathcal{C}, \infty}^{(1,0;c)}(T_u, c) = -\frac{\sqrt{6}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{T}_{1,2}^{(b)}(T_u, b)}{z_{1187}} + \frac{\sqrt{2}\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u, b)}{} + \frac{\sqrt{2}\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{T}_{1,2}^{(b)}(T_u, b)}{} - \frac{\sqrt{2}\mathbb{T}_{2,3}^{(1,0;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u, b)}{}$$

$$\boxed{\text{z1188}} \quad \mathbb{G}_{2,3}^{(1,0;c)}(T_u, c) = -\frac{\cdot_{2,1}^{+}(-g)_{1,2}^{-}(\omega^c)}{6} - \frac{\cdot_{2,2}^{+}(-g)_{1,3}^{-}(\omega^c)}{3} + \frac{\cdot_{2,2}^{+}(-g)_{1,1}^{-}(\omega^c)}{6}$$

$$\boxed{\text{z1189}} \quad \mathbb{G}_{2,1}^{(1,1;c)}(T_u, a) = \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,1;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u, a)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u, a)}{6}$$

$$\boxed{z1190} \quad \mathbb{G}_{2,2}^{(1,1;c)}(T_u, a) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,1;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u, a)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u, a)}{6}$$

$$\boxed{z1191} \quad \mathbb{G}_{2,3}^{(1,1;c)}(T_u, a) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u, a)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u, a)}{6}$$

$$\text{z1192} \quad \mathbb{G}_{2,1}^{(1,1;c)}(T_u, b) = \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,1;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u, b)}{\epsilon} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u, b)}{\epsilon}$$

$$\boxed{z1193} \quad \mathbb{G}_{2,2}^{(1,1;c)}(T_u,b) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,1;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u,b)}{+} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u,b)}{+}$$

$$\left[z_{1194} \right] \mathbb{G}_{\alpha, 2}^{(1,1;c)}(T_u, b) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u, b)}{} + \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u, b)}{}$$

- 'A'-'A' bond-cluster : A;A_002_1

* bra: $\langle s, \uparrow |$, $\langle s, \downarrow |$
 * ket: $|s, \uparrow \rangle$, $|s, \downarrow \rangle$
 * wyckoff: 3a@1a

$$\boxed{\text{z40}} \quad \mathbb{Q}_0^{(c)}(A_g) = \mathbb{Q}_0^{(a)}(A_g) \mathbb{Q}_0^{(b)}(A_g)$$

$$\boxed{\text{z148}} \quad \mathbb{G}_0^{(1,-1;c)}(A_u) = \frac{\sqrt{3}\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{3} + \frac{\sqrt{3}\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{3} + \frac{\sqrt{3}\mathbb{M}_{1,3}^{(1,-1;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z149}} \quad \mathbb{Q}_{2,1}^{(c)}(E_g) = \frac{\sqrt{2}\mathbb{Q}_0^{(a)}(A_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{2}$$

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

$$\boxed{\text{z820}} \quad \mathbb{G}_{2,1}^{(1,-1;c)}(E_u) = -\frac{\sqrt{3}\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{6} - \frac{\sqrt{3}\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{6} + \frac{\sqrt{3}\mathbb{M}_{1,3}^{(1,-1;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z821}} \quad \mathbb{G}_{2,2}^{(1,-1;c)}(E_u) = \frac{\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{2} - \frac{\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{2}$$

$$\boxed{\text{z1195}} \quad \mathbb{Q}_{1,1}^{(1,-1;c)}(T_u) = \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{6} - \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,-1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z1196}} \quad \mathbb{Q}_{1,2}^{(1,-1;c)}(T_u) = -\frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,-1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z1197}} \quad \mathbb{Q}_{1,3}^{(1,-1;c)}(T_u) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{6} - \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z1198}} \quad \mathbb{G}_{2,1}^{(1,-1;c)}(T_u) = \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,-1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z1199}} \quad \mathbb{G}_{2,2}^{(1,-1;c)}(T_u) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,-1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z1200}} \quad \mathbb{G}_{2,3}^{(1,-1;c)}(T_u) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{6}$$

- 'A'-A' bond-cluster : A;A_002_1

* bra: $\langle s, \uparrow |$, $\langle s, \downarrow |$

* ket: $|p_x, \uparrow\rangle$, $|p_x, \downarrow\rangle$, $|p_y, \uparrow\rangle$, $|p_y, \downarrow\rangle$, $|p_z, \uparrow\rangle$, $|p_z, \downarrow\rangle$

* wyckoff: 3a@1a

$$\boxed{\text{z41}} \quad \mathbb{Q}_0^{(c)}(A_g) = \frac{\sqrt{3}\mathbb{T}_{1,1}^{(a)}(T_u)\mathbb{T}_{1,1}^{(b)}(T_u)}{3} + \frac{\sqrt{3}\mathbb{T}_{1,2}^{(a)}(T_u)\mathbb{T}_{1,2}^{(b)}(T_u)}{3} + \frac{\sqrt{3}\mathbb{T}_{1,3}^{(a)}(T_u)\mathbb{T}_{1,3}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z42}} \quad \mathbb{Q}_0^{(1,0;c)}(A_g) = \frac{\sqrt{3}\mathbb{T}_{1,1}^{(1,0;a)}(T_u)\mathbb{T}_{1,1}^{(b)}(T_u)}{3} + \frac{\sqrt{3}\mathbb{T}_{1,2}^{(1,0;a)}(T_u)\mathbb{T}_{1,2}^{(b)}(T_u)}{3} + \frac{\sqrt{3}\mathbb{T}_{1,3}^{(1,0;a)}(T_u)\mathbb{T}_{1,3}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z43}} \quad \mathbb{G}_3^{(1,-1;c)}(A_g) = \frac{\sqrt{3}\mathbb{M}_{2,1}^{(1,-1;a)}(T_u)\mathbb{T}_{1,1}^{(b)}(T_u)}{3} + \frac{\sqrt{3}\mathbb{M}_{2,2}^{(1,-1;a)}(T_u)\mathbb{T}_{1,2}^{(b)}(T_u)}{3} + \frac{\sqrt{3}\mathbb{M}_{2,3}^{(1,-1;a)}(T_u)\mathbb{T}_{1,3}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z150}} \quad \mathbb{Q}_3^{(1,-1;c)}(A_u) = \frac{\sqrt{2}\mathbb{G}_{2,1}^{(1,-1;a)}(E_u)\mathbb{Q}_{2,2}^{(b)}(E_g)}{2} - \frac{\sqrt{2}\mathbb{G}_{2,2}^{(1,-1;a)}(E_u)\mathbb{Q}_{2,1}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z151}} \quad \mathbb{G}_0^{(1,-1;c)}(A_u) = \frac{\sqrt{2}\mathbb{G}_{2,1}^{(1,-1;a)}(E_u)\mathbb{Q}_{2,1}^{(b)}(E_g)}{2} + \frac{\sqrt{2}\mathbb{G}_{2,2}^{(1,-1;a)}(E_u)\mathbb{Q}_{2,2}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z152}} \quad \mathbb{G}_0^{(1,1;c)}(A_u) = \mathbb{G}_0^{(1,1;a)}(A_u)\mathbb{Q}_0^{(b)}(A_g)$$

$$\boxed{\text{z153}} \quad \mathbb{Q}_{2,1}^{(c)}(E_g) = -\frac{\sqrt{3}\mathbb{T}_{1,1}^{(a)}(T_u)\mathbb{T}_{1,1}^{(b)}(T_u)}{6} - \frac{\sqrt{3}\mathbb{T}_{1,2}^{(a)}(T_u)\mathbb{T}_{1,2}^{(b)}(T_u)}{6} + \frac{\sqrt{3}\mathbb{T}_{1,3}^{(a)}(T_u)\mathbb{T}_{1,3}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z154}} \quad \mathbb{Q}_{2,2}^{(c)}(E_g) = \frac{\mathbb{T}_{1,1}^{(a)}(T_u)\mathbb{T}_{1,1}^{(b)}(T_u)}{2} - \frac{\mathbb{T}_{1,2}^{(a)}(T_u)\mathbb{T}_{1,2}^{(b)}(T_u)}{2}$$

$$\boxed{\text{z155}} \quad \mathbb{Q}_{2,1}^{(1,-1;c)}(E_g) = -\frac{\mathbb{M}_{2,1}^{(1,-1;a)}(T_u)\mathbb{T}_{1,1}^{(b)}(T_u)}{2} + \frac{\mathbb{M}_{2,2}^{(1,-1;a)}(T_u)\mathbb{T}_{1,2}^{(b)}(T_u)}{2}$$

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

$$\boxed{\text{z524}} \quad \mathbb{Q}_{2,1}^{(1,0;c)}(E_g) = -\frac{\sqrt{3}\mathbb{T}_{1,1}^{(1,0;a)}(T_u)\mathbb{T}_{1,1}^{(b)}(T_u)}{6} - \frac{\sqrt{3}\mathbb{T}_{1,2}^{(1,0;a)}(T_u)\mathbb{T}_{1,2}^{(b)}(T_u)}{6} + \frac{\sqrt{3}\mathbb{T}_{1,3}^{(1,0;a)}(T_u)\mathbb{T}_{1,3}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z525}} \quad \mathbb{Q}_{2,2}^{(1,0;c)}(E_g) = \frac{\mathbb{T}_{1,1}^{(1,0;a)}(T_u)\mathbb{T}_{1,1}^{(b)}(T_u)}{2} - \frac{\mathbb{T}_{1,2}^{(1,0;a)}(T_u)\mathbb{T}_{1,2}^{(b)}(T_u)}{2}$$

$$\boxed{\text{z526}} \quad \mathbb{G}_{2,1}^{(1,-1;c)}(E_u, a) = \frac{\sqrt{2}\mathbb{G}_{2,1}^{(1,-1;a)}(E_u)\mathbb{Q}_0^{(b)}(A_g)}{2}$$

$$\boxed{\text{z527}} \quad \mathbb{G}_{2,2}^{(1,-1;c)}(E_u, a) = \frac{\sqrt{2}\mathbb{G}_{2,2}^{(1,-1;a)}(E_u)\mathbb{Q}_0^{(b)}(A_g)}{2}$$

$$\boxed{\text{z528}} \quad \mathbb{G}_{2,1}^{(1,-1;c)}(E_u, b) = \frac{\mathbb{G}_{2,1}^{(1,-1;a)}(E_u)\mathbb{Q}_{2,1}^{(b)}(E_g)}{2} - \frac{\mathbb{G}_{2,2}^{(1,-1;a)}(E_u)\mathbb{Q}_{2,2}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z529}} \quad \mathbb{G}_{2,2}^{(1,-1;c)}(E_u, b) = -\frac{\mathbb{G}_{2,1}^{(1,-1;a)}(E_u)\mathbb{Q}_{2,2}^{(b)}(E_g)}{2} - \frac{\mathbb{G}_{2,2}^{(1,-1;a)}(E_u)\mathbb{Q}_{2,1}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z530}} \quad \mathbb{G}_{2,1}^{(1,1;c)}(E_u) = \frac{\sqrt{2}\mathbb{G}_0^{(1,1;a)}(A_u)\mathbb{Q}_{2,1}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z531}} \quad \mathbb{G}_{2,2}^{(1,1;c)}(E_u) = \frac{\sqrt{2}\mathbb{G}_0^{(1,1;a)}(A_u)\mathbb{Q}_{2,2}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z532}} \quad \mathbb{Q}_{2,1}^{(c)}(T_g) = \frac{\sqrt{6}\mathbb{T}_{1,2}^{(a)}(T_u)\mathbb{T}_{1,3}^{(b)}(T_u)}{6} + \frac{\sqrt{6}\mathbb{T}_{1,3}^{(a)}(T_u)\mathbb{T}_{1,2}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z533}} \quad \mathbb{Q}_{2,2}^{(c)}(T_g) = \frac{\sqrt{6}\mathbb{T}_{1,1}^{(a)}(T_u)\mathbb{T}_{1,3}^{(b)}(T_u)}{6} + \frac{\sqrt{6}\mathbb{T}_{1,3}^{(a)}(T_u)\mathbb{T}_{1,1}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z534}} \quad \mathbb{Q}_{2,3}^{(c)}(T_g) = \frac{\sqrt{6}\mathbb{T}_{1,1}^{(a)}(T_u)\mathbb{T}_{1,2}^{(b)}(T_u)}{6} + \frac{\sqrt{6}\mathbb{T}_{1,2}^{(a)}(T_u)\mathbb{T}_{1,1}^{(b)}(T_u)}{6}$$

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

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

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

$$\boxed{\text{z538}} \quad \mathbb{Q}_{2,1}^{(1,0;c)}(T_g) = \frac{\sqrt{6}\mathbb{T}_{1,2}^{(1,0;a)}(T_u)\mathbb{T}_{1,3}^{(b)}(T_u)}{6} + \frac{\sqrt{6}\mathbb{T}_{1,3}^{(1,0;a)}(T_u)\mathbb{T}_{1,2}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z539}} \quad \mathbb{Q}_{2,2}^{(1,0;c)}(T_g) = \frac{\sqrt{6}\mathbb{T}_{1,1}^{(1,0;a)}(T_u)\mathbb{T}_{1,3}^{(b)}(T_u)}{6} + \frac{\sqrt{6}\mathbb{T}_{1,3}^{(1,0;a)}(T_u)\mathbb{T}_{1,1}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z540}} \quad \mathbb{Q}_{2,3}^{(1,0;c)}(T_g) = \frac{\sqrt{6}\mathbb{T}_{1,1}^{(1,0;a)}(T_u)\mathbb{T}_{1,2}^{(b)}(T_u)}{6} + \frac{\sqrt{6}\mathbb{T}_{1,2}^{(1,0;a)}(T_u)\mathbb{T}_{1,1}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z541}} \quad \mathbb{G}_{1,1}^{(c)}(T_g) = \frac{\sqrt{6}\mathbb{T}_{1,2}^{(a)}(T_u)\mathbb{T}_{1,3}^{(b)}(T_u)}{6} - \frac{\sqrt{6}\mathbb{T}_{1,3}^{(a)}(T_u)\mathbb{T}_{1,2}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z542}} \quad \mathbb{G}_{1,2}^{(c)}(T_g) = -\frac{\sqrt{6}\mathbb{T}_{1,1}^{(a)}(T_u)\mathbb{T}_{1,3}^{(b)}(T_u)}{6} + \frac{\sqrt{6}\mathbb{T}_{1,3}^{(a)}(T_u)\mathbb{T}_{1,1}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z543}} \quad \mathbb{G}_{1,3}^{(c)}(T_g) = \frac{\sqrt{6}\mathbb{T}_{1,1}^{(a)}(T_u)\mathbb{T}_{1,2}^{(b)}(T_u)}{6} - \frac{\sqrt{6}\mathbb{T}_{1,2}^{(a)}(T_u)\mathbb{T}_{1,1}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z544}} \quad \mathbb{G}_{1,1}^{(1,-1;c)}(T_g) = -\frac{\sqrt{30}\mathbb{M}_{2,1}^{(1,-1;a)}(E_u)\mathbb{T}_{1,1}^{(b)}(T_u)}{30} + \frac{\sqrt{10}\mathbb{M}_{2,2}^{(1,-1;a)}(E_u)\mathbb{T}_{1,1}^{(b)}(T_u)}{10} + \frac{\sqrt{10}\mathbb{M}_{2,2}^{(1,-1;a)}(T_u)\mathbb{T}_{1,3}^{(b)}(T_u)}{10} + \frac{\sqrt{10}\mathbb{M}_{2,3}^{(1,-1;a)}(T_u)\mathbb{T}_{1,2}^{(b)}(T_u)}{10}$$

$$\boxed{\text{z545}} \quad \mathbb{G}_{1,2}^{(1,-1;c)}(T_g) = -\frac{\sqrt{30}\mathbb{M}_{2,1}^{(1,-1;a)}(E_u)\mathbb{T}_{1,2}^{(b)}(T_u)}{30} + \frac{\sqrt{10}\mathbb{M}_{2,1}^{(1,-1;a)}(T_u)\mathbb{T}_{1,3}^{(b)}(T_u)}{10} - \frac{\sqrt{10}\mathbb{M}_{2,2}^{(1,-1;a)}(E_u)\mathbb{T}_{1,2}^{(b)}(T_u)}{10} + \frac{\sqrt{10}\mathbb{M}_{2,3}^{(1,-1;a)}(T_u)\mathbb{T}_{1,1}^{(b)}(T_u)}{10}$$

$$\boxed{\text{z546}} \quad \mathbb{G}_{1,3}^{(1,-1;c)}(T_g) = \frac{\sqrt{30}\mathbb{M}_{2,1}^{(1,-1;a)}(E_u)\mathbb{T}_{1,3}^{(b)}(T_u)}{15} + \frac{\sqrt{10}\mathbb{M}_{2,1}^{(1,-1;a)}(T_u)\mathbb{T}_{1,2}^{(b)}(T_u)}{10} + \frac{\sqrt{10}\mathbb{M}_{2,2}^{(1,-1;a)}(T_u)\mathbb{T}_{1,1}^{(b)}(T_u)}{10}$$

$$\boxed{\text{z547}} \quad \mathbb{G}_{3,1}^{(1,-1;c)}(T_g, 1) = -\frac{\sqrt{5}\mathbb{M}_{2,1}^{(1,-1;a)}(E_u)\mathbb{T}_{1,1}^{(b)}(T_u)}{10} + \frac{\sqrt{15}\mathbb{M}_{2,2}^{(1,-1;a)}(E_u)\mathbb{T}_{1,1}^{(b)}(T_u)}{10} - \frac{\sqrt{15}\mathbb{M}_{2,2}^{(1,-1;a)}(T_u)\mathbb{T}_{1,3}^{(b)}(T_u)}{15} - \frac{\sqrt{15}\mathbb{M}_{2,3}^{(1,-1;a)}(T_u)\mathbb{T}_{1,2}^{(b)}(T_u)}{15}$$

$$\boxed{\text{z548}} \quad \mathbb{G}_{3,2}^{(1,-1;c)}(T_g, 1) = -\frac{\sqrt{5}\mathbb{M}_{2,1}^{(1,-1;a)}(E_u)\mathbb{T}_{1,2}^{(b)}(T_u)}{10} - \frac{\sqrt{15}\mathbb{M}_{2,1}^{(1,-1;a)}(T_u)\mathbb{T}_{1,3}^{(b)}(T_u)}{15} - \frac{\sqrt{15}\mathbb{M}_{2,2}^{(1,-1;a)}(E_u)\mathbb{T}_{1,2}^{(b)}(T_u)}{10} - \frac{\sqrt{15}\mathbb{M}_{2,3}^{(1,-1;a)}(T_u)\mathbb{T}_{1,1}^{(b)}(T_u)}{15}$$

$$\boxed{\text{z549}} \quad \mathbb{G}_{3,3}^{(1,-1;c)}(T_g, 1) = \frac{\sqrt{5}\mathbb{M}_{2,1}^{(1,-1;a)}(E_u)\mathbb{T}_{1,3}^{(b)}(T_u)}{5} - \frac{\sqrt{15}\mathbb{M}_{2,1}^{(1,-1;a)}(T_u)\mathbb{T}_{1,2}^{(b)}(T_u)}{15} - \frac{\sqrt{15}\mathbb{M}_{2,2}^{(1,-1;a)}(T_u)\mathbb{T}_{1,1}^{(b)}(T_u)}{15}$$

$$\boxed{\text{z721}} \quad \mathbb{G}_{3,1}^{(1,-1;c)}(T_g, 2) = -\frac{\sqrt{3}\mathbb{M}_{2,1}^{(1,-1;a)}(E_u)\mathbb{T}_{1,1}^{(b)}(T_u)}{6} - \frac{\mathbb{M}_{2,2}^{(1,-1;a)}(E_u)\mathbb{T}_{1,1}^{(b)}(T_u)}{6} - \frac{\mathbb{M}_{2,2}^{(1,-1;a)}(T_u)\mathbb{T}_{1,3}^{(b)}(T_u)}{3} + \frac{\mathbb{M}_{2,3}^{(1,-1;a)}(T_u)\mathbb{T}_{1,2}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z722}} \quad \mathbb{G}_{3,2}^{(1,-1;c)}(T_g, 2) = \frac{\sqrt{3}\mathbb{M}_{2,1}^{(1,-1;a)}(E_u)\mathbb{T}_{1,2}^{(b)}(T_u)}{6} + \frac{\mathbb{M}_{2,1}^{(1,-1;a)}(T_u)\mathbb{T}_{1,3}^{(b)}(T_u)}{3} - \frac{\mathbb{M}_{2,2}^{(1,-1;a)}(E_u)\mathbb{T}_{1,2}^{(b)}(T_u)}{6} - \frac{\mathbb{M}_{2,3}^{(1,-1;a)}(T_u)\mathbb{T}_{1,1}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z723}} \quad \mathbb{G}_{3,3}^{(1,-1;c)}(T_g, 2) = -\frac{\mathbb{M}_{2,1}^{(1,-1;a)}(T_u)\mathbb{T}_{1,2}^{(b)}(T_u)}{3} + \frac{\mathbb{M}_{2,2}^{(1,-1;a)}(E_u)\mathbb{T}_{1,3}^{(b)}(T_u)}{3} + \frac{\mathbb{M}_{2,2}^{(1,-1;a)}(T_u)\mathbb{T}_{1,1}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z822}} \quad \mathbb{G}_{1,1}^{(1,0;c)}(T_g) = \frac{\sqrt{6}\mathbb{T}_{1,2}^{(1,0;a)}(T_u)\mathbb{T}_{1,3}^{(b)}(T_u)}{6} - \frac{\sqrt{6}\mathbb{T}_{1,3}^{(1,0;a)}(T_u)\mathbb{T}_{1,2}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z823}} \quad \mathbb{G}_{1,2}^{(1,0;c)}(T_g) = -\frac{\sqrt{6}\mathbb{T}_{1,1}^{(1,0;a)}(T_u)\mathbb{T}_{1,3}^{(b)}(T_u)}{6} + \frac{\sqrt{6}\mathbb{T}_{1,3}^{(1,0;a)}(T_u)\mathbb{T}_{1,1}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z824}} \quad \mathbb{G}_{1,3}^{(1,0;c)}(T_g) = \frac{\sqrt{6}\mathbb{T}_{1,1}^{(1,0;a)}(T_u)\mathbb{T}_{1,2}^{(b)}(T_u)}{6} - \frac{\sqrt{6}\mathbb{T}_{1,2}^{(1,0;a)}(T_u)\mathbb{T}_{1,1}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z825}} \quad \mathbb{G}_{1,1}^{(1,1;c)}(T_g) = \frac{\sqrt{3}\mathbb{M}_0^{(1,1;a)}(A_u)\mathbb{T}_{1,1}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z826}} \quad \mathbb{G}_{1,2}^{(1,1;c)}(T_g) = \frac{\sqrt{3}\mathbb{M}_0^{(1,1;a)}(A_u)\mathbb{T}_{1,2}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z827}} \quad \mathbb{G}_{1,3}^{(1,1;c)}(T_g) = \frac{\sqrt{3}\mathbb{M}_0^{(1,1;a)}(A_u)\mathbb{T}_{1,3}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z1201}} \quad \mathbb{Q}_{1,1}^{(c)}(T_u, a) = \frac{\sqrt{3}\mathbb{Q}_{1,1}^{(a)}(T_u)\mathbb{Q}_0^{(b)}(A_g)}{3}$$

$$\boxed{\text{z1202}} \quad \mathbb{Q}_{1,2}^{(c)}(T_u, a) = \frac{\sqrt{3}\mathbb{Q}_{1,2}^{(a)}(T_u)\mathbb{Q}_0^{(b)}(A_g)}{3}$$

$$\boxed{\text{z1203}} \quad \mathbb{Q}_{1,3}^{(c)}(T_u, a) = \frac{\sqrt{3}\mathbb{Q}_{1,3}^{(a)}(T_u)\mathbb{Q}_0^{(b)}(A_g)}{3}$$

$$\boxed{\text{z1204}} \quad \mathbb{Q}_{1,1}^{(c)}(T_u, b) = -\frac{\sqrt{3}\mathbb{Q}_{1,1}^{(a)}(T_u)\mathbb{Q}_{2,1}^{(b)}(E_g)}{6} + \frac{\mathbb{Q}_{1,1}^{(a)}(T_u)\mathbb{Q}_{2,2}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z1205}} \quad \mathbb{Q}_{1,2}^{(c)}(T_u, b) = -\frac{\sqrt{3}\mathbb{Q}_{1,2}^{(a)}(T_u)\mathbb{Q}_{2,1}^{(b)}(E_g)}{6} - \frac{\mathbb{Q}_{1,2}^{(a)}(T_u)\mathbb{Q}_{2,2}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z1206}} \quad \mathbb{Q}_{1,3}^{(c)}(T_u, b) = \frac{\sqrt{3}\mathbb{Q}_{1,3}^{(a)}(T_u)\mathbb{Q}_{2,1}^{(b)}(E_g)}{3}$$

$$\boxed{\text{z1207}} \quad \mathbb{Q}_{3,1}^{(c)}(T_u, 2) = -\frac{\mathbb{Q}_{1,1}^{(a)}(T_u)\mathbb{Q}_{2,1}^{(b)}(E_g)}{2} - \frac{\sqrt{3}\mathbb{Q}_{1,1}^{(a)}(T_u)\mathbb{Q}_{2,2}^{(b)}(E_g)}{6}$$

$$\boxed{\text{z1208}} \quad \mathbb{Q}_{3,2}^{(c)}(T_u, 2) = \frac{\mathbb{Q}_{1,2}^{(a)}(T_u)\mathbb{Q}_{2,1}^{(b)}(E_g)}{2} - \frac{\sqrt{3}\mathbb{Q}_{1,2}^{(a)}(T_u)\mathbb{Q}_{2,2}^{(b)}(E_g)}{6}$$

$$\boxed{\text{z1209}} \quad \mathbb{Q}_{3,3}^{(c)}(T_u, 2) = \frac{\sqrt{3}\mathbb{Q}_{1,3}^{(a)}(T_u)\mathbb{Q}_{2,2}^{(b)}(E_g)}{3}$$

$$\boxed{\text{z1210}} \quad \mathbb{Q}_{1,1}^{(1,-1;c)}(T_u) = \frac{\mathbb{G}_{2,1}^{(1,-1;a)}(T_u)\mathbb{Q}_{2,1}^{(b)}(E_g)}{2} + \frac{\sqrt{3}\mathbb{G}_{2,1}^{(1,-1;a)}(T_u)\mathbb{Q}_{2,2}^{(b)}(E_g)}{6}$$

$$\boxed{\text{z1211}} \quad \mathbb{Q}_{1,2}^{(1,-1;c)}(T_u) = -\frac{\mathbb{G}_{2,2}^{(1,-1;a)}(T_u)\mathbb{Q}_{2,1}^{(b)}(E_g)}{2} + \frac{\sqrt{3}\mathbb{G}_{2,2}^{(1,-1;a)}(T_u)\mathbb{Q}_{2,2}^{(b)}(E_g)}{6}$$

$$\boxed{\text{z1212}} \quad \mathbb{Q}_{1,3}^{(1,-1;c)}(T_u) = -\frac{\sqrt{3}\mathbb{G}_{2,3}^{(1,-1;a)}(T_u)\mathbb{Q}_{2,2}^{(b)}(E_g)}{3}$$

$$\boxed{\text{z1213}} \quad \mathbb{Q}_{3,1}^{(1,-1;c)}(T_u, 2) = -\frac{\sqrt{3}\mathbb{G}_{2,1}^{(1,-1;a)}(T_u)\mathbb{Q}_{2,1}^{(b)}(E_g)}{6} + \frac{\mathbb{G}_{2,1}^{(1,-1;a)}(T_u)\mathbb{Q}_{2,2}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z1214}} \quad \mathbb{Q}_{3,2}^{(1,-1;c)}(T_u, 2) = -\frac{\sqrt{3}\mathbb{G}_{2,2}^{(1,-1;a)}(T_u)\mathbb{Q}_{2,1}^{(b)}(E_g)}{6} - \frac{\mathbb{G}_{2,2}^{(1,-1;a)}(T_u)\mathbb{Q}_{2,2}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z1215}} \quad \mathbb{Q}_{3,3}^{(1,-1;c)}(T_u, 2) = \frac{\sqrt{3}\mathbb{G}_{2,3}^{(1,-1;a)}(T_u)\mathbb{Q}_{2,1}^{(b)}(E_g)}{3}$$

$$\boxed{\text{z1216}} \quad \mathbb{Q}_{1,1}^{(1,0;c)}(T_u, a) = \frac{\sqrt{3}\mathbb{Q}_{1,1}^{(1,0;a)}(T_u)\mathbb{Q}_0^{(b)}(A_g)}{3}$$

$$\boxed{\text{z1217}} \quad \mathbb{Q}_{1,2}^{(1,0;c)}(T_u, a) = \frac{\sqrt{3}\mathbb{Q}_{1,2}^{(1,0;a)}(T_u)\mathbb{Q}_0^{(b)}(A_g)}{3}$$

$$\boxed{\text{z1218}} \quad \mathbb{Q}_{1,3}^{(1,0;c)}(T_u, a) = \frac{\sqrt{3}\mathbb{Q}_{1,3}^{(1,0;a)}(T_u)\mathbb{Q}_0^{(b)}(A_g)}{3}$$

$$\boxed{\text{z1219}} \quad \mathbb{Q}_{1,1}^{(1,0;c)}(T_u, b) = -\frac{\sqrt{3}\mathbb{Q}_{1,1}^{(1,0;a)}(T_u)\mathbb{Q}_{2,1}^{(b)}(E_g)}{6} + \frac{\mathbb{Q}_{1,1}^{(1,0;a)}(T_u)\mathbb{Q}_{2,2}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z1220}} \quad \mathbb{Q}_{1,2}^{(1,0;c)}(T_u, b) = -\frac{\sqrt{3}\mathbb{Q}_{1,2}^{(1,0;a)}(T_u)\mathbb{Q}_{2,1}^{(b)}(E_g)}{6} - \frac{\mathbb{Q}_{1,2}^{(1,0;a)}(T_u)\mathbb{Q}_{2,2}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z1221}} \quad \mathbb{Q}_{1,3}^{(1,0;c)}(T_u, b) = \frac{\sqrt{3}\mathbb{Q}_{1,3}^{(1,0;a)}(T_u)\mathbb{Q}_{2,1}^{(b)}(E_g)}{3}$$

$$\boxed{\text{z1222}} \quad \mathbb{Q}_{3,1}^{(1,0;c)}(T_u, 2) = -\frac{\mathbb{Q}_{1,1}^{(1,0;a)}(T_u)\mathbb{Q}_{2,1}^{(b)}(E_g)}{2} - \frac{\sqrt{3}\mathbb{Q}_{1,1}^{(1,0;a)}(T_u)\mathbb{Q}_{2,2}^{(b)}(E_g)}{6}$$

$$\boxed{\text{z1223}} \quad \mathbb{Q}_{3,2}^{(1,0;c)}(T_u, 2) = \frac{\mathbb{Q}_{1,2}^{(1,0;a)}(T_u)\mathbb{Q}_{2,1}^{(b)}(E_g)}{2} - \frac{\sqrt{3}\mathbb{Q}_{1,2}^{(1,0;a)}(T_u)\mathbb{Q}_{2,2}^{(b)}(E_g)}{6}$$

$$\boxed{\text{z1224}} \quad \mathbb{Q}_{3,3}^{(1,0;c)}(T_u, 2) = \frac{\sqrt{3}\mathbb{Q}_{1,3}^{(1,0;a)}(T_u)\mathbb{Q}_{2,2}^{(b)}(E_g)}{3}$$

$$\boxed{\text{z1225}} \quad \mathbb{G}_{2,1}^{(1,-1;c)}(T_u) = \frac{\sqrt{3}\mathbb{G}_{2,1}^{(1,-1;a)}(T_u)\mathbb{Q}_0^{(b)}(A_g)}{3}$$

$$\boxed{\text{z1226}} \quad \mathbb{G}_{2,2}^{(1,-1;c)}(T_u) = \frac{\sqrt{3}\mathbb{G}_{2,2}^{(1,-1;a)}(T_u)\mathbb{Q}_0^{(b)}(A_g)}{3}$$

$$\boxed{\text{z1227}} \quad \mathbb{G}_{2,3}^{(1,-1;c)}(T_u) = \frac{\sqrt{3}\mathbb{G}_{2,3}^{(1,-1;a)}(T_u)\mathbb{Q}_0^{(b)}(A_g)}{3}$$

• 'A'-'A' bond-cluster : **A_A_002_1**

- * bra: $\langle p_x, \uparrow |, \langle p_x, \downarrow |, \langle p_y, \uparrow |, \langle p_y, \downarrow |, \langle p_z, \uparrow |, \langle p_z, \downarrow |$
- * ket: $|p_x, \uparrow \rangle, |p_x, \downarrow \rangle, |p_y, \uparrow \rangle, |p_y, \downarrow \rangle, |p_z, \uparrow \rangle, |p_z, \downarrow \rangle$
- * wyckoff: **3a@1a**

$$\boxed{\text{z44}} \quad \mathbb{Q}_0^{(c)}(A_g, a) = \mathbb{Q}_0^{(a)}(A_g)\mathbb{Q}_0^{(b)}(A_g)$$

$$\boxed{\text{z45}} \quad \mathbb{Q}_0^{(c)}(A_g, b) = \frac{\sqrt{2}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{2} + \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z46}} \quad \mathbb{Q}_0^{(1,-1;c)}(A_g) = \frac{\sqrt{2}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{2} + \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z47}} \quad \mathbb{Q}_0^{(1,1;c)}(A_g) = \mathbb{Q}_0^{(1,1;a)}(A_g)\mathbb{Q}_0^{(b)}(A_g)$$

$$\boxed{\text{z48}} \quad \mathbb{G}_3^{(c)}(A_g) = \frac{\sqrt{2}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{2} - \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z49}} \quad \mathbb{G}_3^{(1,-1;c)}(A_g) = \frac{\sqrt{2}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{2} - \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z156}} \quad \mathbb{Q}_3^{(1,-1;c)}(A_u) = -\frac{\sqrt{3}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,1}^{(b)}(T_u)}{3} - \frac{\sqrt{3}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,2}^{(b)}(T_u)}{3} - \frac{\sqrt{3}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,3}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z157}} \quad \mathbb{Q}_3^{(1,0;c)}(A_u) = \frac{\sqrt{3}\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{3} + \frac{\sqrt{3}\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{3} + \frac{\sqrt{3}\mathbb{T}_{2,3}^{(1,0;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z158}} \quad \mathbb{G}_0^{(c)}(A_u) = \frac{\sqrt{3}\mathbb{M}_{1,1}^{(a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{3} + \frac{\sqrt{3}\mathbb{M}_{1,2}^{(a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{3} + \frac{\sqrt{3}\mathbb{M}_{1,3}^{(a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z159}} \quad \mathbb{G}_0^{(1,-1;c)}(A_u) = \frac{\sqrt{3}\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{3} + \frac{\sqrt{3}\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{3} + \frac{\sqrt{3}\mathbb{M}_{1,3}^{(1,-1;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z160}} \quad \mathbb{G}_4^{(1,-1;c)}(A_u) = \frac{\sqrt{3}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g,1)\mathbb{T}_{1,1}^{(b)}(T_u)}{3} + \frac{\sqrt{3}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g,1)\mathbb{T}_{1,2}^{(b)}(T_u)}{3} + \frac{\sqrt{3}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g,1)\mathbb{T}_{1,3}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z161}} \quad \mathbb{G}_0^{(1,1;c)}(A_u) = \frac{\sqrt{3}\mathbb{M}_{1,1}^{(1,1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{3} + \frac{\sqrt{3}\mathbb{M}_{1,2}^{(1,1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{3} + \frac{\sqrt{3}\mathbb{M}_{1,3}^{(1,1;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z162}} \quad \mathbb{Q}_{2,1}^{(c)}(E_g, a) = \frac{\sqrt{2}\mathbb{Q}_0^{(a)}(A_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z163}} \quad \mathbb{Q}_{2,2}^{(c)}(E_g, a) = \frac{\sqrt{2}\mathbb{Q}_0^{(a)}(A_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z164}} \quad \mathbb{Q}_{2,1}^{(c)}(E_g, b) = \frac{\sqrt{2}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_0^{(b)}(A_g)}{2}$$

$$\boxed{\text{z165}} \quad \mathbb{Q}_{2,2}^{(c)}(E_g, b) = \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_0^{(b)}(A_g)}{2}$$

$$\boxed{\text{z166}} \quad \mathbb{Q}_{2,1}^{(c)}(E_g, c) = \frac{\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{2} - \frac{\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z167}} \quad \mathbb{Q}_{2,2}^{(c)}(E_g, c) = -\frac{\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{2} - \frac{\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z550}} \quad \mathbb{Q}_{2,1}^{(1,-1;c)}(E_g, a) = \frac{\sqrt{2}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_0^{(b)}(A_g)}{2}$$

$$\boxed{\text{z551}} \quad \mathbb{Q}_{2,2}^{(1,-1;c)}(E_g, a) = \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_0^{(b)}(A_g)}{2}$$

$$\boxed{\text{z552}} \quad \mathbb{Q}_{2,1}^{(1,-1;c)}(E_g, b) = \frac{\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{2} - \frac{\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z553}} \quad \mathbb{Q}_{2,2}^{(1,-1;c)}(E_g, b) = -\frac{\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{2} - \frac{\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z554}} \quad \mathbb{Q}_{2,1}^{(1,1;c)}(E_g) = \frac{\sqrt{2}\mathbb{Q}_0^{(1,1;a)}(A_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z555}} \quad \mathbb{Q}_{2,2}^{(1,1;c)}(E_g) = \frac{\sqrt{2}\mathbb{Q}_0^{(1,1;a)}(A_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z556}} \quad \mathbb{G}_{2,1}^{(c)}(E_u) = -\frac{\sqrt{3}\mathbb{M}_{1,1}^{(a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{6} - \frac{\sqrt{3}\mathbb{M}_{1,2}^{(a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{6} + \frac{\sqrt{3}\mathbb{M}_{1,3}^{(a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z557}} \quad \mathbb{G}_{2,2}^{(c)}(E_u) = \frac{\mathbb{M}_{1,1}^{(a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{2} - \frac{\mathbb{M}_{1,2}^{(a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{2}$$

$$\boxed{\text{z558}} \quad \mathbb{G}_{2,1}^{(1,-1;c)}(E_u, a) = -\frac{\sqrt{42}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,1}^{(b)}(T_u)}{28} - \frac{\sqrt{70}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,1}^{(b)}(T_u)}{28} - \frac{\sqrt{42}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,2}^{(b)}(T_u)}{28} + \frac{\sqrt{70}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,2}^{(b)}(T_u)}{28} + \frac{\sqrt{42}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,3}^{(b)}(T_u)}{14}$$

$$\boxed{\text{z559}} \quad \mathbb{G}_{2,2}^{(1,-1;c)}(E_u, a) = \frac{3\sqrt{14}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,1}^{(b)}(T_u)}{28} - \frac{\sqrt{210}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,1}^{(b)}(T_u)}{84} - \frac{3\sqrt{14}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,2}^{(b)}(T_u)}{28} - \frac{\sqrt{210}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,2}^{(b)}(T_u)}{84} + \frac{\sqrt{210}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,3}^{(b)}(T_u)}{42}$$

$$\boxed{\text{z560}} \quad \mathbb{G}_{2,1}^{(1,-1;c)}(E_u, b) = -\frac{\sqrt{3}\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{6} - \frac{\sqrt{3}\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{6} + \frac{\sqrt{3}\mathbb{M}_{1,3}^{(1,-1;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z561}} \quad \mathbb{G}_{2,2}^{(1,-1;c)}(E_u, b) = \frac{\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{2} - \frac{\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{2}$$

$$\boxed{\text{z562}} \quad \mathbb{G}_{4,1}^{(1,-1;c)}(E_u) = -\frac{\sqrt{210}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,1}^{(b)}(T_u)}{84} + \frac{3\sqrt{14}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,1}^{(b)}(T_u)}{28} - \frac{\sqrt{210}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,2}^{(b)}(T_u)}{84} - \frac{3\sqrt{14}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,2}^{(b)}(T_u)}{28} + \frac{\sqrt{210}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,3}^{(b)}(T_u)}{42}$$

$$\boxed{\text{z563}} \quad \mathbb{G}_{4,2}^{(1,-1;c)}(E_u) = \frac{\sqrt{70}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,1}^{(b)}(T_u)}{28} + \frac{\sqrt{42}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,1}^{(b)}(T_u)}{28} - \frac{\sqrt{70}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,2}^{(b)}(T_u)}{28} + \frac{\sqrt{42}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,2}^{(b)}(T_u)}{28} - \frac{\sqrt{42}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,3}^{(b)}(T_u)}{14}$$

$$\boxed{\text{z564}} \quad \mathbb{G}_{2,1}^{(1,0;c)}(E_u) = -\frac{\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{2} + \frac{\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{2}$$

$$\boxed{\text{z565}} \quad \mathbb{G}_{2,2}^{(1,0;c)}(E_u) = -\frac{\sqrt{3}\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{6} - \frac{\sqrt{3}\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{6} + \frac{\sqrt{3}\mathbb{T}_{2,3}^{(1,0;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z566}} \quad \mathbb{G}_{2,1}^{(1,1;c)}(E_u) = -\frac{\sqrt{3}\mathbb{M}_{1,1}^{(1,1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{6} - \frac{\sqrt{3}\mathbb{M}_{1,2}^{(1,1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{6} + \frac{\sqrt{3}\mathbb{M}_{1,3}^{(1,1;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z567}} \quad \mathbb{G}_{2,2}^{(1,1;c)}(E_u) = \frac{\mathbb{M}_{1,1}^{(1,1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{2} - \frac{\mathbb{M}_{1,2}^{(1,1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{2}$$

$$\boxed{\text{z568}} \quad \mathbb{Q}_{2,1}^{(c)}(T_g, a) = \frac{\sqrt{3}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_0^{(b)}(A_g)}{3}$$

$$\boxed{\text{z569}} \quad \mathbb{Q}_{2,2}^{(c)}(T_g, a) = \frac{\sqrt{3}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_0^{(b)}(A_g)}{3}$$

$$\boxed{\text{z570}} \quad \mathbb{Q}_{2,3}^{(c)}(T_g, a) = \frac{\sqrt{3}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_0^{(b)}(A_g)}{3}$$

$$\boxed{\text{z571}} \quad \mathbb{Q}_{2,1}^{(c)}(T_g, b) = \frac{\sqrt{3}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{6} - \frac{\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z572}} \quad \mathbb{Q}_{2,2}^{(c)}(T_g, b) = \frac{\sqrt{3}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{6} + \frac{\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z573}} \quad \mathbb{Q}_{2,3}^{(c)}(T_g, b) = -\frac{\sqrt{3}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{3}$$

$$\boxed{\text{z574}} \quad \mathbb{Q}_{4,1}^{(c)}(T_g, 1) = -\frac{\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{2} - \frac{\sqrt{3}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{6}$$

$$\boxed{\text{z575}} \quad \mathbb{Q}_{4,2}^{(c)}(T_g, 1) = \frac{\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{2} - \frac{\sqrt{3}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{6}$$

$$\boxed{\text{z576}} \quad \mathbb{Q}_{4,3}^{(c)}(T_g, 1) = \frac{\sqrt{3}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{3}$$

$$\boxed{\text{z724}} \quad \mathbb{Q}_{2,1}^{(1,-1;c)}(T_g, a) = \frac{\sqrt{3}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_0^{(b)}(A_g)}{3}$$

$$\boxed{\text{z725}} \quad \mathbb{Q}_{2,2}^{(1,-1;c)}(T_g, a) = \frac{\sqrt{3}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_0^{(b)}(A_g)}{3}$$

$$\boxed{\text{z726}} \quad \mathbb{Q}_{2,3}^{(1,-1;c)}(T_g, a) = \frac{\sqrt{3}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_0^{(b)}(A_g)}{3}$$

$$\boxed{\text{z727}} \quad \mathbb{Q}_{2,1}^{(1,-1;c)}(T_g, b) = \frac{\sqrt{3}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{6} - \frac{\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z728}} \quad \mathbb{Q}_{2,2}^{(1,-1;c)}(T_g, b) = \frac{\sqrt{3}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{6} + \frac{\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z729}} \quad \mathbb{Q}_{2,3}^{(1,-1;c)}(T_g, b) = -\frac{\sqrt{3}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{3}$$

$$\boxed{\text{z828}} \quad \mathbb{Q}_{4,1}^{(1,-1;c)}(T_g, 1) = -\frac{\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{2} - \frac{\sqrt{3}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{6}$$

$$\boxed{\text{z829}} \quad \mathbb{Q}_{4,2}^{(1,-1;c)}(T_g, 1) = \frac{\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{2} - \frac{\sqrt{3}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{6}$$

$$\boxed{\text{z830}} \quad \mathbb{Q}_{4,3}^{(1,-1;c)}(T_g, 1) = \frac{\sqrt{3}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{3}$$

$$\boxed{\text{z831}} \quad \mathbb{Q}_{2,1}^{(1,0;c)}(T_g) = -\frac{\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{2} - \frac{\sqrt{3}\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{6}$$

$$\boxed{\text{z832}} \quad \mathbb{Q}_{2,2}^{(1,0;c)}(T_g) = \frac{\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{2} - \frac{\sqrt{3}\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{6}$$

$$\boxed{\text{z833}} \quad \mathbb{Q}_{2,3}^{(1,0;c)}(T_g) = \frac{\sqrt{3}\mathbb{G}_{1,3}^{(1,0;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{3}$$

$$\boxed{\text{z834}} \quad \mathbb{G}_{1,1}^{(1,0;c)}(T_g, a) = \frac{\sqrt{3}\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_0^{(b)}(A_g)}{3}$$

$$\boxed{\text{z835}} \quad \mathbb{G}_{1,2}^{(1,0;c)}(T_g, a) = \frac{\sqrt{3}\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_0^{(b)}(A_g)}{3}$$

$$\boxed{\text{z836}} \quad \mathbb{G}_{1,3}^{(1,0;c)}(T_g, a) = \frac{\sqrt{3}\mathbb{G}_{1,3}^{(1,0;a)}(T_g)\mathbb{Q}_0^{(b)}(A_g)}{3}$$

$$\boxed{\text{z837}} \quad \mathbb{G}_{1,1}^{(1,0;c)}(T_g, b) = -\frac{\sqrt{3}\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{6} + \frac{\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z838}} \quad \mathbb{G}_{1,2}^{(1,0;c)}(T_g, b) = -\frac{\sqrt{3}\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{6} - \frac{\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z839}} \quad \mathbb{G}_{1,3}^{(1,0;c)}(T_g, b) = \frac{\sqrt{3}\mathbb{G}_{1,3}^{(1,0;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{3}$$

$$\boxed{\text{z1228}} \quad \mathbb{Q}_{1,1}^{(c)}(T_u) = \frac{\sqrt{6}\mathbb{M}_{1,2}^{(a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{6} - \frac{\sqrt{6}\mathbb{M}_{1,3}^{(a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z1229}} \quad \mathbb{Q}_{1,2}^{(c)}(T_u) = -\frac{\sqrt{6}\mathbb{M}_{1,1}^{(a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z1230}} \quad \mathbb{Q}_{1,3}^{(c)}(T_u) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{6} - \frac{\sqrt{6}\mathbb{M}_{1,2}^{(a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z1231}} \quad \mathbb{Q}_{1,1}^{(1,-1;c)}(T_u) = \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{6} - \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,-1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z1232}} \quad \mathbb{Q}_{1,2}^{(1,-1;c)}(T_u) = -\frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,-1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z1233}} \quad \mathbb{Q}_{1,3}^{(1,-1;c)}(T_u) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{6} - \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z1234}} \quad \mathbb{Q}_{3,1}^{(1,-1;c)}(T_u, 1) = -\frac{\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,3}^{(b)}(T_u)}{4} - \frac{\sqrt{15}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,3}^{(b)}(T_u)}{12} + \frac{\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,2}^{(b)}(T_u)}{4} - \frac{\sqrt{15}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,2}^{(b)}(T_u)}{12}$$

$$\boxed{\text{z1235}} \quad \mathbb{Q}_{3,2}^{(1,-1;c)}(T_u, 1) = \frac{\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,3}^{(b)}(T_u)}{4} - \frac{\sqrt{15}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,3}^{(b)}(T_u)}{12} - \frac{\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,1}^{(b)}(T_u)}{4} - \frac{\sqrt{15}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,1}^{(b)}(T_u)}{12}$$

$$\boxed{\text{z1236}} \quad \mathbb{Q}_{3,3}^{(1,-1;c)}(T_u, 1) = -\frac{\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,2}^{(b)}(T_u)}{4} - \frac{\sqrt{15}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,2}^{(b)}(T_u)}{12} + \frac{\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,1}^{(b)}(T_u)}{4} - \frac{\sqrt{15}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,1}^{(b)}(T_u)}{12}$$

$$\boxed{\text{z1237}} \quad \mathbb{Q}_{3,1}^{(1,-1;c)}(T_u, 2) = \frac{\sqrt{15}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,3}^{(b)}(T_u)}{12} + \frac{\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,3}^{(b)}(T_u)}{12} + \frac{\sqrt{15}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,2}^{(b)}(T_u)}{12} - \frac{\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,2}^{(b)}(T_u)}{12} + \frac{\mathbb{M}_3^{(1,-1;a)}(A_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z1238}} \quad \mathbb{Q}_{3,2}^{(1,-1;c)}(T_u, 2) = \frac{\sqrt{15}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,3}^{(b)}(T_u)}{12} - \frac{\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,3}^{(b)}(T_u)}{12} + \frac{\sqrt{15}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,1}^{(b)}(T_u)}{12} + \frac{\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,1}^{(b)}(T_u)}{12} + \frac{\mathbb{M}_3^{(1,-1;a)}(A_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z1239}} \quad \mathbb{Q}_{3,3}^{(1,-1;c)}(T_u, 2) = \frac{\sqrt{15}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,2}^{(b)}(T_u)}{12} + \frac{\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,2}^{(b)}(T_u)}{12} + \frac{\sqrt{15}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,1}^{(b)}(T_u)}{12} - \frac{\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,1}^{(b)}(T_u)}{12} + \frac{\mathbb{M}_3^{(1,-1;a)}(A_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z1240}} \quad \mathbb{Q}_{1,1}^{(1,0;c)}(T_u) = -\frac{\sqrt{30}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{30} + \frac{\sqrt{10}\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{10} + \frac{\sqrt{10}\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{10} + \frac{\sqrt{10}\mathbb{T}_{2,3}^{(1,0;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{10}$$

$$\boxed{\text{z1241}} \quad \mathbb{Q}_{1,2}^{(1,0;c)}(T_u) = -\frac{\sqrt{30}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{30} + \frac{\sqrt{10}\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{10} - \frac{\sqrt{10}\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{10} + \frac{\sqrt{10}\mathbb{T}_{2,3}^{(1,0;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{10}$$

$$\boxed{\text{z1242}} \quad \mathbb{Q}_{1,3}^{(1,0;c)}(T_u) = \frac{\sqrt{30}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{15} + \frac{\sqrt{10}\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{10} + \frac{\sqrt{10}\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{10}$$

$$\boxed{\text{z1243}} \quad \mathbb{Q}_{3,1}^{(1,0;c)}(T_u, 1) = -\frac{\sqrt{5}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{10} + \frac{\sqrt{15}\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{10} - \frac{\sqrt{15}\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{15} - \frac{\sqrt{15}\mathbb{T}_{2,3}^{(1,0;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{15}$$

$$\boxed{\text{z1244}} \quad \mathbb{Q}_{3,2}^{(1,0;c)}(T_u, 1) = -\frac{\sqrt{5}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{10} - \frac{\sqrt{15}\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{15} - \frac{\sqrt{15}\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{10} - \frac{\sqrt{15}\mathbb{T}_{2,3}^{(1,0;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{15}$$

$$\boxed{\text{z1245}} \quad \mathbb{Q}_{3,3}^{(1,0;c)}(T_u, 1) = \frac{\sqrt{5}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{5} - \frac{\sqrt{15}\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{15} - \frac{\sqrt{15}\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{15}$$

$$\boxed{\text{z1246}} \quad \mathbb{Q}_{3,1}^{(1,0;c)}(T_u, 2) = -\frac{\sqrt{3}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{6} - \frac{\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{6} - \frac{\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{3} + \frac{\mathbb{T}_{2,3}^{(1,0;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z1247}} \quad \mathbb{Q}_{3,2}^{(1,0;c)}(T_u, 2) = \frac{\sqrt{3}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{6} + \frac{\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{3} - \frac{\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{6} - \frac{\mathbb{T}_{2,3}^{(1,0;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z1248}} \quad \mathbb{Q}_{3,3}^{(1,0;c)}(T_u, 2) = -\frac{\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{3} + \frac{\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{3} + \frac{\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z1249}} \quad \mathbb{Q}_{1,1}^{(1,1;c)}(T_u) = \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,1;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{6} - \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z1250}} \quad \mathbb{Q}_{1,2}^{(1,1;c)}(T_u) = -\frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,1;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z1251}} \quad \mathbb{Q}_{1,3}^{(1,1;c)}(T_u) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{6} - \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z1252}} \quad \mathbb{G}_{2,1}^{(c)}(T_u) = \frac{\sqrt{6}\mathbb{M}_{1,2}^{(a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z1253}} \quad \mathbb{G}_{2,2}^{(c)}(T_u) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z1254}} \quad \mathbb{G}_{2,3}^{(c)}(T_u) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,2}^{(a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z1255}} \quad \mathbb{G}_{2,1}^{(1,-1;c)}(T_u, a) = -\frac{\sqrt{21}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,3}^{(b)}(T_u)}{21} + \frac{\sqrt{35}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,3}^{(b)}(T_u)}{21} - \frac{\sqrt{21}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,2}^{(b)}(T_u)}{21} - \frac{\sqrt{35}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,2}^{(b)}(T_u)}{21} + \frac{\sqrt{35}\mathbb{M}_3^{(1,-1;a)}(A_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{21}$$

$$\boxed{\text{z1256}} \quad \mathbb{G}_{2,2}^{(1,-1;c)}(T_u, a) = -\frac{\sqrt{21}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,3}^{(b)}(T_u)}{21} - \frac{\sqrt{35}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,3}^{(b)}(T_u)}{21} - \frac{\sqrt{21}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,1}^{(b)}(T_u)}{21} + \frac{\sqrt{35}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,1}^{(b)}(T_u)}{21} + \frac{\sqrt{35}\mathbb{M}_3^{(1,-1;a)}(A_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{21}$$

- [z1257] $\mathbb{G}_{2,3}^{(1,-1;c)}(T_u, a) = -\frac{\sqrt{21}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,2}^{(b)}(T_u)}{21} + \frac{\sqrt{35}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,2}^{(b)}(T_u)}{21} - \frac{\sqrt{21}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,1}^{(b)}(T_u)}{21} - \frac{\sqrt{35}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,1}^{(b)}(T_u)}{21} + \frac{\sqrt{35}\mathbb{M}_3^{(1,-1;a)}(A_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{21}$
- [z1258] $\mathbb{G}_{2,1}^{(1,-1;c)}(T_u, b) = \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,-1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{6}$
- [z1259] $\mathbb{G}_{2,2}^{(1,-1;c)}(T_u, b) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,-1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{6}$
- [z1260] $\mathbb{G}_{2,3}^{(1,-1;c)}(T_u, b) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{6}$
- [z1261] $\mathbb{G}_{4,1}^{(1,-1;c)}(T_u, 1) = \frac{\sqrt{15}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,3}^{(b)}(T_u)}{12} - \frac{\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,3}^{(b)}(T_u)}{4} - \frac{\sqrt{15}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,2}^{(b)}(T_u)}{12} - \frac{\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,2}^{(b)}(T_u)}{4}$
- [z1262] $\mathbb{G}_{4,2}^{(1,-1;c)}(T_u, 1) = -\frac{\sqrt{15}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,3}^{(b)}(T_u)}{12} - \frac{\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,3}^{(b)}(T_u)}{4} + \frac{\sqrt{15}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,1}^{(b)}(T_u)}{12} - \frac{\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,1}^{(b)}(T_u)}{4}$
- [z1263] $\mathbb{G}_{4,3}^{(1,-1;c)}(T_u, 1) = \frac{\sqrt{15}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,2}^{(b)}(T_u)}{12} - \frac{\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,2}^{(b)}(T_u)}{4} - \frac{\sqrt{15}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,1}^{(b)}(T_u)}{12} - \frac{\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,1}^{(b)}(T_u)}{4}$
- [z1264] $\mathbb{G}_{4,1}^{(1,-1;c)}(T_u, 2) = -\frac{\sqrt{105}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,3}^{(b)}(T_u)}{84} - \frac{3\sqrt{7}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,3}^{(b)}(T_u)}{28} - \frac{\sqrt{105}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,2}^{(b)}(T_u)}{84} + \frac{3\sqrt{7}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,2}^{(b)}(T_u)}{28} + \frac{\sqrt{7}\mathbb{M}_3^{(1,-1;a)}(A_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{7}$
- [z1265] $\mathbb{G}_{4,2}^{(1,-1;c)}(T_u, 2) = -\frac{\sqrt{105}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,3}^{(b)}(T_u)}{84} + \frac{3\sqrt{7}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,3}^{(b)}(T_u)}{28} - \frac{\sqrt{105}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,1}^{(b)}(T_u)}{84} - \frac{3\sqrt{7}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,1}^{(b)}(T_u)}{28} + \frac{\sqrt{7}\mathbb{M}_3^{(1,-1;a)}(A_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{7}$
- [z1266] $\mathbb{G}_{4,3}^{(1,-1;c)}(T_u, 2) = -\frac{\sqrt{105}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,2}^{(b)}(T_u)}{84} - \frac{3\sqrt{7}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,2}^{(b)}(T_u)}{28} - \frac{\sqrt{105}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,1}^{(b)}(T_u)}{84} + \frac{3\sqrt{7}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,1}^{(b)}(T_u)}{28} + \frac{\sqrt{7}\mathbb{M}_3^{(1,-1;a)}(A_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{7}$
- [z1267] $\mathbb{G}_{2,1}^{(1,0;c)}(T_u) = \frac{\sqrt{6}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{6} + \frac{\sqrt{2}\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{6} - \frac{\sqrt{2}\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{6} + \frac{\sqrt{2}\mathbb{T}_{2,3}^{(1,0;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{6}$
- [z1268] $\mathbb{G}_{2,2}^{(1,0;c)}(T_u) = -\frac{\sqrt{6}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{6} + \frac{\sqrt{2}\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{6} + \frac{\sqrt{2}\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{6} - \frac{\sqrt{2}\mathbb{T}_{2,3}^{(1,0;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{6}$
- [z1269] $\mathbb{G}_{2,3}^{(1,0;c)}(T_u) = -\frac{\sqrt{2}\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{6} - \frac{\sqrt{2}\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{3} + \frac{\sqrt{2}\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{6}$
- [z1270] $\mathbb{G}_{2,1}^{(1,1;c)}(T_u) = \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,1;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{6}$

$$\boxed{\text{z1271}} \quad \mathbb{G}_{2,2}^{(1,1;c)}(T_u) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,1;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z1272}} \quad \mathbb{G}_{2,3}^{(1,1;c)}(T_u) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{6}$$

• 'A'-'A' bond-cluster : A;A_002_-2

* bra: $\langle s, \uparrow |, \langle s, \downarrow |$

* ket: $|s, \uparrow \rangle, |s, \downarrow \rangle$

* wyckoff: 3b03c

$$\boxed{\text{z50}} \quad \mathbb{Q}_0^{(c)}(A_g) = \mathbb{Q}_0^{(a)}(A_g)\mathbb{Q}_0^{(b)}(A_g)$$

$$\boxed{\text{z168}} \quad \mathbb{G}_0^{(1,-1;c)}(A_u) = \frac{\sqrt{3}\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{3} + \frac{\sqrt{3}\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{3} + \frac{\sqrt{3}\mathbb{M}_{1,3}^{(1,-1;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{3}$$

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

$$\boxed{\text{z730}} \quad \mathbb{Q}_{2,2}^{(c)}(E_g) = \frac{\sqrt{2}\mathbb{Q}_0^{(a)}(A_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z840}} \quad \mathbb{G}_{2,1}^{(1,-1;c)}(E_u) = -\frac{\sqrt{3}\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{6} - \frac{\sqrt{3}\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{6} + \frac{\sqrt{3}\mathbb{M}_{1,3}^{(1,-1;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z841}} \quad \mathbb{G}_{2,2}^{(1,-1;c)}(E_u) = \frac{\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{2} - \frac{\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{2}$$

$$\boxed{\text{z1273}} \quad \mathbb{Q}_{1,1}^{(1,-1;c)}(T_u) = \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{6} - \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,-1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z1274}} \quad \mathbb{Q}_{1,2}^{(1,-1;c)}(T_u) = -\frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,-1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z1275}} \quad \mathbb{Q}_{1,3}^{(1,-1;c)}(T_u) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{6} - \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z1276}} \quad \mathbb{G}_{2,1}^{(1,-1;c)}(T_u) = \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,-1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z1277}} \quad \mathbb{G}_{2,2}^{(1,-1;c)}(T_u) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,-1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z1278}} \quad \mathbb{G}_{2,3}^{(1,-1;c)}(T_u) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{6}$$

• 'A'-A' bond-cluster : A;A_002_-2

* bra: $\langle s, \uparrow |, \langle s, \downarrow |$

* ket: $|p_x, \uparrow \rangle, |p_x, \downarrow \rangle, |p_y, \uparrow \rangle, |p_y, \downarrow \rangle, |p_z, \uparrow \rangle, |p_z, \downarrow \rangle$

* wyckoff: 3b03c

$$\boxed{\text{z51}} \quad \mathbb{Q}_0^{(c)}(A_g) = \frac{\sqrt{3}\mathbb{T}_{1,1}^{(a)}(T_u)\mathbb{T}_{1,1}^{(b)}(T_u)}{3} + \frac{\sqrt{3}\mathbb{T}_{1,2}^{(a)}(T_u)\mathbb{T}_{1,2}^{(b)}(T_u)}{3} + \frac{\sqrt{3}\mathbb{T}_{1,3}^{(a)}(T_u)\mathbb{T}_{1,3}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z52}} \quad \mathbb{Q}_0^{(1,0;c)}(A_g) = \frac{\sqrt{3}\mathbb{T}_{1,1}^{(1,0;a)}(T_u)\mathbb{T}_{1,1}^{(b)}(T_u)}{3} + \frac{\sqrt{3}\mathbb{T}_{1,2}^{(1,0;a)}(T_u)\mathbb{T}_{1,2}^{(b)}(T_u)}{3} + \frac{\sqrt{3}\mathbb{T}_{1,3}^{(1,0;a)}(T_u)\mathbb{T}_{1,3}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z53}} \quad \mathbb{G}_3^{(1,-1;c)}(A_g) = \frac{\sqrt{3}\mathbb{M}_{2,1}^{(1,-1;a)}(T_u)\mathbb{T}_{1,1}^{(b)}(T_u)}{3} + \frac{\sqrt{3}\mathbb{M}_{2,2}^{(1,-1;a)}(T_u)\mathbb{T}_{1,2}^{(b)}(T_u)}{3} + \frac{\sqrt{3}\mathbb{M}_{2,3}^{(1,-1;a)}(T_u)\mathbb{T}_{1,3}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z170}} \quad \mathbb{Q}_3^{(1,-1;c)}(A_u) = \frac{\sqrt{2}\mathbb{G}_{2,1}^{(1,-1;a)}(E_u)\mathbb{Q}_{2,2}^{(b)}(E_g)}{2} - \frac{\sqrt{2}\mathbb{G}_{2,2}^{(1,-1;a)}(E_u)\mathbb{Q}_{2,1}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z171}} \quad \mathbb{G}_0^{(1,-1;c)}(A_u) = \frac{\sqrt{2}\mathbb{G}_{2,1}^{(1,-1;a)}(E_u)\mathbb{Q}_{2,1}^{(b)}(E_g)}{2} + \frac{\sqrt{2}\mathbb{G}_{2,2}^{(1,-1;a)}(E_u)\mathbb{Q}_{2,2}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z172}} \quad \mathbb{G}_0^{(1,1;c)}(A_u) = \mathbb{G}_0^{(1,1;a)}(A_u)\mathbb{Q}_0^{(b)}(A_g)$$

$$\boxed{\text{z173}} \quad \mathbb{Q}_{2,1}^{(c)}(E_g) = -\frac{\sqrt{3}\mathbb{T}_{1,1}^{(a)}(T_u)\mathbb{T}_{1,1}^{(b)}(T_u)}{6} - \frac{\sqrt{3}\mathbb{T}_{1,2}^{(a)}(T_u)\mathbb{T}_{1,2}^{(b)}(T_u)}{6} + \frac{\sqrt{3}\mathbb{T}_{1,3}^{(a)}(T_u)\mathbb{T}_{1,3}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z174}} \quad \mathbb{Q}_{2,2}^{(c)}(E_g) = \frac{\mathbb{T}_{1,1}^{(a)}(T_u)\mathbb{T}_{1,1}^{(b)}(T_u)}{2} - \frac{\mathbb{T}_{1,2}^{(a)}(T_u)\mathbb{T}_{1,2}^{(b)}(T_u)}{2}$$

$$\boxed{\text{z175}} \quad \mathbb{Q}_{2,1}^{(1,-1;c)}(E_g) = -\frac{\mathbb{M}_{2,1}^{(1,-1;a)}(T_u)\mathbb{T}_{1,1}^{(b)}(T_u)}{2} + \frac{\mathbb{M}_{2,2}^{(1,-1;a)}(T_u)\mathbb{T}_{1,2}^{(b)}(T_u)}{2}$$

$$\boxed{\text{z577}} \quad \mathbb{Q}_{2,2}^{(1,-1;c)}(E_g) = -\frac{\sqrt{3}\mathbb{M}_{2,1}^{(1,-1;a)}(T_u)\mathbb{T}_{1,1}^{(b)}(T_u)}{6} - \frac{\sqrt{3}\mathbb{M}_{2,2}^{(1,-1;a)}(T_u)\mathbb{T}_{1,2}^{(b)}(T_u)}{6} + \frac{\sqrt{3}\mathbb{M}_{2,3}^{(1,-1;a)}(T_u)\mathbb{T}_{1,3}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z578}} \quad \mathbb{Q}_{2,1}^{(1,0;c)}(E_g) = -\frac{\sqrt{3}\mathbb{T}_{1,1}^{(1,0;a)}(T_u)\mathbb{T}_{1,1}^{(b)}(T_u)}{6} - \frac{\sqrt{3}\mathbb{T}_{1,2}^{(1,0;a)}(T_u)\mathbb{T}_{1,2}^{(b)}(T_u)}{6} + \frac{\sqrt{3}\mathbb{T}_{1,3}^{(1,0;a)}(T_u)\mathbb{T}_{1,3}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z579}} \quad \mathbb{Q}_{2,2}^{(1,0;c)}(E_g) = \frac{\mathbb{T}_{1,1}^{(1,0;a)}(T_u)\mathbb{T}_{1,1}^{(b)}(T_u)}{2} - \frac{\mathbb{T}_{1,2}^{(1,0;a)}(T_u)\mathbb{T}_{1,2}^{(b)}(T_u)}{2}$$

$$\boxed{\text{z580}} \quad \mathbb{G}_{2,1}^{(1,-1;c)}(E_u, a) = \frac{\sqrt{2}\mathbb{G}_{2,1}^{(1,-1;a)}(E_u)\mathbb{Q}_0^{(b)}(A_g)}{2}$$

$$\boxed{\text{z581}} \quad \mathbb{G}_{2,2}^{(1,-1;c)}(E_u, a) = \frac{\sqrt{2}\mathbb{G}_{2,2}^{(1,-1;a)}(E_u)\mathbb{Q}_0^{(b)}(A_g)}{2}$$

$$\boxed{\text{z582}} \quad \mathbb{G}_{2,1}^{(1,-1;c)}(E_u, b) = \frac{\mathbb{G}_{2,1}^{(1,-1;a)}(E_u)\mathbb{Q}_{2,1}^{(b)}(E_g)}{2} - \frac{\mathbb{G}_{2,2}^{(1,-1;a)}(E_u)\mathbb{Q}_{2,2}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z583}} \quad \mathbb{G}_{2,2}^{(1,-1;c)}(E_u, b) = -\frac{\mathbb{G}_{2,1}^{(1,-1;a)}(E_u)\mathbb{Q}_{2,2}^{(b)}(E_g)}{2} - \frac{\mathbb{G}_{2,2}^{(1,-1;a)}(E_u)\mathbb{Q}_{2,1}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z584}} \quad \mathbb{G}_{2,1}^{(1,1;c)}(E_u) = \frac{\sqrt{2}\mathbb{G}_0^{(1,1;a)}(A_u)\mathbb{Q}_{2,1}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z585}} \quad \mathbb{G}_{2,2}^{(1,1;c)}(E_u) = \frac{\sqrt{2}\mathbb{G}_0^{(1,1;a)}(A_u)\mathbb{Q}_{2,2}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z586}} \quad \mathbb{Q}_{2,1}^{(c)}(T_g) = \frac{\sqrt{6}\mathbb{T}_{1,2}^{(a)}(T_u)\mathbb{T}_{1,3}^{(b)}(T_u)}{6} + \frac{\sqrt{6}\mathbb{T}_{1,3}^{(a)}(T_u)\mathbb{T}_{1,2}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z587}} \quad \mathbb{Q}_{2,2}^{(c)}(T_g) = \frac{\sqrt{6}\mathbb{T}_{1,1}^{(a)}(T_u)\mathbb{T}_{1,3}^{(b)}(T_u)}{6} + \frac{\sqrt{6}\mathbb{T}_{1,3}^{(a)}(T_u)\mathbb{T}_{1,1}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z588}} \quad \mathbb{Q}_{2,3}^{(c)}(T_g) = \frac{\sqrt{6}\mathbb{T}_{1,1}^{(a)}(T_u)\mathbb{T}_{1,2}^{(b)}(T_u)}{6} + \frac{\sqrt{6}\mathbb{T}_{1,2}^{(a)}(T_u)\mathbb{T}_{1,1}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z589}} \quad \mathbb{Q}_{2,1}^{(1,-1;c)}(T_g) = \frac{\sqrt{6}\mathbb{M}_{2,1}^{(1,-1;a)}(E_u)\mathbb{T}_{1,1}^{(b)}(T_u)}{6} + \frac{\sqrt{2}\mathbb{M}_{2,2}^{(1,-1;a)}(E_u)\mathbb{T}_{1,1}^{(b)}(T_u)}{6} - \frac{\sqrt{2}\mathbb{M}_{2,2}^{(1,-1;a)}(T_u)\mathbb{T}_{1,3}^{(b)}(T_u)}{6} + \frac{\sqrt{2}\mathbb{M}_{2,3}^{(1,-1;a)}(T_u)\mathbb{T}_{1,2}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z590}} \quad \mathbb{Q}_{2,2}^{(1,-1;c)}(T_g) = -\frac{\sqrt{6}\mathbb{M}_{2,1}^{(1,-1;a)}(E_u)\mathbb{T}_{1,2}^{(b)}(T_u)}{6} + \frac{\sqrt{2}\mathbb{M}_{2,1}^{(1,-1;a)}(T_u)\mathbb{T}_{1,3}^{(b)}(T_u)}{6} + \frac{\sqrt{2}\mathbb{M}_{2,2}^{(1,-1;a)}(E_u)\mathbb{T}_{1,2}^{(b)}(T_u)}{6} - \frac{\sqrt{2}\mathbb{M}_{2,3}^{(1,-1;a)}(T_u)\mathbb{T}_{1,1}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z591}} \quad \mathbb{Q}_{2,3}^{(1,-1;c)}(T_g) = -\frac{\sqrt{2}\mathbb{M}_{2,1}^{(1,-1;a)}(T_u)\mathbb{T}_{1,2}^{(b)}(T_u)}{6} - \frac{\sqrt{2}\mathbb{M}_{2,2}^{(1,-1;a)}(E_u)\mathbb{T}_{1,3}^{(b)}(T_u)}{3} + \frac{\sqrt{2}\mathbb{M}_{2,2}^{(1,-1;a)}(T_u)\mathbb{T}_{1,1}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z592}} \quad \mathbb{Q}_{2,1}^{(1,0;c)}(T_g) = \frac{\sqrt{6}\mathbb{T}_{1,2}^{(1,0;a)}(T_u)\mathbb{T}_{1,3}^{(b)}(T_u)}{6} + \frac{\sqrt{6}\mathbb{T}_{1,3}^{(1,0;a)}(T_u)\mathbb{T}_{1,2}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z593}} \quad \mathbb{Q}_{2,2}^{(1,0;c)}(T_g) = \frac{\sqrt{6}\mathbb{T}_{1,1}^{(1,0;a)}(T_u)\mathbb{T}_{1,3}^{(b)}(T_u)}{6} + \frac{\sqrt{6}\mathbb{T}_{1,3}^{(1,0;a)}(T_u)\mathbb{T}_{1,1}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z594}} \quad \mathbb{Q}_{2,3}^{(1,0;c)}(T_g) = \frac{\sqrt{6}\mathbb{T}_{1,1}^{(1,0;a)}(T_u)\mathbb{T}_{1,2}^{(b)}(T_u)}{6} + \frac{\sqrt{6}\mathbb{T}_{1,2}^{(1,0;a)}(T_u)\mathbb{T}_{1,1}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z595}} \quad \mathbb{G}_{1,1}^{(c)}(T_g) = \frac{\sqrt{6}\mathbb{T}_{1,2}^{(a)}(T_u)\mathbb{T}_{1,3}^{(b)}(T_u)}{6} - \frac{\sqrt{6}\mathbb{T}_{1,3}^{(a)}(T_u)\mathbb{T}_{1,2}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z596}} \quad \mathbb{G}_{1,2}^{(c)}(T_g) = -\frac{\sqrt{6}\mathbb{T}_{1,1}^{(a)}(T_u)\mathbb{T}_{1,3}^{(b)}(T_u)}{6} + \frac{\sqrt{6}\mathbb{T}_{1,3}^{(a)}(T_u)\mathbb{T}_{1,1}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z597}} \quad \mathbb{G}_{1,3}^{(c)}(T_g) = \frac{\sqrt{6}\mathbb{T}_{1,1}^{(a)}(T_u)\mathbb{T}_{1,2}^{(b)}(T_u)}{6} - \frac{\sqrt{6}\mathbb{T}_{1,2}^{(a)}(T_u)\mathbb{T}_{1,1}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z598}} \quad \mathbb{G}_{1,1}^{(1,-1;c)}(T_g) = -\frac{\sqrt{30}\mathbb{M}_{2,1}^{(1,-1;a)}(E_u)\mathbb{T}_{1,1}^{(b)}(T_u)}{30} + \frac{\sqrt{10}\mathbb{M}_{2,2}^{(1,-1;a)}(E_u)\mathbb{T}_{1,1}^{(b)}(T_u)}{10} + \frac{\sqrt{10}\mathbb{M}_{2,2}^{(1,-1;a)}(T_u)\mathbb{T}_{1,3}^{(b)}(T_u)}{10} + \frac{\sqrt{10}\mathbb{M}_{2,3}^{(1,-1;a)}(T_u)\mathbb{T}_{1,2}^{(b)}(T_u)}{10}$$

$$\boxed{\text{z599}} \quad \mathbb{G}_{1,2}^{(1,-1;c)}(T_g) = -\frac{\sqrt{30}\mathbb{M}_{2,1}^{(1,-1;a)}(E_u)\mathbb{T}_{1,2}^{(b)}(T_u)}{30} + \frac{\sqrt{10}\mathbb{M}_{2,1}^{(1,-1;a)}(T_u)\mathbb{T}_{1,3}^{(b)}(T_u)}{10} - \frac{\sqrt{10}\mathbb{M}_{2,2}^{(1,-1;a)}(E_u)\mathbb{T}_{1,2}^{(b)}(T_u)}{10} + \frac{\sqrt{10}\mathbb{M}_{2,3}^{(1,-1;a)}(T_u)\mathbb{T}_{1,1}^{(b)}(T_u)}{10}$$

$$\boxed{\text{z600}} \quad \mathbb{G}_{1,3}^{(1,-1;c)}(T_g) = \frac{\sqrt{30}\mathbb{M}_{2,1}^{(1,-1;a)}(E_u)\mathbb{T}_{1,3}^{(b)}(T_u)}{15} + \frac{\sqrt{10}\mathbb{M}_{2,1}^{(1,-1;a)}(T_u)\mathbb{T}_{1,2}^{(b)}(T_u)}{10} + \frac{\sqrt{10}\mathbb{M}_{2,2}^{(1,-1;a)}(T_u)\mathbb{T}_{1,1}^{(b)}(T_u)}{10}$$

$$\boxed{\text{z601}} \quad \mathbb{G}_{3,1}^{(1,-1;c)}(T_g, 1) = -\frac{\sqrt{5}\mathbb{M}_{2,1}^{(1,-1;a)}(E_u)\mathbb{T}_{1,1}^{(b)}(T_u)}{10} + \frac{\sqrt{15}\mathbb{M}_{2,2}^{(1,-1;a)}(E_u)\mathbb{T}_{1,1}^{(b)}(T_u)}{10} - \frac{\sqrt{15}\mathbb{M}_{2,2}^{(1,-1;a)}(T_u)\mathbb{T}_{1,3}^{(b)}(T_u)}{15} - \frac{\sqrt{15}\mathbb{M}_{2,3}^{(1,-1;a)}(T_u)\mathbb{T}_{1,2}^{(b)}(T_u)}{15}$$

$$\boxed{\text{z602}} \quad \mathbb{G}_{3,2}^{(1,-1;c)}(T_g, 1) = -\frac{\sqrt{5}\mathbb{M}_{2,1}^{(1,-1;a)}(E_u)\mathbb{T}_{1,2}^{(b)}(T_u)}{10} - \frac{\sqrt{15}\mathbb{M}_{2,1}^{(1,-1;a)}(T_u)\mathbb{T}_{1,3}^{(b)}(T_u)}{15} - \frac{\sqrt{15}\mathbb{M}_{2,2}^{(1,-1;a)}(E_u)\mathbb{T}_{1,2}^{(b)}(T_u)}{10} - \frac{\sqrt{15}\mathbb{M}_{2,3}^{(1,-1;a)}(T_u)\mathbb{T}_{1,1}^{(b)}(T_u)}{15}$$

$$\boxed{\text{z603}} \quad \mathbb{G}_{3,3}^{(1,-1;c)}(T_g, 1) = \frac{\sqrt{5}\mathbb{M}_{2,1}^{(1,-1;a)}(E_u)\mathbb{T}_{1,3}^{(b)}(T_u)}{5} - \frac{\sqrt{15}\mathbb{M}_{2,1}^{(1,-1;a)}(T_u)\mathbb{T}_{1,2}^{(b)}(T_u)}{15} - \frac{\sqrt{15}\mathbb{M}_{2,2}^{(1,-1;a)}(T_u)\mathbb{T}_{1,1}^{(b)}(T_u)}{15}$$

$$\boxed{\text{z731}} \quad \mathbb{G}_{3,1}^{(1,-1;c)}(T_g, 2) = -\frac{\sqrt{3}\mathbb{M}_{2,1}^{(1,-1;a)}(E_u)\mathbb{T}_{1,1}^{(b)}(T_u)}{6} - \frac{\mathbb{M}_{2,2}^{(1,-1;a)}(E_u)\mathbb{T}_{1,1}^{(b)}(T_u)}{6} - \frac{\mathbb{M}_{2,2}^{(1,-1;a)}(T_u)\mathbb{T}_{1,3}^{(b)}(T_u)}{3} + \frac{\mathbb{M}_{2,3}^{(1,-1;a)}(T_u)\mathbb{T}_{1,2}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z732}} \quad \mathbb{G}_{3,2}^{(1,-1;c)}(T_g, 2) = \frac{\sqrt{3}\mathbb{M}_{2,1}^{(1,-1;a)}(E_u)\mathbb{T}_{1,2}^{(b)}(T_u)}{6} + \frac{\mathbb{M}_{2,1}^{(1,-1;a)}(T_u)\mathbb{T}_{1,3}^{(b)}(T_u)}{3} - \frac{\mathbb{M}_{2,2}^{(1,-1;a)}(E_u)\mathbb{T}_{1,2}^{(b)}(T_u)}{6} - \frac{\mathbb{M}_{2,3}^{(1,-1;a)}(T_u)\mathbb{T}_{1,1}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z733}} \quad \mathbb{G}_{3,3}^{(1,-1;c)}(T_g, 2) = -\frac{\mathbb{M}_{2,1}^{(1,-1;a)}(T_u)\mathbb{T}_{1,2}^{(b)}(T_u)}{3} + \frac{\mathbb{M}_{2,2}^{(1,-1;a)}(E_u)\mathbb{T}_{1,3}^{(b)}(T_u)}{3} + \frac{\mathbb{M}_{2,2}^{(1,-1;a)}(T_u)\mathbb{T}_{1,1}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z842}} \quad \mathbb{G}_{1,1}^{(1,0;c)}(T_g) = \frac{\sqrt{6}\mathbb{T}_{1,2}^{(1,0;a)}(T_u)\mathbb{T}_{1,3}^{(b)}(T_u)}{6} - \frac{\sqrt{6}\mathbb{T}_{1,3}^{(1,0;a)}(T_u)\mathbb{T}_{1,2}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z843}} \quad \mathbb{G}_{1,2}^{(1,0;c)}(T_g) = -\frac{\sqrt{6}\mathbb{T}_{1,1}^{(1,0;a)}(T_u)\mathbb{T}_{1,3}^{(b)}(T_u)}{6} + \frac{\sqrt{6}\mathbb{T}_{1,3}^{(1,0;a)}(T_u)\mathbb{T}_{1,1}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z844}} \quad \mathbb{G}_{1,3}^{(1,0;c)}(T_g) = \frac{\sqrt{6}\mathbb{T}_{1,1}^{(1,0;a)}(T_u)\mathbb{T}_{1,2}^{(b)}(T_u)}{6} - \frac{\sqrt{6}\mathbb{T}_{1,2}^{(1,0;a)}(T_u)\mathbb{T}_{1,1}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z845}} \quad \mathbb{G}_{1,1}^{(1,1;c)}(T_g) = \frac{\sqrt{3}\mathbb{M}_0^{(1,1;a)}(A_u)\mathbb{T}_{1,1}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z846}} \quad \mathbb{G}_{1,2}^{(1,1;c)}(T_g) = \frac{\sqrt{3}\mathbb{M}_0^{(1,1;a)}(A_u)\mathbb{T}_{1,2}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z847}} \quad \mathbb{G}_{1,3}^{(1,1;c)}(T_g) = \frac{\sqrt{3}\mathbb{M}_0^{(1,1;a)}(A_u)\mathbb{T}_{1,3}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z1279}} \quad \mathbb{Q}_{1,1}^{(c)}(T_u, a) = \frac{\sqrt{3}\mathbb{Q}_{1,1}^{(a)}(T_u)\mathbb{Q}_0^{(b)}(A_g)}{3}$$

$$\boxed{\text{z1280}} \quad \mathbb{Q}_{1,2}^{(c)}(T_u, a) = \frac{\sqrt{3}\mathbb{Q}_{1,2}^{(a)}(T_u)\mathbb{Q}_0^{(b)}(A_g)}{3}$$

$$\boxed{\text{z1281}} \quad \mathbb{Q}_{1,3}^{(c)}(T_u, a) = \frac{\sqrt{3}\mathbb{Q}_{1,3}^{(a)}(T_u)\mathbb{Q}_0^{(b)}(A_g)}{3}$$

$$\boxed{\text{z1282}} \quad \mathbb{Q}_{1,1}^{(c)}(T_u, b) = -\frac{\sqrt{3}\mathbb{Q}_{1,1}^{(a)}(T_u)\mathbb{Q}_{2,1}^{(b)}(E_g)}{6} + \frac{\mathbb{Q}_{1,1}^{(a)}(T_u)\mathbb{Q}_{2,2}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z1283}} \quad \mathbb{Q}_{1,2}^{(c)}(T_u, b) = -\frac{\sqrt{3}\mathbb{Q}_{1,2}^{(a)}(T_u)\mathbb{Q}_{2,1}^{(b)}(E_g)}{6} - \frac{\mathbb{Q}_{1,2}^{(a)}(T_u)\mathbb{Q}_{2,2}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z1284}} \quad \mathbb{Q}_{1,3}^{(c)}(T_u, b) = \frac{\sqrt{3}\mathbb{Q}_{1,3}^{(a)}(T_u)\mathbb{Q}_{2,1}^{(b)}(E_g)}{3}$$

$$\boxed{\text{z1285}} \quad \mathbb{Q}_{3,1}^{(c)}(T_u, 2) = -\frac{\mathbb{Q}_{1,1}^{(a)}(T_u)\mathbb{Q}_{2,1}^{(b)}(E_g)}{2} - \frac{\sqrt{3}\mathbb{Q}_{1,1}^{(a)}(T_u)\mathbb{Q}_{2,2}^{(b)}(E_g)}{6}$$

$$\boxed{\text{z1286}} \quad \mathbb{Q}_{3,2}^{(c)}(T_u, 2) = \frac{\mathbb{Q}_{1,2}^{(a)}(T_u)\mathbb{Q}_{2,1}^{(b)}(E_g)}{2} - \frac{\sqrt{3}\mathbb{Q}_{1,2}^{(a)}(T_u)\mathbb{Q}_{2,2}^{(b)}(E_g)}{6}$$

$$\boxed{\text{z1287}} \quad \mathbb{Q}_{3,3}^{(c)}(T_u, 2) = \frac{\sqrt{3}\mathbb{Q}_{1,3}^{(a)}(T_u)\mathbb{Q}_{2,2}^{(b)}(E_g)}{3}$$

$$\boxed{\text{z1288}} \quad \mathbb{Q}_{1,1}^{(1,-1;c)}(T_u) = \frac{\mathbb{G}_{2,1}^{(1,-1;a)}(T_u)\mathbb{Q}_{2,1}^{(b)}(E_g)}{2} + \frac{\sqrt{3}\mathbb{G}_{2,1}^{(1,-1;a)}(T_u)\mathbb{Q}_{2,2}^{(b)}(E_g)}{6}$$

$$\boxed{\text{z1289}} \quad \mathbb{Q}_{1,2}^{(1,-1;c)}(T_u) = -\frac{\mathbb{G}_{2,2}^{(1,-1;a)}(T_u)\mathbb{Q}_{2,1}^{(b)}(E_g)}{2} + \frac{\sqrt{3}\mathbb{G}_{2,2}^{(1,-1;a)}(T_u)\mathbb{Q}_{2,2}^{(b)}(E_g)}{6}$$

$$\boxed{\text{z1290}} \quad \mathbb{Q}_{1,3}^{(1,-1;c)}(T_u) = -\frac{\sqrt{3}\mathbb{G}_{2,3}^{(1,-1;a)}(T_u)\mathbb{Q}_{2,2}^{(b)}(E_g)}{3}$$

$$\boxed{\text{z1291}} \quad \mathbb{Q}_{3,1}^{(1,-1;c)}(T_u, 2) = -\frac{\sqrt{3}\mathbb{G}_{2,1}^{(1,-1;a)}(T_u)\mathbb{Q}_{2,1}^{(b)}(E_g)}{6} + \frac{\mathbb{G}_{2,1}^{(1,-1;a)}(T_u)\mathbb{Q}_{2,2}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z1292}} \quad \mathbb{Q}_{3,2}^{(1,-1;c)}(T_u, 2) = -\frac{\sqrt{3}\mathbb{G}_{2,2}^{(1,-1;a)}(T_u)\mathbb{Q}_{2,1}^{(b)}(E_g)}{6} - \frac{\mathbb{G}_{2,2}^{(1,-1;a)}(T_u)\mathbb{Q}_{2,2}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z1293}} \quad \mathbb{Q}_{3,3}^{(1,-1;c)}(T_u, 2) = \frac{\sqrt{3}\mathbb{G}_{2,3}^{(1,-1;a)}(T_u)\mathbb{Q}_{2,1}^{(b)}(E_g)}{3}$$

$$\boxed{\text{z1294}} \quad \mathbb{Q}_{1,1}^{(1,0;c)}(T_u, a) = \frac{\sqrt{3}\mathbb{Q}_{1,1}^{(1,0;a)}(T_u)\mathbb{Q}_0^{(b)}(A_g)}{3}$$

$$\boxed{\text{z1295}} \quad \mathbb{Q}_{1,2}^{(1,0;c)}(T_u, a) = \frac{\sqrt{3}\mathbb{Q}_{1,2}^{(1,0;a)}(T_u)\mathbb{Q}_0^{(b)}(A_g)}{3}$$

$$\boxed{\text{z1296}} \quad \mathbb{Q}_{1,3}^{(1,0;c)}(T_u, a) = \frac{\sqrt{3}\mathbb{Q}_{1,3}^{(1,0;a)}(T_u)\mathbb{Q}_0^{(b)}(A_g)}{3}$$

$$\boxed{\text{z1297}} \quad \mathbb{Q}_{1,1}^{(1,0;c)}(T_u, b) = -\frac{\sqrt{3}\mathbb{Q}_{1,1}^{(1,0;a)}(T_u)\mathbb{Q}_{2,1}^{(b)}(E_g)}{6} + \frac{\mathbb{Q}_{1,1}^{(1,0;a)}(T_u)\mathbb{Q}_{2,2}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z1298}} \quad \mathbb{Q}_{1,2}^{(1,0;c)}(T_u, b) = -\frac{\sqrt{3}\mathbb{Q}_{1,2}^{(1,0;a)}(T_u)\mathbb{Q}_{2,1}^{(b)}(E_g)}{6} - \frac{\mathbb{Q}_{1,2}^{(1,0;a)}(T_u)\mathbb{Q}_{2,2}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z1299}} \quad \mathbb{Q}_{1,3}^{(1,0;c)}(T_u, b) = \frac{\sqrt{3}\mathbb{Q}_{1,3}^{(1,0;a)}(T_u)\mathbb{Q}_{2,1}^{(b)}(E_g)}{3}$$

$$\boxed{\text{z1300}} \quad \mathbb{Q}_{3,1}^{(1,0;c)}(T_u, 2) = -\frac{\mathbb{Q}_{1,1}^{(1,0;a)}(T_u)\mathbb{Q}_{2,1}^{(b)}(E_g)}{2} - \frac{\sqrt{3}\mathbb{Q}_{1,1}^{(1,0;a)}(T_u)\mathbb{Q}_{2,2}^{(b)}(E_g)}{6}$$

$$\boxed{\text{z1301}} \quad \mathbb{Q}_{3,2}^{(1,0;c)}(T_u, 2) = \frac{\mathbb{Q}_{1,2}^{(1,0;a)}(T_u)\mathbb{Q}_{2,1}^{(b)}(E_g)}{2} - \frac{\sqrt{3}\mathbb{Q}_{1,2}^{(1,0;a)}(T_u)\mathbb{Q}_{2,2}^{(b)}(E_g)}{6}$$

$$\boxed{\text{z1302}} \quad \mathbb{Q}_{3,3}^{(1,0;c)}(T_u, 2) = \frac{\sqrt{3}\mathbb{Q}_{1,3}^{(1,0;a)}(T_u)\mathbb{Q}_{2,2}^{(b)}(E_g)}{3}$$

$$\boxed{\text{z1303}} \quad \mathbb{G}_{2,1}^{(1,-1;c)}(T_u) = \frac{\sqrt{3}\mathbb{G}_{2,1}^{(1,-1;a)}(T_u)\mathbb{Q}_0^{(b)}(A_g)}{3}$$

$$\boxed{\text{z1304}} \quad \mathbb{G}_{2,2}^{(1,-1;c)}(T_u) = \frac{\sqrt{3}\mathbb{G}_{2,2}^{(1,-1;a)}(T_u)\mathbb{Q}_0^{(b)}(A_g)}{3}$$

$$\boxed{\text{z1305}} \quad \mathbb{G}_{2,3}^{(1,-1;c)}(T_u) = \frac{\sqrt{3}\mathbb{G}_{2,3}^{(1,-1;a)}(T_u)\mathbb{Q}_0^{(b)}(A_g)}{3}$$

• 'A'-A' bond-cluster : A;A_002_2

- * bra: $\langle p_x, \uparrow |, \langle p_x, \downarrow |, \langle p_y, \uparrow |, \langle p_y, \downarrow |, \langle p_z, \uparrow |, \langle p_z, \downarrow |$
- * ket: $|p_x, \uparrow \rangle, |p_x, \downarrow \rangle, |p_y, \uparrow \rangle, |p_y, \downarrow \rangle, |p_z, \uparrow \rangle, |p_z, \downarrow \rangle$
- * wyckoff: 3b@3c

$$\boxed{\text{z54}} \quad \mathbb{Q}_0^{(c)}(A_g, a) = \mathbb{Q}_0^{(a)}(A_g)\mathbb{Q}_0^{(b)}(A_g)$$

$$\boxed{\text{z55}} \quad \mathbb{Q}_0^{(c)}(A_g, b) = \frac{\sqrt{2}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{2} + \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z56}} \quad \mathbb{Q}_0^{(1,-1;c)}(A_g) = \frac{\sqrt{2}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{2} + \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z57}} \quad \mathbb{Q}_0^{(1,1;c)}(A_g) = \mathbb{Q}_0^{(1,1;a)}(A_g)\mathbb{Q}_0^{(b)}(A_g)$$

$$\boxed{\text{z58}} \quad \mathbb{G}_3^{(c)}(A_g) = \frac{\sqrt{2}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{2} - \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z59}} \quad \mathbb{G}_3^{(1,-1;c)}(A_g) = \frac{\sqrt{2}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{2} - \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z176}} \quad \mathbb{Q}_3^{(1,-1;c)}(A_u) = -\frac{\sqrt{3}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,1}^{(b)}(T_u)}{3} - \frac{\sqrt{3}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,2}^{(b)}(T_u)}{3} - \frac{\sqrt{3}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,3}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z177}} \quad \mathbb{Q}_3^{(1,0;c)}(A_u) = \frac{\sqrt{3}\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{3} + \frac{\sqrt{3}\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{3} + \frac{\sqrt{3}\mathbb{T}_{2,3}^{(1,0;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z178}} \quad \mathbb{G}_0^{(c)}(A_u) = \frac{\sqrt{3}\mathbb{M}_{1,1}^{(a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{3} + \frac{\sqrt{3}\mathbb{M}_{1,2}^{(a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{3} + \frac{\sqrt{3}\mathbb{M}_{1,3}^{(a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z179}} \quad \mathbb{G}_0^{(1,-1;c)}(A_u) = \frac{\sqrt{3}\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{3} + \frac{\sqrt{3}\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{3} + \frac{\sqrt{3}\mathbb{M}_{1,3}^{(1,-1;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z180}} \quad \mathbb{G}_4^{(1,-1;c)}(A_u) = \frac{\sqrt{3}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,1}^{(b)}(T_u)}{3} + \frac{\sqrt{3}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,2}^{(b)}(T_u)}{3} + \frac{\sqrt{3}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,3}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z181}} \quad \mathbb{G}_0^{(1,1;c)}(A_u) = \frac{\sqrt{3}\mathbb{M}_{1,1}^{(1,1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{3} + \frac{\sqrt{3}\mathbb{M}_{1,2}^{(1,1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{3} + \frac{\sqrt{3}\mathbb{M}_{1,3}^{(1,1;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z182}} \quad \mathbb{Q}_{2,1}^{(c)}(E_g, a) = \frac{\sqrt{2}\mathbb{Q}_0^{(a)}(A_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z183}} \quad \mathbb{Q}_{2,2}^{(c)}(E_g, a) = \frac{\sqrt{2}\mathbb{Q}_0^{(a)}(A_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z184}} \quad \mathbb{Q}_{2,1}^{(c)}(E_g, b) = \frac{\sqrt{2}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_0^{(b)}(A_g)}{2}$$

$$\boxed{\text{z185}} \quad \mathbb{Q}_{2,2}^{(c)}(E_g, b) = \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_0^{(b)}(A_g)}{2}$$

$$\boxed{\text{z186}} \quad \mathbb{Q}_{2,1}^{(c)}(E_g, c) = \frac{\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{2} - \frac{\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z187}} \quad \mathbb{Q}_{2,2}^{(c)}(E_g, c) = -\frac{\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{2} - \frac{\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z604}} \quad \mathbb{Q}_{2,1}^{(1,-1;c)}(E_g, a) = \frac{\sqrt{2}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_0^{(b)}(A_g)}{2}$$

$$\boxed{\text{z605}} \quad \mathbb{Q}_{2,2}^{(1,-1;c)}(E_g, a) = \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_0^{(b)}(A_g)}{2}$$

$$\boxed{\text{z606}} \quad \mathbb{Q}_{2,1}^{(1,-1;a)}(E_g) \mathbb{Q}_{2,1}^{(b)}(E_g) - \frac{\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g) \mathbb{Q}_{2,2}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z607}} \quad \mathbb{Q}_{2,2}^{(1,-1;c)}(E_g, b) = -\frac{\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g) \mathbb{Q}_{2,2}^{(b)}(E_g)}{2} - \frac{\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g) \mathbb{Q}_{2,1}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z608}} \quad \mathbb{Q}_{2,1}^{(1,1;c)}(E_g) = \frac{\sqrt{2} \mathbb{Q}_0^{(1,1;a)}(A_g) \mathbb{Q}_{2,1}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z609}} \quad \mathbb{Q}_{2,2}^{(1,1;c)}(E_g) = \frac{\sqrt{2} \mathbb{Q}_0^{(1,1;a)}(A_g) \mathbb{Q}_{2,2}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z610}} \quad \mathbb{G}_{2,1}^{(c)}(E_u) = -\frac{\sqrt{3} \mathbb{M}_{1,1}^{(a)}(T_g) \mathbb{T}_{1,1}^{(b)}(T_u)}{6} - \frac{\sqrt{3} \mathbb{M}_{1,2}^{(a)}(T_g) \mathbb{T}_{1,2}^{(b)}(T_u)}{6} + \frac{\sqrt{3} \mathbb{M}_{1,3}^{(a)}(T_g) \mathbb{T}_{1,3}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z611}} \quad \mathbb{G}_{2,2}^{(c)}(E_u) = \frac{\mathbb{M}_{1,1}^{(a)}(T_g) \mathbb{T}_{1,1}^{(b)}(T_u)}{2} - \frac{\mathbb{M}_{1,2}^{(a)}(T_g) \mathbb{T}_{1,2}^{(b)}(T_u)}{2}$$

$$\boxed{\text{z612}} \quad \mathbb{G}_{2,1}^{(1,-1;c)}(E_u, a) = -\frac{\sqrt{42} \mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1) \mathbb{T}_{1,1}^{(b)}(T_u)}{28} - \frac{\sqrt{70} \mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2) \mathbb{T}_{1,1}^{(b)}(T_u)}{28} - \frac{\sqrt{42} \mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1) \mathbb{T}_{1,2}^{(b)}(T_u)}{28} + \frac{\sqrt{70} \mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2) \mathbb{T}_{1,2}^{(b)}(T_u)}{28} + \frac{\sqrt{42} \mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1) \mathbb{T}_{1,3}^{(b)}(T_u)}{14}$$

$$\boxed{\text{z613}} \quad \mathbb{G}_{2,2}^{(1,-1;c)}(E_u, a) = \frac{3\sqrt{14} \mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1) \mathbb{T}_{1,1}^{(b)}(T_u)}{28} - \frac{\sqrt{210} \mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2) \mathbb{T}_{1,1}^{(b)}(T_u)}{84} - \frac{3\sqrt{14} \mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1) \mathbb{T}_{1,2}^{(b)}(T_u)}{28} - \frac{\sqrt{210} \mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2) \mathbb{T}_{1,2}^{(b)}(T_u)}{84} + \frac{\sqrt{210} \mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2) \mathbb{T}_{1,3}^{(b)}(T_u)}{42}$$

$$\boxed{\text{z614}} \quad \mathbb{G}_{2,1}^{(1,-1;c)}(E_u, b) = -\frac{\sqrt{3} \mathbb{M}_{1,1}^{(1,-1;a)}(T_g) \mathbb{T}_{1,1}^{(b)}(T_u)}{6} - \frac{\sqrt{3} \mathbb{M}_{1,2}^{(1,-1;a)}(T_g) \mathbb{T}_{1,2}^{(b)}(T_u)}{6} + \frac{\sqrt{3} \mathbb{M}_{1,3}^{(1,-1;a)}(T_g) \mathbb{T}_{1,3}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z615}} \quad \mathbb{G}_{2,2}^{(1,-1;c)}(E_u, b) = \frac{\mathbb{M}_{1,1}^{(1,-1;a)}(T_g) \mathbb{T}_{1,1}^{(b)}(T_u)}{2} - \frac{\mathbb{M}_{1,2}^{(1,-1;a)}(T_g) \mathbb{T}_{1,2}^{(b)}(T_u)}{2}$$

$$\boxed{\text{z616}} \quad \mathbb{G}_{4,1}^{(1,-1;c)}(E_u) = -\frac{\sqrt{210} \mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1) \mathbb{T}_{1,1}^{(b)}(T_u)}{84} + \frac{3\sqrt{14} \mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2) \mathbb{T}_{1,1}^{(b)}(T_u)}{28} - \frac{\sqrt{210} \mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1) \mathbb{T}_{1,2}^{(b)}(T_u)}{84} - \frac{3\sqrt{14} \mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2) \mathbb{T}_{1,2}^{(b)}(T_u)}{28} + \frac{\sqrt{210} \mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1) \mathbb{T}_{1,3}^{(b)}(T_u)}{42}$$

$$\boxed{\text{z617}} \quad \mathbb{G}_{4,2}^{(1,-1;c)}(E_u) = \frac{\sqrt{70} \mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1) \mathbb{T}_{1,1}^{(b)}(T_u)}{28} + \frac{\sqrt{42} \mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2) \mathbb{T}_{1,1}^{(b)}(T_u)}{28} - \frac{\sqrt{70} \mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1) \mathbb{T}_{1,2}^{(b)}(T_u)}{28} + \frac{\sqrt{42} \mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2) \mathbb{T}_{1,2}^{(b)}(T_u)}{28} - \frac{\sqrt{42} \mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2) \mathbb{T}_{1,3}^{(b)}(T_u)}{14}$$

$$\boxed{\text{z618}} \quad \mathbb{G}_{2,1}^{(1,0;c)}(E_u) = -\frac{\mathbb{T}_{2,1}^{(1,0;a)}(T_g) \mathbb{T}_{1,1}^{(b)}(T_u)}{2} + \frac{\mathbb{T}_{2,2}^{(1,0;a)}(T_g) \mathbb{T}_{1,2}^{(b)}(T_u)}{2}$$

$$\boxed{\text{z619}} \quad \mathbb{G}_{2,2}^{(1,0;c)}(E_u) = -\frac{\sqrt{3} \mathbb{T}_{2,1}^{(1,0;a)}(T_g) \mathbb{T}_{1,1}^{(b)}(T_u)}{6} - \frac{\sqrt{3} \mathbb{T}_{2,2}^{(1,0;a)}(T_g) \mathbb{T}_{1,2}^{(b)}(T_u)}{6} + \frac{\sqrt{3} \mathbb{T}_{2,3}^{(1,0;a)}(T_g) \mathbb{T}_{1,3}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z620}} \quad \mathbb{G}_{2,1}^{(1,1;c)}(E_u) = -\frac{\sqrt{3}\mathbb{M}_{1,1}^{(1,1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{6} - \frac{\sqrt{3}\mathbb{M}_{1,2}^{(1,1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{6} + \frac{\sqrt{3}\mathbb{M}_{1,3}^{(1,1;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z621}} \quad \mathbb{G}_{2,2}^{(1,1;c)}(E_u) = \frac{\mathbb{M}_{1,1}^{(1,1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{2} - \frac{\mathbb{M}_{1,2}^{(1,1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{2}$$

$$\boxed{\text{z622}} \quad \mathbb{Q}_{2,1}^{(c)}(T_g, a) = \frac{\sqrt{3}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_0^{(b)}(A_g)}{3}$$

$$\boxed{\text{z623}} \quad \mathbb{Q}_{2,2}^{(c)}(T_g, a) = \frac{\sqrt{3}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_0^{(b)}(A_g)}{3}$$

$$\boxed{\text{z624}} \quad \mathbb{Q}_{2,3}^{(c)}(T_g, a) = \frac{\sqrt{3}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_0^{(b)}(A_g)}{3}$$

$$\boxed{\text{z625}} \quad \mathbb{Q}_{2,1}^{(c)}(T_g, b) = \frac{\sqrt{3}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{6} - \frac{\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z626}} \quad \mathbb{Q}_{2,2}^{(c)}(T_g, b) = \frac{\sqrt{3}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{6} + \frac{\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z627}} \quad \mathbb{Q}_{2,3}^{(c)}(T_g, b) = -\frac{\sqrt{3}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{3}$$

$$\boxed{\text{z628}} \quad \mathbb{Q}_{4,1}^{(c)}(T_g, 1) = -\frac{\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{2} - \frac{\sqrt{3}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{6}$$

$$\boxed{\text{z629}} \quad \mathbb{Q}_{4,2}^{(c)}(T_g, 1) = \frac{\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{2} - \frac{\sqrt{3}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{6}$$

$$\boxed{\text{z630}} \quad \mathbb{Q}_{4,3}^{(c)}(T_g, 1) = \frac{\sqrt{3}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{3}$$

$$\boxed{\text{z734}} \quad \mathbb{Q}_{2,1}^{(1,-1;c)}(T_g, a) = \frac{\sqrt{3}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_0^{(b)}(A_g)}{3}$$

$$\boxed{\text{z735}} \quad \mathbb{Q}_{2,2}^{(1,-1;c)}(T_g, a) = \frac{\sqrt{3}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_0^{(b)}(A_g)}{3}$$

$$\boxed{\text{z736}} \quad \mathbb{Q}_{2,3}^{(1,-1;c)}(T_g, a) = \frac{\sqrt{3}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_0^{(b)}(A_g)}{3}$$

$$\boxed{\text{z737}} \quad \mathbb{Q}_{2,1}^{(1,-1;c)}(T_g, b) = \frac{\sqrt{3}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{6} - \frac{\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z738}} \quad \mathbb{Q}_{2,2}^{(1,-1;c)}(T_g, b) = \frac{\sqrt{3}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{6} + \frac{\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z739}} \quad \mathbb{Q}_{2,3}^{(1,-1;c)}(T_g, b) = -\frac{\sqrt{3}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{3}$$

$$\boxed{\text{z848}} \quad \mathbb{Q}_{4,1}^{(1,-1;c)}(T_g, 1) = -\frac{\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{2} - \frac{\sqrt{3}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{6}$$

$$\boxed{\text{z849}} \quad \mathbb{Q}_{4,2}^{(1,-1;c)}(T_g, 1) = \frac{\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{2} - \frac{\sqrt{3}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{6}$$

$$\boxed{\text{z850}} \quad \mathbb{Q}_{4,3}^{(1,-1;c)}(T_g, 1) = \frac{\sqrt{3}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{3}$$

$$\boxed{\text{z851}} \quad \mathbb{Q}_{2,1}^{(1,0;c)}(T_g) = -\frac{\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{2} - \frac{\sqrt{3}\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{6}$$

$$\boxed{\text{z852}} \quad \mathbb{Q}_{2,2}^{(1,0;c)}(T_g) = \frac{\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{2} - \frac{\sqrt{3}\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{6}$$

$$\boxed{\text{z853}} \quad \mathbb{Q}_{2,3}^{(1,0;c)}(T_g) = \frac{\sqrt{3}\mathbb{G}_{1,3}^{(1,0;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{3}$$

$$\boxed{\text{z854}} \quad \mathbb{G}_{1,1}^{(1,0;c)}(T_g, a) = \frac{\sqrt{3}\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_0^{(b)}(A_g)}{3}$$

$$\boxed{\text{z855}} \quad \mathbb{G}_{1,2}^{(1,0;c)}(T_g, a) = \frac{\sqrt{3}\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_0^{(b)}(A_g)}{3}$$

$$\boxed{\text{z856}} \quad \mathbb{G}_{1,3}^{(1,0;c)}(T_g, a) = \frac{\sqrt{3}\mathbb{G}_{1,3}^{(1,0;a)}(T_g)\mathbb{Q}_0^{(b)}(A_g)}{3}$$

$$\boxed{\text{z857}} \quad \mathbb{G}_{1,1}^{(1,0;c)}(T_g, b) = -\frac{\sqrt{3}\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{6} + \frac{\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z858}} \quad \mathbb{G}_{1,2}^{(1,0;c)}(T_g, b) = -\frac{\sqrt{3}\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{6} - \frac{\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z859}} \quad \mathbb{G}_{1,3}^{(1,0;c)}(T_g, b) = \frac{\sqrt{3}\mathbb{G}_{1,3}^{(1,0;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{3}$$

$$\boxed{\text{z1306}} \quad \mathbb{Q}_{1,1}^{(c)}(T_u) = \frac{\sqrt{6}\mathbb{M}_{1,2}^{(a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{6} - \frac{\sqrt{6}\mathbb{M}_{1,3}^{(a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z1307}} \quad \mathbb{Q}_{1,2}^{(c)}(T_u) = -\frac{\sqrt{6}\mathbb{M}_{1,1}^{(a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z1308}} \quad \mathbb{Q}_{1,3}^{(c)}(T_u) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{6} - \frac{\sqrt{6}\mathbb{M}_{1,2}^{(a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z1309}} \quad \mathbb{Q}_{1,1}^{(1,-1;c)}(T_u) = \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{6} - \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,-1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z1310}} \quad \mathbb{Q}_{1,2}^{(1,-1;c)}(T_u) = -\frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,-1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z1311}} \quad \mathbb{Q}_{1,3}^{(1,-1;c)}(T_u) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{6} - \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z1312}} \quad \mathbb{Q}_{3,1}^{(1,-1;c)}(T_u, 1) = -\frac{\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,3}^{(b)}(T_u)}{4} - \frac{\sqrt{15}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,3}^{(b)}(T_u)}{12} + \frac{\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,2}^{(b)}(T_u)}{4} - \frac{\sqrt{15}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,2}^{(b)}(T_u)}{12}$$

$$\boxed{\text{z1313}} \quad \mathbb{Q}_{3,2}^{(1,-1;c)}(T_u, 1) = \frac{\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,3}^{(b)}(T_u)}{4} - \frac{\sqrt{15}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,3}^{(b)}(T_u)}{12} - \frac{\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,1}^{(b)}(T_u)}{4} - \frac{\sqrt{15}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,1}^{(b)}(T_u)}{12}$$

$$\boxed{\text{z1314}} \quad \mathbb{Q}_{3,3}^{(1,-1;c)}(T_u, 1) = -\frac{\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,2}^{(b)}(T_u)}{4} - \frac{\sqrt{15}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,2}^{(b)}(T_u)}{12} + \frac{\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,1}^{(b)}(T_u)}{4} - \frac{\sqrt{15}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,1}^{(b)}(T_u)}{12}$$

$$\boxed{\text{z1315}} \quad \mathbb{Q}_{3,1}^{(1,-1;c)}(T_u, 2) = \frac{\sqrt{15}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,3}^{(b)}(T_u)}{12} + \frac{\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,3}^{(b)}(T_u)}{12} + \frac{\sqrt{15}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,2}^{(b)}(T_u)}{12} - \frac{\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,2}^{(b)}(T_u)}{12} + \frac{\mathbb{M}_3^{(1,-1;a)}(A_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z1316}} \quad \mathbb{Q}_{3,2}^{(1,-1;c)}(T_u, 2) = \frac{\sqrt{15}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,3}^{(b)}(T_u)}{12} - \frac{\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,3}^{(b)}(T_u)}{12} + \frac{\sqrt{15}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,1}^{(b)}(T_u)}{12} + \frac{\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,1}^{(b)}(T_u)}{12} + \frac{\mathbb{M}_3^{(1,-1;a)}(A_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z1317}} \quad \mathbb{Q}_{3,3}^{(1,-1;c)}(T_u, 2) = \frac{\sqrt{15}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,2}^{(b)}(T_u)}{12} + \frac{\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,2}^{(b)}(T_u)}{12} + \frac{\sqrt{15}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,1}^{(b)}(T_u)}{12} - \frac{\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,1}^{(b)}(T_u)}{12} + \frac{\mathbb{M}_3^{(1,-1;a)}(A_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z1318}} \quad \mathbb{Q}_{1,1}^{(1,0;c)}(T_u) = -\frac{\sqrt{30}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{30} + \frac{\sqrt{10}\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{10} + \frac{\sqrt{10}\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{10} + \frac{\sqrt{10}\mathbb{T}_{2,3}^{(1,0;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{10}$$

$$\boxed{\text{z1319}} \quad \mathbb{Q}_{1,2}^{(1,0;c)}(T_u) = -\frac{\sqrt{30}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{30} + \frac{\sqrt{10}\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{10} - \frac{\sqrt{10}\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{10} + \frac{\sqrt{10}\mathbb{T}_{2,3}^{(1,0;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{10}$$

$$\boxed{\text{z1320}} \quad \mathbb{Q}_{1,3}^{(1,0;c)}(T_u) = \frac{\sqrt{30}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{15} + \frac{\sqrt{10}\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{10} + \frac{\sqrt{10}\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{10}$$

$$\boxed{\text{z1321}} \quad \mathbb{Q}_{3,1}^{(1,0;c)}(T_u, 1) = -\frac{\sqrt{5}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{10} + \frac{\sqrt{15}\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{10} - \frac{\sqrt{15}\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{15} - \frac{\sqrt{15}\mathbb{T}_{2,3}^{(1,0;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{15}$$

$$\boxed{\text{z1322}} \quad \mathbb{Q}_{3,2}^{(1,0;c)}(T_u, 1) = -\frac{\sqrt{5}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{10} - \frac{\sqrt{15}\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{15} - \frac{\sqrt{15}\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{10} - \frac{\sqrt{15}\mathbb{T}_{2,3}^{(1,0;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{15}$$

$$\boxed{\text{z1323}} \quad \mathbb{Q}_{3,3}^{(1,0;c)}(T_u, 1) = \frac{\sqrt{5}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{5} - \frac{\sqrt{15}\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{15} - \frac{\sqrt{15}\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{15}$$

$$\boxed{\text{z1324}} \quad \mathbb{Q}_{3,1}^{(1,0;c)}(T_u, 2) = -\frac{\sqrt{3}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{6} - \frac{\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{6} - \frac{\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{3} + \frac{\mathbb{T}_{2,3}^{(1,0;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z1325}} \quad \mathbb{Q}_{3,2}^{(1,0;c)}(T_u, 2) = \frac{\sqrt{3}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{6} + \frac{\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{3} - \frac{\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{6} - \frac{\mathbb{T}_{2,3}^{(1,0;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z1326}} \quad \mathbb{Q}_{3,3}^{(1,0;c)}(T_u, 2) = -\frac{\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{3} + \frac{\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{3} + \frac{\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z1327}} \quad \mathbb{Q}_{1,1}^{(1,1;c)}(T_u) = \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,1;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{6} - \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z1328}} \quad \mathbb{Q}_{1,2}^{(1,1;c)}(T_u) = -\frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,1;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z1329}} \quad \mathbb{Q}_{1,3}^{(1,1;c)}(T_u) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{6} - \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z1330}} \quad \mathbb{G}_{2,1}^{(c)}(T_u) = \frac{\sqrt{6}\mathbb{M}_{1,2}^{(a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z1331}} \quad \mathbb{G}_{2,2}^{(c)}(T_u) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z1332}} \quad \mathbb{G}_{2,3}^{(c)}(T_u) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,2}^{(a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{6}$$

$$\text{z1333} \quad \mathbb{G}_{2,1}^{(1,-1;a)}(T_u, a) = -\frac{\sqrt{21}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,3}^{(b)}(T_u)}{21} + \frac{\sqrt{35}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,3}^{(b)}(T_u)}{21} - \frac{\sqrt{21}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,2}^{(b)}(T_u)}{21} - \frac{\sqrt{35}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,2}^{(b)}(T_u)}{21} + \frac{\sqrt{35}\mathbb{M}_3^{(1,-1;a)}(A_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{21}$$

$$\text{z1334} \quad \mathbb{G}_{2,2}^{(1,-1;a)}(T_u, a) = -\frac{\sqrt{21}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,3}^{(b)}(T_u)}{21} - \frac{\sqrt{35}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,3}^{(b)}(T_u)}{21} - \frac{\sqrt{21}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,1}^{(b)}(T_u)}{21} + \frac{\sqrt{35}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,1}^{(b)}(T_u)}{21} + \frac{\sqrt{35}\mathbb{M}_3^{(1,-1;a)}(A_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{21}$$

$$\text{z1335} \quad \mathbb{G}_{2,3}^{(1,-1;c)}(T_u, a) = -\frac{\sqrt{21}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,2}^{(b)}(T_u)}{21} + \frac{\sqrt{35}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,2}^{(b)}(T_u)}{21} - \frac{\sqrt{21}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,1}^{(b)}(T_u)}{21} - \frac{\sqrt{35}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,1}^{(b)}(T_u)}{21} + \frac{\sqrt{35}\mathbb{M}_3^{(1,-1;a)}(A_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{21}$$

$$\text{z1336} \quad \mathbb{G}_{2,1}^{(1,-1;c)}(T_u, b) = \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,-1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{6}$$

$$\text{z1337} \quad \mathbb{G}_{2,2}^{(1,-1;c)}(T_u, b) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,-1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{6}$$

$$\text{z1338} \quad \mathbb{G}_{2,3}^{(1,-1;c)}(T_u, b) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{6}$$

$$\text{z1339} \quad \mathbb{G}_{4,1}^{(1,-1;c)}(T_u, 1) = \frac{\sqrt{15}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,3}^{(b)}(T_u)}{12} - \frac{\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,3}^{(b)}(T_u)}{4} - \frac{\sqrt{15}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,2}^{(b)}(T_u)}{12} - \frac{\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,2}^{(b)}(T_u)}{4}$$

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

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

$$\mathbb{G}_{4,1}^{(1,-1;c)}(T_u, 2) = -\frac{\sqrt{105}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,3}^{(b)}(T_u)}{S_4} - \frac{3\sqrt{7}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,3}^{(b)}(T_u)}{S_2} - \frac{\sqrt{105}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,2}^{(b)}(T_u)}{S_4} + \frac{3\sqrt{7}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,2}^{(b)}(T_u)}{S_2}$$

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

$$\left[z_{1344} \right] \mathbb{G}_{(1,-1;c)}^{(1,-1;a)}(T_g, 2) = -\frac{\sqrt{105}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,2}^{(b)}(T_u)}{} - \frac{3\sqrt{7}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,2}^{(b)}(T_u)}{} - \frac{\sqrt{105}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,1}^{(b)}(T_u)}{} + \frac{3\sqrt{7}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,1}^{(b)}(T_u)}{} + \frac{\sqrt{7}\mathbb{M}_3^{(1,-1;a)}(A_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{}$$

$$\text{[1345]} \quad \mathbb{C}^{(1,0;c)}(T_u) = \frac{\sqrt{6}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{T}_{1,1}^{(b)}(T_u)} + \frac{\sqrt{2}\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)} + \frac{\sqrt{2}\mathbb{T}_{2,3}^{(1,0;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{\mathbb{T}_{2,3}^{(1,0;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}$$

$$\sqrt{6}\mathbb{T}_{\cdot}^{(1,0;a)}(E_{\cdot})\mathbb{T}_{\cdot}^{(b)}(T_{\cdot}) = \sqrt{2}\mathbb{T}_{\cdot}^{(1,0;a)}(T_{\cdot})\mathbb{T}_{\cdot}^{(b)}(T_{\cdot}) = \sqrt{2}\mathbb{T}_{\cdot}^{(1,0;a)}(E_{\cdot})\mathbb{T}_{\cdot}^{(b)}(T_{\cdot}) = \sqrt{2}\mathbb{T}_{\cdot}^{(1,0;a)}(T_{\cdot})\mathbb{T}_{\cdot}^{(b)}(T_{\cdot})$$

Z1010 $\zeta_{2,2}^{(1)}(u) =$ 6 6 6 6

$$\boxed{\text{z1347}} \quad \mathbb{G}_{2,3}^{(1,0;c)}(T_u) = -\frac{\sqrt{2}\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{6} - \frac{\sqrt{2}\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{3} + \frac{\sqrt{2}\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z1348}} \quad \mathbb{G}_{2,1}^{(1,1;c)}(T_u) = \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,1;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z1349}} \quad \mathbb{G}_{2,2}^{(1,1;c)}(T_u) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,1;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z1350}} \quad \mathbb{G}_{2,3}^{(1,1;c)}(T_u) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{6}$$

• 'A'-'A' bond-cluster : A;A_002_3

- * bra: $\langle s, \uparrow |, \langle s, \downarrow |$
- * ket: $|s, \uparrow \rangle, |s, \downarrow \rangle$
- * wyckoff: 3c@3c

$$\boxed{\text{z60}} \quad \mathbb{Q}_0^{(c)}(A_g) = \mathbb{Q}_0^{(a)}(A_g)\mathbb{Q}_0^{(b)}(A_g)$$

$$\boxed{\text{z188}} \quad \mathbb{G}_0^{(1,-1;c)}(A_u) = \frac{\sqrt{3}\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{3} + \frac{\sqrt{3}\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{3} + \frac{\sqrt{3}\mathbb{M}_{1,3}^{(1,-1;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z189}} \quad \mathbb{Q}_{2,1}^{(c)}(E_g) = \frac{\sqrt{2}\mathbb{Q}_0^{(a)}(A_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z740}} \quad \mathbb{Q}_{2,2}^{(c)}(E_g) = \frac{\sqrt{2}\mathbb{Q}_0^{(a)}(A_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z860}} \quad \mathbb{G}_{2,1}^{(1,-1;c)}(E_u) = -\frac{\sqrt{3}\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{6} - \frac{\sqrt{3}\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{6} + \frac{\sqrt{3}\mathbb{M}_{1,3}^{(1,-1;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z861}} \quad \mathbb{G}_{2,2}^{(1,-1;c)}(E_u) = \frac{\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{2} - \frac{\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{2}$$

$$\boxed{\text{z1351}} \quad \mathbb{Q}_{1,1}^{(1,-1;c)}(T_u) = \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{6} - \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,-1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z1352}} \quad \mathbb{Q}_{1,2}^{(1,-1;c)}(T_u) = -\frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,-1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z1353}} \quad \mathbb{Q}_{1,3}^{(1,-1;c)}(T_u) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{6} - \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z1354}} \quad \mathbb{G}_{2,1}^{(1,-1;c)}(T_u) = \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,-1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z1355}} \quad \mathbb{G}_{2,2}^{(1,-1;c)}(T_u) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,-1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z1356}} \quad \mathbb{G}_{2,3}^{(1,-1;c)}(T_u) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{6}$$

• 'A'-'A' bond-cluster : A;A_002_3

* bra: $\langle s, \uparrow |, \langle s, \downarrow |$

* ket: $|p_x, \uparrow \rangle, |p_x, \downarrow \rangle, |p_y, \uparrow \rangle, |p_y, \downarrow \rangle, |p_z, \uparrow \rangle, |p_z, \downarrow \rangle$

* wyckoff: 3c@3c

$$\boxed{\text{z61}} \quad \mathbb{Q}_0^{(c)}(A_g) = \frac{\sqrt{3}\mathbb{T}_{1,1}^{(a)}(T_u)\mathbb{T}_{1,1}^{(b)}(T_u)}{3} + \frac{\sqrt{3}\mathbb{T}_{1,2}^{(a)}(T_u)\mathbb{T}_{1,2}^{(b)}(T_u)}{3} + \frac{\sqrt{3}\mathbb{T}_{1,3}^{(a)}(T_u)\mathbb{T}_{1,3}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z62}} \quad \mathbb{Q}_0^{(1,0;c)}(A_g) = \frac{\sqrt{3}\mathbb{T}_{1,1}^{(1,0;a)}(T_u)\mathbb{T}_{1,1}^{(b)}(T_u)}{3} + \frac{\sqrt{3}\mathbb{T}_{1,2}^{(1,0;a)}(T_u)\mathbb{T}_{1,2}^{(b)}(T_u)}{3} + \frac{\sqrt{3}\mathbb{T}_{1,3}^{(1,0;a)}(T_u)\mathbb{T}_{1,3}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z63}} \quad \mathbb{G}_3^{(1,-1;c)}(A_g) = \frac{\sqrt{3}\mathbb{M}_{2,1}^{(1,-1;a)}(T_u)\mathbb{T}_{1,1}^{(b)}(T_u)}{3} + \frac{\sqrt{3}\mathbb{M}_{2,2}^{(1,-1;a)}(T_u)\mathbb{T}_{1,2}^{(b)}(T_u)}{3} + \frac{\sqrt{3}\mathbb{M}_{2,3}^{(1,-1;a)}(T_u)\mathbb{T}_{1,3}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z190}} \quad \mathbb{Q}_3^{(1,-1;c)}(A_u) = \frac{\sqrt{2}\mathbb{G}_{2,1}^{(1,-1;a)}(E_u)\mathbb{Q}_{2,2}^{(b)}(E_g)}{2} - \frac{\sqrt{2}\mathbb{G}_{2,2}^{(1,-1;a)}(E_u)\mathbb{Q}_{2,1}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z191}} \quad \mathbb{G}_0^{(1,-1;c)}(A_u) = \frac{\sqrt{2}\mathbb{G}_{2,1}^{(1,-1;a)}(E_u)\mathbb{Q}_{2,1}^{(b)}(E_g)}{2} + \frac{\sqrt{2}\mathbb{G}_{2,2}^{(1,-1;a)}(E_u)\mathbb{Q}_{2,2}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z192}} \quad \mathbb{G}_0^{(1,1;c)}(A_u) = \mathbb{G}_0^{(1,1;a)}(A_u)\mathbb{Q}_0^{(b)}(A_g)$$

$$\boxed{\text{z193}} \quad \mathbb{Q}_{2,1}^{(c)}(E_g) = -\frac{\sqrt{3}\mathbb{T}_{1,1}^{(a)}(T_u)\mathbb{T}_{1,1}^{(b)}(T_u)}{6} - \frac{\sqrt{3}\mathbb{T}_{1,2}^{(a)}(T_u)\mathbb{T}_{1,2}^{(b)}(T_u)}{6} + \frac{\sqrt{3}\mathbb{T}_{1,3}^{(a)}(T_u)\mathbb{T}_{1,3}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z194}} \quad \mathbb{Q}_{2,2}^{(c)}(E_g) = \frac{\mathbb{T}_{1,1}^{(a)}(T_u)\mathbb{T}_{1,1}^{(b)}(T_u)}{2} - \frac{\mathbb{T}_{1,2}^{(a)}(T_u)\mathbb{T}_{1,2}^{(b)}(T_u)}{2}$$

$$\boxed{\text{z195}} \quad \mathbb{Q}_{2,1}^{(1,-1;c)}(E_g) = -\frac{\mathbb{M}_{2,1}^{(1,-1;a)}(T_u)\mathbb{T}_{1,1}^{(b)}(T_u)}{2} + \frac{\mathbb{M}_{2,2}^{(1,-1;a)}(T_u)\mathbb{T}_{1,2}^{(b)}(T_u)}{2}$$

$$\boxed{\text{z631}} \quad \mathbb{Q}_{2,2}^{(1,-1;c)}(E_g) = -\frac{\sqrt{3}\mathbb{M}_{2,1}^{(1,-1;a)}(T_u)\mathbb{T}_{1,1}^{(b)}(T_u)}{6} - \frac{\sqrt{3}\mathbb{M}_{2,2}^{(1,-1;a)}(T_u)\mathbb{T}_{1,2}^{(b)}(T_u)}{6} + \frac{\sqrt{3}\mathbb{M}_{2,3}^{(1,-1;a)}(T_u)\mathbb{T}_{1,3}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z632}} \quad \mathbb{Q}_{2,1}^{(1,0;c)}(E_g) = -\frac{\sqrt{3}\mathbb{T}_{1,1}^{(1,0;a)}(T_u)\mathbb{T}_{1,1}^{(b)}(T_u)}{6} - \frac{\sqrt{3}\mathbb{T}_{1,2}^{(1,0;a)}(T_u)\mathbb{T}_{1,2}^{(b)}(T_u)}{6} + \frac{\sqrt{3}\mathbb{T}_{1,3}^{(1,0;a)}(T_u)\mathbb{T}_{1,3}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z633}} \quad \mathbb{Q}_{2,2}^{(1,0;c)}(E_g) = \frac{\mathbb{T}_{1,1}^{(1,0;a)}(T_u)\mathbb{T}_{1,1}^{(b)}(T_u)}{2} - \frac{\mathbb{T}_{1,2}^{(1,0;a)}(T_u)\mathbb{T}_{1,2}^{(b)}(T_u)}{2}$$

$$\boxed{\text{z634}} \quad \mathbb{G}_{2,1}^{(1,-1;c)}(E_u, a) = \frac{\sqrt{2}\mathbb{G}_{2,1}^{(1,-1;a)}(E_u)\mathbb{Q}_0^{(b)}(A_g)}{2}$$

$$\boxed{\text{z635}} \quad \mathbb{G}_{2,2}^{(1,-1;c)}(E_u, a) = \frac{\sqrt{2}\mathbb{G}_{2,2}^{(1,-1;a)}(E_u)\mathbb{Q}_0^{(b)}(A_g)}{2}$$

$$\boxed{\text{z636}} \quad \mathbb{G}_{2,1}^{(1,-1;c)}(E_u, b) = \frac{\mathbb{G}_{2,1}^{(1,-1;a)}(E_u)\mathbb{Q}_{2,1}^{(b)}(E_g)}{2} - \frac{\mathbb{G}_{2,2}^{(1,-1;a)}(E_u)\mathbb{Q}_{2,2}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z637}} \quad \mathbb{G}_{2,2}^{(1,-1;c)}(E_u, b) = -\frac{\mathbb{G}_{2,1}^{(1,-1;a)}(E_u)\mathbb{Q}_{2,2}^{(b)}(E_g)}{2} - \frac{\mathbb{G}_{2,2}^{(1,-1;a)}(E_u)\mathbb{Q}_{2,1}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z638}} \quad \mathbb{G}_{2,1}^{(1,1;c)}(E_u) = \frac{\sqrt{2}\mathbb{G}_0^{(1,1;a)}(A_u)\mathbb{Q}_{2,1}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z639}} \quad \mathbb{G}_{2,2}^{(1,1;c)}(E_u) = \frac{\sqrt{2}\mathbb{G}_0^{(1,1;a)}(A_u)\mathbb{Q}_{2,2}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z640}} \quad \mathbb{Q}_{2,1}^{(c)}(T_g) = \frac{\sqrt{6}\mathbb{T}_{1,2}^{(a)}(T_u)\mathbb{T}_{1,3}^{(b)}(T_u)}{6} + \frac{\sqrt{6}\mathbb{T}_{1,3}^{(a)}(T_u)\mathbb{T}_{1,2}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z641}} \quad \mathbb{Q}_{2,2}^{(c)}(T_g) = \frac{\sqrt{6}\mathbb{T}_{1,1}^{(a)}(T_u)\mathbb{T}_{1,3}^{(b)}(T_u)}{6} + \frac{\sqrt{6}\mathbb{T}_{1,3}^{(a)}(T_u)\mathbb{T}_{1,1}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z642}} \quad \mathbb{Q}_{2,3}^{(c)}(T_g) = \frac{\sqrt{6}\mathbb{T}_{1,1}^{(a)}(T_u)\mathbb{T}_{1,2}^{(b)}(T_u)}{6} + \frac{\sqrt{6}\mathbb{T}_{1,2}^{(a)}(T_u)\mathbb{T}_{1,1}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z643}} \quad \mathbb{Q}_{2,1}^{(1,-1;c)}(T_g) = \frac{\sqrt{6}\mathbb{M}_{2,1}^{(1,-1;a)}(E_u)\mathbb{T}_{1,1}^{(b)}(T_u)}{6} + \frac{\sqrt{2}\mathbb{M}_{2,2}^{(1,-1;a)}(E_u)\mathbb{T}_{1,1}^{(b)}(T_u)}{6} - \frac{\sqrt{2}\mathbb{M}_{2,2}^{(1,-1;a)}(T_u)\mathbb{T}_{1,3}^{(b)}(T_u)}{6} + \frac{\sqrt{2}\mathbb{M}_{2,3}^{(1,-1;a)}(T_u)\mathbb{T}_{1,2}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z644}} \quad \mathbb{Q}_{2,2}^{(1,-1;c)}(T_g) = -\frac{\sqrt{6}\mathbb{M}_{2,1}^{(1,-1;a)}(E_u)\mathbb{T}_{1,2}^{(b)}(T_u)}{6} + \frac{\sqrt{2}\mathbb{M}_{2,1}^{(1,-1;a)}(T_u)\mathbb{T}_{1,3}^{(b)}(T_u)}{6} + \frac{\sqrt{2}\mathbb{M}_{2,2}^{(1,-1;a)}(E_u)\mathbb{T}_{1,2}^{(b)}(T_u)}{6} - \frac{\sqrt{2}\mathbb{M}_{2,3}^{(1,-1;a)}(T_u)\mathbb{T}_{1,1}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z645}} \quad \mathbb{Q}_{2,3}^{(1,-1;c)}(T_g) = -\frac{\sqrt{2}\mathbb{M}_{2,1}^{(1,-1;a)}(T_u)\mathbb{T}_{1,2}^{(b)}(T_u)}{6} - \frac{\sqrt{2}\mathbb{M}_{2,2}^{(1,-1;a)}(E_u)\mathbb{T}_{1,3}^{(b)}(T_u)}{3} + \frac{\sqrt{2}\mathbb{M}_{2,2}^{(1,-1;a)}(T_u)\mathbb{T}_{1,1}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z646}} \quad \mathbb{Q}_{2,1}^{(1,0;c)}(T_g) = \frac{\sqrt{6}\mathbb{T}_{1,2}^{(1,0;a)}(T_u)\mathbb{T}_{1,3}^{(b)}(T_u)}{6} + \frac{\sqrt{6}\mathbb{T}_{1,3}^{(1,0;a)}(T_u)\mathbb{T}_{1,2}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z647}} \quad \mathbb{Q}_{2,2}^{(1,0;c)}(T_g) = \frac{\sqrt{6}\mathbb{T}_{1,1}^{(1,0;a)}(T_u)\mathbb{T}_{1,3}^{(b)}(T_u)}{6} + \frac{\sqrt{6}\mathbb{T}_{1,3}^{(1,0;a)}(T_u)\mathbb{T}_{1,1}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z648}} \quad \mathbb{Q}_{2,3}^{(1,0;c)}(T_g) = \frac{\sqrt{6}\mathbb{T}_{1,1}^{(1,0;a)}(T_u)\mathbb{T}_{1,2}^{(b)}(T_u)}{6} + \frac{\sqrt{6}\mathbb{T}_{1,2}^{(1,0;a)}(T_u)\mathbb{T}_{1,1}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z649}} \quad \mathbb{G}_{1,1}^{(c)}(T_g) = \frac{\sqrt{6}\mathbb{T}_{1,2}^{(a)}(T_u)\mathbb{T}_{1,3}^{(b)}(T_u)}{6} - \frac{\sqrt{6}\mathbb{T}_{1,3}^{(a)}(T_u)\mathbb{T}_{1,2}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z650}} \quad \mathbb{G}_{1,2}^{(c)}(T_g) = -\frac{\sqrt{6}\mathbb{T}_{1,1}^{(a)}(T_u)\mathbb{T}_{1,3}^{(b)}(T_u)}{6} + \frac{\sqrt{6}\mathbb{T}_{1,3}^{(a)}(T_u)\mathbb{T}_{1,1}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z651}} \quad \mathbb{G}_{1,3}^{(c)}(T_g) = \frac{\sqrt{6}\mathbb{T}_{1,1}^{(a)}(T_u)\mathbb{T}_{1,2}^{(b)}(T_u)}{6} - \frac{\sqrt{6}\mathbb{T}_{1,2}^{(a)}(T_u)\mathbb{T}_{1,1}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z652}} \quad \mathbb{G}_{1,1}^{(1,-1;c)}(T_g) = -\frac{\sqrt{30}\mathbb{M}_{2,1}^{(1,-1;a)}(E_u)\mathbb{T}_{1,1}^{(b)}(T_u)}{30} + \frac{\sqrt{10}\mathbb{M}_{2,2}^{(1,-1;a)}(E_u)\mathbb{T}_{1,1}^{(b)}(T_u)}{10} + \frac{\sqrt{10}\mathbb{M}_{2,2}^{(1,-1;a)}(T_u)\mathbb{T}_{1,3}^{(b)}(T_u)}{10} + \frac{\sqrt{10}\mathbb{M}_{2,3}^{(1,-1;a)}(T_u)\mathbb{T}_{1,2}^{(b)}(T_u)}{10}$$

$$\boxed{\text{z653}} \quad \mathbb{G}_{1,2}^{(1,-1;c)}(T_g) = -\frac{\sqrt{30}\mathbb{M}_{2,1}^{(1,-1;a)}(E_u)\mathbb{T}_{1,2}^{(b)}(T_u)}{30} + \frac{\sqrt{10}\mathbb{M}_{2,1}^{(1,-1;a)}(T_u)\mathbb{T}_{1,3}^{(b)}(T_u)}{10} - \frac{\sqrt{10}\mathbb{M}_{2,2}^{(1,-1;a)}(E_u)\mathbb{T}_{1,2}^{(b)}(T_u)}{10} + \frac{\sqrt{10}\mathbb{M}_{2,3}^{(1,-1;a)}(T_u)\mathbb{T}_{1,1}^{(b)}(T_u)}{10}$$

$$\boxed{\text{z654}} \quad \mathbb{G}_{1,3}^{(1,-1;c)}(T_g) = \frac{\sqrt{30}\mathbb{M}_{2,1}^{(1,-1;a)}(E_u)\mathbb{T}_{1,3}^{(b)}(T_u)}{15} + \frac{\sqrt{10}\mathbb{M}_{2,1}^{(1,-1;a)}(T_u)\mathbb{T}_{1,2}^{(b)}(T_u)}{10} + \frac{\sqrt{10}\mathbb{M}_{2,2}^{(1,-1;a)}(T_u)\mathbb{T}_{1,1}^{(b)}(T_u)}{10}$$

$$\boxed{\text{z655}} \quad \mathbb{G}_{3,1}^{(1,-1;c)}(T_g, 1) = -\frac{\sqrt{5}\mathbb{M}_{2,1}^{(1,-1;a)}(E_u)\mathbb{T}_{1,1}^{(b)}(T_u)}{10} + \frac{\sqrt{15}\mathbb{M}_{2,2}^{(1,-1;a)}(E_u)\mathbb{T}_{1,1}^{(b)}(T_u)}{10} - \frac{\sqrt{15}\mathbb{M}_{2,2}^{(1,-1;a)}(T_u)\mathbb{T}_{1,3}^{(b)}(T_u)}{15} - \frac{\sqrt{15}\mathbb{M}_{2,3}^{(1,-1;a)}(T_u)\mathbb{T}_{1,2}^{(b)}(T_u)}{15}$$

$$\boxed{\text{z656}} \quad \mathbb{G}_{3,2}^{(1,-1;c)}(T_g, 1) = -\frac{\sqrt{5}\mathbb{M}_{2,1}^{(1,-1;a)}(E_u)\mathbb{T}_{1,2}^{(b)}(T_u)}{10} - \frac{\sqrt{15}\mathbb{M}_{2,1}^{(1,-1;a)}(T_u)\mathbb{T}_{1,3}^{(b)}(T_u)}{15} - \frac{\sqrt{15}\mathbb{M}_{2,2}^{(1,-1;a)}(E_u)\mathbb{T}_{1,2}^{(b)}(T_u)}{10} - \frac{\sqrt{15}\mathbb{M}_{2,3}^{(1,-1;a)}(T_u)\mathbb{T}_{1,1}^{(b)}(T_u)}{15}$$

$$\boxed{\text{z657}} \quad \mathbb{G}_{3,3}^{(1,-1;c)}(T_g, 1) = \frac{\sqrt{5}\mathbb{M}_{2,1}^{(1,-1;a)}(E_u)\mathbb{T}_{1,3}^{(b)}(T_u)}{5} - \frac{\sqrt{15}\mathbb{M}_{2,1}^{(1,-1;a)}(T_u)\mathbb{T}_{1,2}^{(b)}(T_u)}{15} - \frac{\sqrt{15}\mathbb{M}_{2,2}^{(1,-1;a)}(T_u)\mathbb{T}_{1,1}^{(b)}(T_u)}{15}$$

$$\boxed{\text{z741}} \quad \mathbb{G}_{3,1}^{(1,-1;c)}(T_g, 2) = -\frac{\sqrt{3}\mathbb{M}_{2,1}^{(1,-1;a)}(E_u)\mathbb{T}_{1,1}^{(b)}(T_u)}{6} - \frac{\mathbb{M}_{2,2}^{(1,-1;a)}(E_u)\mathbb{T}_{1,1}^{(b)}(T_u)}{6} - \frac{\mathbb{M}_{2,2}^{(1,-1;a)}(T_u)\mathbb{T}_{1,3}^{(b)}(T_u)}{3} + \frac{\mathbb{M}_{2,3}^{(1,-1;a)}(T_u)\mathbb{T}_{1,2}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z742}} \quad \mathbb{G}_{3,2}^{(1,-1;c)}(T_g, 2) = \frac{\sqrt{3}\mathbb{M}_{2,1}^{(1,-1;a)}(E_u)\mathbb{T}_{1,2}^{(b)}(T_u)}{6} + \frac{\mathbb{M}_{2,1}^{(1,-1;a)}(T_u)\mathbb{T}_{1,3}^{(b)}(T_u)}{3} - \frac{\mathbb{M}_{2,2}^{(1,-1;a)}(E_u)\mathbb{T}_{1,2}^{(b)}(T_u)}{6} - \frac{\mathbb{M}_{2,3}^{(1,-1;a)}(T_u)\mathbb{T}_{1,1}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z743}} \quad \mathbb{G}_{3,3}^{(1,-1;c)}(T_g, 2) = -\frac{\mathbb{M}_{2,1}^{(1,-1;a)}(T_u)\mathbb{T}_{1,2}^{(b)}(T_u)}{3} + \frac{\mathbb{M}_{2,2}^{(1,-1;a)}(E_u)\mathbb{T}_{1,3}^{(b)}(T_u)}{3} + \frac{\mathbb{M}_{2,2}^{(1,-1;a)}(T_u)\mathbb{T}_{1,1}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z862}} \quad \mathbb{G}_{1,1}^{(1,0;c)}(T_g) = \frac{\sqrt{6}\mathbb{T}_{1,2}^{(1,0;a)}(T_u)\mathbb{T}_{1,3}^{(b)}(T_u)}{6} - \frac{\sqrt{6}\mathbb{T}_{1,3}^{(1,0;a)}(T_u)\mathbb{T}_{1,2}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z863}} \quad \mathbb{G}_{1,2}^{(1,0;c)}(T_g) = -\frac{\sqrt{6}\mathbb{T}_{1,1}^{(1,0;a)}(T_u)\mathbb{T}_{1,3}^{(b)}(T_u)}{6} + \frac{\sqrt{6}\mathbb{T}_{1,3}^{(1,0;a)}(T_u)\mathbb{T}_{1,1}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z864}} \quad \mathbb{G}_{1,3}^{(1,0;c)}(T_g) = \frac{\sqrt{6}\mathbb{T}_{1,1}^{(1,0;a)}(T_u)\mathbb{T}_{1,2}^{(b)}(T_u)}{6} - \frac{\sqrt{6}\mathbb{T}_{1,2}^{(1,0;a)}(T_u)\mathbb{T}_{1,1}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z865}} \quad \mathbb{G}_{1,1}^{(1,1;c)}(T_g) = \frac{\sqrt{3}\mathbb{M}_0^{(1,1;a)}(A_u)\mathbb{T}_{1,1}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z866}} \quad \mathbb{G}_{1,2}^{(1,1;c)}(T_g) = \frac{\sqrt{3}\mathbb{M}_0^{(1,1;a)}(A_u)\mathbb{T}_{1,2}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z867}} \quad \mathbb{G}_{1,3}^{(1,1;c)}(T_g) = \frac{\sqrt{3}\mathbb{M}_0^{(1,1;a)}(A_u)\mathbb{T}_{1,3}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z1357}} \quad \mathbb{Q}_{1,1}^{(c)}(T_u, a) = \frac{\sqrt{3}\mathbb{Q}_{1,1}^{(a)}(T_u)\mathbb{Q}_0^{(b)}(A_g)}{3}$$

$$\boxed{\text{z1358}} \quad \mathbb{Q}_{1,2}^{(c)}(T_u, a) = \frac{\sqrt{3}\mathbb{Q}_{1,2}^{(a)}(T_u)\mathbb{Q}_0^{(b)}(A_g)}{3}$$

$$\boxed{\text{z1359}} \quad \mathbb{Q}_{1,3}^{(c)}(T_u, a) = \frac{\sqrt{3}\mathbb{Q}_{1,3}^{(a)}(T_u)\mathbb{Q}_0^{(b)}(A_g)}{3}$$

$$\boxed{\text{z1360}} \quad \mathbb{Q}_{1,1}^{(c)}(T_u, b) = -\frac{\sqrt{3}\mathbb{Q}_{1,1}^{(a)}(T_u)\mathbb{Q}_{2,1}^{(b)}(E_g)}{6} + \frac{\mathbb{Q}_{1,1}^{(a)}(T_u)\mathbb{Q}_{2,2}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z1361}} \quad \mathbb{Q}_{1,2}^{(c)}(T_u, b) = -\frac{\sqrt{3}\mathbb{Q}_{1,2}^{(a)}(T_u)\mathbb{Q}_{2,1}^{(b)}(E_g)}{6} - \frac{\mathbb{Q}_{1,2}^{(a)}(T_u)\mathbb{Q}_{2,2}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z1362}} \quad \mathbb{Q}_{1,3}^{(c)}(T_u, b) = \frac{\sqrt{3}\mathbb{Q}_{1,3}^{(a)}(T_u)\mathbb{Q}_{2,1}^{(b)}(E_g)}{3}$$

$$\boxed{\text{z1363}} \quad \mathbb{Q}_{3,1}^{(c)}(T_u, 2) = -\frac{\mathbb{Q}_{1,1}^{(a)}(T_u)\mathbb{Q}_{2,1}^{(b)}(E_g)}{2} - \frac{\sqrt{3}\mathbb{Q}_{1,1}^{(a)}(T_u)\mathbb{Q}_{2,2}^{(b)}(E_g)}{6}$$

$$\boxed{\text{z1364}} \quad \mathbb{Q}_{3,2}^{(c)}(T_u, 2) = \frac{\mathbb{Q}_{1,2}^{(a)}(T_u)\mathbb{Q}_{2,1}^{(b)}(E_g)}{2} - \frac{\sqrt{3}\mathbb{Q}_{1,2}^{(a)}(T_u)\mathbb{Q}_{2,2}^{(b)}(E_g)}{6}$$

$$\boxed{\text{z1365}} \quad \mathbb{Q}_{3,3}^{(c)}(T_u, 2) = \frac{\sqrt{3}\mathbb{Q}_{1,3}^{(a)}(T_u)\mathbb{Q}_{2,2}^{(b)}(E_g)}{3}$$

$$\boxed{\text{z1366}} \quad \mathbb{Q}_{1,1}^{(1,-1;c)}(T_u) = \frac{\mathbb{G}_{2,1}^{(1,-1;a)}(T_u)\mathbb{Q}_{2,1}^{(b)}(E_g)}{2} + \frac{\sqrt{3}\mathbb{G}_{2,1}^{(1,-1;a)}(T_u)\mathbb{Q}_{2,2}^{(b)}(E_g)}{6}$$

$$\boxed{\text{z1367}} \quad \mathbb{Q}_{1,2}^{(1,-1;c)}(T_u) = -\frac{\mathbb{G}_{2,2}^{(1,-1;a)}(T_u)\mathbb{Q}_{2,1}^{(b)}(E_g)}{2} + \frac{\sqrt{3}\mathbb{G}_{2,2}^{(1,-1;a)}(T_u)\mathbb{Q}_{2,2}^{(b)}(E_g)}{6}$$

$$\boxed{\text{z1368}} \quad \mathbb{Q}_{1,3}^{(1,-1;c)}(T_u) = -\frac{\sqrt{3}\mathbb{G}_{2,3}^{(1,-1;a)}(T_u)\mathbb{Q}_{2,2}^{(b)}(E_g)}{3}$$

$$\boxed{\text{z1369}} \quad \mathbb{Q}_{3,1}^{(1,-1;c)}(T_u, 2) = -\frac{\sqrt{3}\mathbb{G}_{2,1}^{(1,-1;a)}(T_u)\mathbb{Q}_{2,1}^{(b)}(E_g)}{6} + \frac{\mathbb{G}_{2,1}^{(1,-1;a)}(T_u)\mathbb{Q}_{2,2}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z1370}} \quad \mathbb{Q}_{3,2}^{(1,-1;c)}(T_u, 2) = -\frac{\sqrt{3}\mathbb{G}_{2,2}^{(1,-1;a)}(T_u)\mathbb{Q}_{2,1}^{(b)}(E_g)}{6} - \frac{\mathbb{G}_{2,2}^{(1,-1;a)}(T_u)\mathbb{Q}_{2,2}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z1371}} \quad \mathbb{Q}_{3,3}^{(1,-1;c)}(T_u, 2) = \frac{\sqrt{3}\mathbb{G}_{2,3}^{(1,-1;a)}(T_u)\mathbb{Q}_{2,1}^{(b)}(E_g)}{3}$$

$$\boxed{\text{z1372}} \quad \mathbb{Q}_{1,1}^{(1,0;c)}(T_u, a) = \frac{\sqrt{3}\mathbb{Q}_{1,1}^{(1,0;a)}(T_u)\mathbb{Q}_0^{(b)}(A_g)}{3}$$

$$\boxed{\text{z1373}} \quad \mathbb{Q}_{1,2}^{(1,0;c)}(T_u, a) = \frac{\sqrt{3}\mathbb{Q}_{1,2}^{(1,0;a)}(T_u)\mathbb{Q}_0^{(b)}(A_g)}{3}$$

$$\boxed{\text{z1374}} \quad \mathbb{Q}_{1,3}^{(1,0;c)}(T_u, a) = \frac{\sqrt{3}\mathbb{Q}_{1,3}^{(1,0;a)}(T_u)\mathbb{Q}_0^{(b)}(A_g)}{3}$$

$$\boxed{\text{z1375}} \quad \mathbb{Q}_{1,1}^{(1,0;c)}(T_u, b) = -\frac{\sqrt{3}\mathbb{Q}_{1,1}^{(1,0;a)}(T_u)\mathbb{Q}_{2,1}^{(b)}(E_g)}{6} + \frac{\mathbb{Q}_{1,1}^{(1,0;a)}(T_u)\mathbb{Q}_{2,2}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z1376}} \quad \mathbb{Q}_{1,2}^{(1,0;c)}(T_u, b) = -\frac{\sqrt{3}\mathbb{Q}_{1,2}^{(1,0;a)}(T_u)\mathbb{Q}_{2,1}^{(b)}(E_g)}{6} - \frac{\mathbb{Q}_{1,2}^{(1,0;a)}(T_u)\mathbb{Q}_{2,2}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z1377}} \quad \mathbb{Q}_{1,3}^{(1,0;c)}(T_u, b) = \frac{\sqrt{3}\mathbb{Q}_{1,3}^{(1,0;a)}(T_u)\mathbb{Q}_{2,1}^{(b)}(E_g)}{3}$$

$$\boxed{\text{z1378}} \quad \mathbb{Q}_{3,1}^{(1,0;c)}(T_u, 2) = -\frac{\mathbb{Q}_{1,1}^{(1,0;a)}(T_u)\mathbb{Q}_{2,1}^{(b)}(E_g)}{2} - \frac{\sqrt{3}\mathbb{Q}_{1,1}^{(1,0;a)}(T_u)\mathbb{Q}_{2,2}^{(b)}(E_g)}{6}$$

$$\boxed{\text{z1379}} \quad \mathbb{Q}_{3,2}^{(1,0;c)}(T_u, 2) = \frac{\mathbb{Q}_{1,2}^{(1,0;a)}(T_u)\mathbb{Q}_{2,1}^{(b)}(E_g)}{2} - \frac{\sqrt{3}\mathbb{Q}_{1,2}^{(1,0;a)}(T_u)\mathbb{Q}_{2,2}^{(b)}(E_g)}{6}$$

$$\boxed{\text{z1380}} \quad \mathbb{Q}_{3,3}^{(1,0;c)}(T_u, 2) = \frac{\sqrt{3}\mathbb{Q}_{1,3}^{(1,0;a)}(T_u)\mathbb{Q}_{2,2}^{(b)}(E_g)}{3}$$

$$\boxed{\text{z1381}} \quad \mathbb{G}_{2,1}^{(1,-1;c)}(T_u) = \frac{\sqrt{3}\mathbb{G}_{2,1}^{(1,-1;a)}(T_u)\mathbb{Q}_0^{(b)}(A_g)}{3}$$

$$\boxed{\text{z1382}} \quad \mathbb{G}_{2,2}^{(1,-1;c)}(T_u) = \frac{\sqrt{3}\mathbb{G}_{2,2}^{(1,-1;a)}(T_u)\mathbb{Q}_0^{(b)}(A_g)}{3}$$

$$\boxed{\text{z1383}} \quad \mathbb{G}_{2,3}^{(1,-1;c)}(T_u) = \frac{\sqrt{3}\mathbb{G}_{2,3}^{(1,-1;a)}(T_u)\mathbb{Q}_0^{(b)}(A_g)}{3}$$

• 'A'-'A' bond-cluster : A_A_002_3

- * bra: $\langle p_x, \uparrow |, \langle p_x, \downarrow |, \langle p_y, \uparrow |, \langle p_y, \downarrow |, \langle p_z, \uparrow |, \langle p_z, \downarrow |$
- * ket: $|p_x, \uparrow \rangle, |p_x, \downarrow \rangle, |p_y, \uparrow \rangle, |p_y, \downarrow \rangle, |p_z, \uparrow \rangle, |p_z, \downarrow \rangle$
- * wyckoff: 3c@3c

$$\boxed{\text{z64}} \quad \mathbb{Q}_0^{(c)}(A_g, a) = \mathbb{Q}_0^{(a)}(A_g)\mathbb{Q}_0^{(b)}(A_g)$$

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

$$\boxed{\text{z66}} \quad \mathbb{Q}_0^{(1,-1;c)}(A_g) = \frac{\sqrt{2}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{2} + \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z67}} \quad \mathbb{Q}_0^{(1,1;c)}(A_g) = \mathbb{Q}_0^{(1,1;a)}(A_g)\mathbb{Q}_0^{(b)}(A_g)$$

$$\boxed{\text{z68}} \quad \mathbb{G}_3^{(c)}(A_g) = \frac{\sqrt{2}\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{2} - \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z69}} \quad \mathbb{G}_3^{(1,-1;c)}(A_g) = \frac{\sqrt{2}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{2} - \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z196}} \quad \mathbb{Q}_3^{(1,-1;c)}(A_u) = -\frac{\sqrt{3}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,1}^{(b)}(T_u)}{3} - \frac{\sqrt{3}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,2}^{(b)}(T_u)}{3} - \frac{\sqrt{3}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,3}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z197}} \quad \mathbb{Q}_3^{(1,0;c)}(A_u) = \frac{\sqrt{3}\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{3} + \frac{\sqrt{3}\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{3} + \frac{\sqrt{3}\mathbb{T}_{2,3}^{(1,0;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z198}} \quad \mathbb{G}_0^{(c)}(A_u) = \frac{\sqrt{3}\mathbb{M}_{1,1}^{(a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{3} + \frac{\sqrt{3}\mathbb{M}_{1,2}^{(a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{3} + \frac{\sqrt{3}\mathbb{M}_{1,3}^{(a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z199}} \quad \mathbb{G}_0^{(1,-1;c)}(A_u) = \frac{\sqrt{3}\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{3} + \frac{\sqrt{3}\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{3} + \frac{\sqrt{3}\mathbb{M}_{1,3}^{(1,-1;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z200}} \quad \mathbb{G}_4^{(1,-1;c)}(A_u) = \frac{\sqrt{3}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,1}^{(b)}(T_u)}{3} + \frac{\sqrt{3}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,2}^{(b)}(T_u)}{3} + \frac{\sqrt{3}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,3}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z201}} \quad \mathbb{G}_0^{(1,1;c)}(A_u) = \frac{\sqrt{3}\mathbb{M}_{1,1}^{(1,1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{3} + \frac{\sqrt{3}\mathbb{M}_{1,2}^{(1,1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{3} + \frac{\sqrt{3}\mathbb{M}_{1,3}^{(1,1;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{3}$$

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

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

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

$$\boxed{\text{z205}} \quad \mathbb{Q}_{2,2}^{(c)}(E_g, b) = \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_0^{(b)}(A_g)}{2}$$

$$\boxed{\text{z206}} \quad \mathbb{Q}_{2,1}^{(c)}(E_g, c) = \frac{\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{2} - \frac{\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z207}} \quad \mathbb{Q}_{2,2}^{(c)}(E_g, c) = -\frac{\mathbb{Q}_{2,1}^{(a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{2} - \frac{\mathbb{Q}_{2,2}^{(a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z658}} \quad \mathbb{Q}_{2,1}^{(1,-1;c)}(E_g, a) = \frac{\sqrt{2}\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_0^{(b)}(A_g)}{2}$$

$$\boxed{\text{z659}} \quad \mathbb{Q}_{2,2}^{(1,-1;c)}(E_g, a) = \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_0^{(b)}(A_g)}{2}$$

$$\boxed{\text{z660}} \quad \mathbb{Q}_{2,1}^{(1,-1;c)}(E_g, b) = \frac{\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{2} - \frac{\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z661}} \quad \mathbb{Q}_{2,2}^{(1,-1;c)}(E_g, b) = -\frac{\mathbb{Q}_{2,1}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{2} - \frac{\mathbb{Q}_{2,2}^{(1,-1;a)}(E_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z662}} \quad \mathbb{Q}_{2,1}^{(1,1;c)}(E_g) = \frac{\sqrt{2}\mathbb{Q}_0^{(1,1;a)}(A_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z663}} \quad \mathbb{Q}_{2,2}^{(1,1;c)}(E_g) = \frac{\sqrt{2}\mathbb{Q}_0^{(1,1;a)}(A_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z664}} \quad \mathbb{G}_{2,1}^{(c)}(E_u) = -\frac{\sqrt{3}\mathbb{M}_{1,1}^{(a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{6} - \frac{\sqrt{3}\mathbb{M}_{1,2}^{(a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{6} + \frac{\sqrt{3}\mathbb{M}_{1,3}^{(a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z665}} \quad \mathbb{G}_{2,2}^{(c)}(E_u) = \frac{\mathbb{M}_{1,1}^{(a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{2} - \frac{\mathbb{M}_{1,2}^{(a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{2}$$

$$\boxed{\text{z666}} \quad \mathbb{G}_{2,1}^{(1,-1;c)}(E_u, a) = -\frac{\sqrt{42}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,1}^{(b)}(T_u)}{28} - \frac{\sqrt{70}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,1}^{(b)}(T_u)}{28} - \frac{\sqrt{42}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,2}^{(b)}(T_u)}{28} + \frac{\sqrt{70}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,2}^{(b)}(T_u)}{28} + \frac{\sqrt{42}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,3}^{(b)}(T_u)}{14}$$

$$\boxed{\text{z667}} \quad \mathbb{G}_{2,2}^{(1,-1;c)}(E_u, a) = \frac{3\sqrt{14}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,1}^{(b)}(T_u)}{28} - \frac{\sqrt{210}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,1}^{(b)}(T_u)}{84} - \frac{3\sqrt{14}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,2}^{(b)}(T_u)}{28} - \frac{\sqrt{210}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,2}^{(b)}(T_u)}{84} + \frac{\sqrt{210}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,3}^{(b)}(T_u)}{42}$$

$$\boxed{\text{z668}} \quad \mathbb{G}_{2,1}^{(1,-1;c)}(E_u, b) = -\frac{\sqrt{3}\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{6} - \frac{\sqrt{3}\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{6} + \frac{\sqrt{3}\mathbb{M}_{1,3}^{(1,-1;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z669}} \quad \mathbb{G}_{2,2}^{(1,-1;c)}(E_u, b) = \frac{\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{2} - \frac{\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{2}$$

$$\boxed{\text{z670}} \quad \mathbb{G}_{4,1}^{(1,-1;c)}(E_u) = -\frac{\sqrt{210}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,1}^{(b)}(T_u)}{84} + \frac{3\sqrt{14}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,1}^{(b)}(T_u)}{28} - \frac{\sqrt{210}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,2}^{(b)}(T_u)}{84} - \frac{3\sqrt{14}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,2}^{(b)}(T_u)}{28} + \frac{\sqrt{210}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,3}^{(b)}(T_u)}{42}$$

$$\boxed{\text{z671}} \quad \mathbb{G}_{4,2}^{(1,-1;c)}(E_u) = \frac{\sqrt{70}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,1}^{(b)}(T_u)}{28} + \frac{\sqrt{42}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,1}^{(b)}(T_u)}{28} - \frac{\sqrt{70}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,2}^{(b)}(T_u)}{28} + \frac{\sqrt{42}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,2}^{(b)}(T_u)}{28} - \frac{\sqrt{42}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,3}^{(b)}(T_u)}{14}$$

$$\boxed{\text{z672}} \quad \mathbb{G}_{2,1}^{(1,0;c)}(E_u) = -\frac{\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{2} + \frac{\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{2}$$

$$\boxed{\text{z673}} \quad \mathbb{G}_{2,2}^{(1,0;c)}(E_u) = -\frac{\sqrt{3}\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{6} - \frac{\sqrt{3}\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{6} + \frac{\sqrt{3}\mathbb{T}_{2,3}^{(1,0;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z674}} \quad \mathbb{G}_{2,1}^{(1,1;c)}(E_u) = -\frac{\sqrt{3}\mathbb{M}_{1,1}^{(1,1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{6} - \frac{\sqrt{3}\mathbb{M}_{1,2}^{(1,1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{6} + \frac{\sqrt{3}\mathbb{M}_{1,3}^{(1,1;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z675}} \quad \mathbb{G}_{2,2}^{(1,1;c)}(E_u) = \frac{\mathbb{M}_{1,1}^{(1,1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{2} - \frac{\mathbb{M}_{1,2}^{(1,1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{2}$$

$$\boxed{\text{z676}} \quad \mathbb{Q}_{2,1}^{(c)}(T_g, a) = \frac{\sqrt{3}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_0^{(b)}(A_g)}{3}$$

$$\boxed{\text{z677}} \quad \mathbb{Q}_{2,2}^{(c)}(T_g, a) = \frac{\sqrt{3}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_0^{(b)}(A_g)}{3}$$

$$\boxed{\text{z678}} \quad \mathbb{Q}_{2,3}^{(c)}(T_g, a) = \frac{\sqrt{3}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_0^{(b)}(A_g)}{3}$$

$$\boxed{\text{z679}} \quad \mathbb{Q}_{2,1}^{(c)}(T_g, b) = \frac{\sqrt{3}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{6} - \frac{\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z680}} \quad \mathbb{Q}_{2,2}^{(c)}(T_g, b) = \frac{\sqrt{3}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{6} + \frac{\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z681}} \quad \mathbb{Q}_{2,3}^{(c)}(T_g, b) = -\frac{\sqrt{3}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{3}$$

$$\boxed{\text{z682}} \quad \mathbb{Q}_{4,1}^{(c)}(T_g, 1) = -\frac{\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{2} - \frac{\sqrt{3}\mathbb{Q}_{2,1}^{(a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{6}$$

$$\boxed{\text{z683}} \quad \mathbb{Q}_{4,2}^{(c)}(T_g, 1) = \frac{\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{2} - \frac{\sqrt{3}\mathbb{Q}_{2,2}^{(a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{6}$$

$$\boxed{\text{z684}} \quad \mathbb{Q}_{4,3}^{(c)}(T_g, 1) = \frac{\sqrt{3}\mathbb{Q}_{2,3}^{(a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{3}$$

$$\boxed{\text{z744}} \quad \mathbb{Q}_{2,1}^{(1,-1;c)}(T_g, a) = \frac{\sqrt{3}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_0^{(b)}(A_g)}{3}$$

$$\boxed{\text{z745}} \quad \mathbb{Q}_{2,2}^{(1,-1;c)}(T_g, a) = \frac{\sqrt{3}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_0^{(b)}(A_g)}{3}$$

$$\boxed{\text{z746}} \quad \mathbb{Q}_{2,3}^{(1,-1;c)}(T_g, a) = \frac{\sqrt{3}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_0^{(b)}(A_g)}{3}$$

$$\boxed{\text{z747}} \quad \mathbb{Q}_{2,1}^{(1,-1;c)}(T_g, b) = \frac{\sqrt{3}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{6} - \frac{\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z748}} \quad \mathbb{Q}_{2,2}^{(1,-1;c)}(T_g, b) = \frac{\sqrt{3}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{6} + \frac{\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z749}} \quad \mathbb{Q}_{2,3}^{(1,-1;c)}(T_g, b) = -\frac{\sqrt{3}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{3}$$

$$\boxed{\text{z868}} \quad \mathbb{Q}_{4,1}^{(1,-1;c)}(T_g, 1) = -\frac{\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{2} - \frac{\sqrt{3}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{6}$$

$$\boxed{\text{z869}} \quad \mathbb{Q}_{4,2}^{(1,-1;c)}(T_g, 1) = \frac{\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{2} - \frac{\sqrt{3}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{6}$$

$$\boxed{\text{z870}} \quad \mathbb{Q}_{4,3}^{(1,-1;c)}(T_g, 1) = \frac{\sqrt{3}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{3}$$

$$\boxed{\text{z871}} \quad \mathbb{Q}_{2,1}^{(1,0;c)}(T_g) = -\frac{\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{2} - \frac{\sqrt{3}\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{6}$$

$$\boxed{\text{z872}} \quad \mathbb{Q}_{2,2}^{(1,0;c)}(T_g) = \frac{\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{2} - \frac{\sqrt{3}\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{6}$$

$$\boxed{\text{z873}} \quad \mathbb{Q}_{2,3}^{(1,0;c)}(T_g) = \frac{\sqrt{3}\mathbb{G}_{1,3}^{(1,0;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{3}$$

$$\boxed{\text{z874}} \quad \mathbb{G}_{1,1}^{(1,0;c)}(T_g, a) = \frac{\sqrt{3}\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_0^{(b)}(A_g)}{3}$$

$$\boxed{\text{z875}} \quad \mathbb{G}_{1,2}^{(1,0;c)}(T_g, a) = \frac{\sqrt{3}\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_0^{(b)}(A_g)}{3}$$

$$\boxed{\text{z876}} \quad \mathbb{G}_{1,3}^{(1,0;c)}(T_g, a) = \frac{\sqrt{3}\mathbb{G}_{1,3}^{(1,0;a)}(T_g)\mathbb{Q}_0^{(b)}(A_g)}{3}$$

$$\boxed{\text{z877}} \quad \mathbb{G}_{1,1}^{(1,0;c)}(T_g, b) = -\frac{\sqrt{3}\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{6} + \frac{\mathbb{G}_{1,1}^{(1,0;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z878}} \quad \mathbb{G}_{1,2}^{(1,0;c)}(T_g, b) = -\frac{\sqrt{3}\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{6} - \frac{\mathbb{G}_{1,2}^{(1,0;a)}(T_g)\mathbb{Q}_{2,2}^{(b)}(E_g)}{2}$$

$$\boxed{\text{z879}} \quad \mathbb{G}_{1,3}^{(1,0;c)}(T_g, b) = \frac{\sqrt{3}\mathbb{G}_{1,3}^{(1,0;a)}(T_g)\mathbb{Q}_{2,1}^{(b)}(E_g)}{3}$$

$$\boxed{\text{z1384}} \quad \mathbb{Q}_{1,1}^{(c)}(T_u) = \frac{\sqrt{6}\mathbb{M}_{1,2}^{(a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{6} - \frac{\sqrt{6}\mathbb{M}_{1,3}^{(a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z1385}} \quad \mathbb{Q}_{1,2}^{(c)}(T_u) = -\frac{\sqrt{6}\mathbb{M}_{1,1}^{(a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z1386}} \quad \mathbb{Q}_{1,3}^{(c)}(T_u) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{6} - \frac{\sqrt{6}\mathbb{M}_{1,2}^{(a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z1387}} \quad \mathbb{Q}_{1,1}^{(1,-1;c)}(T_u) = \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{6} - \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,-1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z1388}} \quad \mathbb{Q}_{1,2}^{(1,-1;c)}(T_u) = -\frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,-1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z1389}} \quad \mathbb{Q}_{1,3}^{(1,-1;c)}(T_u) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{6} - \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z1390}} \quad \mathbb{Q}_{3,1}^{(1,-1;c)}(T_u, 1) = -\frac{\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,3}^{(b)}(T_u)}{4} - \frac{\sqrt{15}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,3}^{(b)}(T_u)}{12} + \frac{\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,2}^{(b)}(T_u)}{4} - \frac{\sqrt{15}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,2}^{(b)}(T_u)}{12}$$

$$\boxed{\text{z1391}} \quad \mathbb{Q}_{3,2}^{(1,-1;c)}(T_u, 1) = \frac{\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,3}^{(b)}(T_u)}{4} - \frac{\sqrt{15}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,3}^{(b)}(T_u)}{12} - \frac{\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,1}^{(b)}(T_u)}{4} - \frac{\sqrt{15}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,1}^{(b)}(T_u)}{12}$$

$$\boxed{\text{z1392}} \quad \mathbb{Q}_{3,3}^{(1,-1;c)}(T_u, 1) = -\frac{\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,2}^{(b)}(T_u)}{4} - \frac{\sqrt{15}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,2}^{(b)}(T_u)}{12} + \frac{\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,1}^{(b)}(T_u)}{4} - \frac{\sqrt{15}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,1}^{(b)}(T_u)}{12}$$

$$\boxed{\text{z1393}} \quad \mathbb{Q}_{3,1}^{(1,-1;c)}(T_u, 2) = \frac{\sqrt{15}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,3}^{(b)}(T_u)}{12} + \frac{\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,3}^{(b)}(T_u)}{12} + \frac{\sqrt{15}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,2}^{(b)}(T_u)}{12} - \frac{\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,2}^{(b)}(T_u)}{12} + \frac{\mathbb{M}_3^{(1,-1;a)}(A_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z1394}} \quad \mathbb{Q}_{3,2}^{(1,-1;c)}(T_u, 2) = \frac{\sqrt{15}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,3}^{(b)}(T_u)}{12} - \frac{\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,3}^{(b)}(T_u)}{12} + \frac{\sqrt{15}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,1}^{(b)}(T_u)}{12} + \frac{\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,1}^{(b)}(T_u)}{12} + \frac{\mathbb{M}_3^{(1,-1;a)}(A_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z1395}} \quad \mathbb{Q}_{3,3}^{(1,-1;c)}(T_u, 2) = \frac{\sqrt{15}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,2}^{(b)}(T_u)}{12} + \frac{\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,2}^{(b)}(T_u)}{12} + \frac{\sqrt{15}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,1}^{(b)}(T_u)}{12} - \frac{\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,1}^{(b)}(T_u)}{12} + \frac{\mathbb{M}_3^{(1,-1;a)}(A_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z1396}} \quad \mathbb{Q}_{1,1}^{(1,0;c)}(T_u) = -\frac{\sqrt{30}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{30} + \frac{\sqrt{10}\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{10} + \frac{\sqrt{10}\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{10} + \frac{\sqrt{10}\mathbb{T}_{2,3}^{(1,0;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{10}$$

$$\boxed{\text{z1397}} \quad \mathbb{Q}_{1,2}^{(1,0;c)}(T_u) = -\frac{\sqrt{30}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{30} + \frac{\sqrt{10}\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{10} - \frac{\sqrt{10}\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{10} + \frac{\sqrt{10}\mathbb{T}_{2,3}^{(1,0;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{10}$$

$$\boxed{\text{z1398}} \quad \mathbb{Q}_{1,3}^{(1,0;c)}(T_u) = \frac{\sqrt{30}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{15} + \frac{\sqrt{10}\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{10} + \frac{\sqrt{10}\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{10}$$

$$\boxed{\text{z1399}} \quad \mathbb{Q}_{3,1}^{(1,0;c)}(T_u, 1) = -\frac{\sqrt{5}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{10} + \frac{\sqrt{15}\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{10} - \frac{\sqrt{15}\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{15} - \frac{\sqrt{15}\mathbb{T}_{2,3}^{(1,0;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{15}$$

$$\boxed{\text{z1400}} \quad \mathbb{Q}_{3,2}^{(1,0;c)}(T_u, 1) = -\frac{\sqrt{5}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{10} - \frac{\sqrt{15}\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{15} - \frac{\sqrt{15}\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{10} - \frac{\sqrt{15}\mathbb{T}_{2,3}^{(1,0;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{15}$$

$$\boxed{\text{z1401}} \quad \mathbb{Q}_{3,3}^{(1,0;c)}(T_u, 1) = \frac{\sqrt{5}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{5} - \frac{\sqrt{15}\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{15} - \frac{\sqrt{15}\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{15}$$

$$\boxed{\text{z1402}} \quad \mathbb{Q}_{3,1}^{(1,0;c)}(T_u, 2) = -\frac{\sqrt{3}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{6} - \frac{\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{6} - \frac{\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{3} + \frac{\mathbb{T}_{2,3}^{(1,0;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z1403}} \quad \mathbb{Q}_{3,2}^{(1,0;c)}(T_u, 2) = \frac{\sqrt{3}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{6} + \frac{\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{3} - \frac{\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{6} - \frac{\mathbb{T}_{2,3}^{(1,0;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z1404}} \quad \mathbb{Q}_{3,3}^{(1,0;c)}(T_u, 2) = -\frac{\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{3} + \frac{\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{3} + \frac{\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{3}$$

$$\boxed{\text{z1405}} \quad \mathbb{Q}_{1,1}^{(1,1;c)}(T_u) = \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,1;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{6} - \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z1406}} \quad \mathbb{Q}_{1,2}^{(1,1;c)}(T_u) = -\frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,1;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z1407}} \quad \mathbb{Q}_{1,3}^{(1,1;c)}(T_u) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{6} - \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z1408}} \quad \mathbb{G}_{2,1}^{(c)}(T_u) = \frac{\sqrt{6}\mathbb{M}_{1,2}^{(a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z1409}} \quad \mathbb{G}_{2,2}^{(c)}(T_u) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z1410}} \quad \mathbb{G}_{2,3}^{(c)}(T_u) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,2}^{(a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{6}$$

$$\text{z1411} \quad \mathbb{G}_{2,1}^{(1,-1;a)}(T_u, a) = -\frac{\sqrt{21}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,3}^{(b)}(T_u)}{21} + \frac{\sqrt{35}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,3}^{(b)}(T_u)}{21} - \frac{\sqrt{21}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,2}^{(b)}(T_u)}{21} - \frac{\sqrt{35}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,2}^{(b)}(T_u)}{21} + \frac{\sqrt{35}\mathbb{M}_3^{(1,-1;a)}(A_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{21}$$

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

$$\mathbb{G}_{2,3}^{(1,-1;c)}(T_u, a) = -\frac{\sqrt{21}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,2}^{(b)}(T_u)}{\mathfrak{S}_1} + \frac{\sqrt{35}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,2}^{(b)}(T_u)}{\mathfrak{S}_1} - \frac{\sqrt{21}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,1}^{(b)}(T_u)}{\mathfrak{S}_1} - \frac{\sqrt{35}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,1}^{(b)}(T_u)}{\mathfrak{S}_1} + \frac{\sqrt{35}\mathbb{M}_3^{(1,-1;a)}(A_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{\mathfrak{S}_1}$$

$$\boxed{\text{z1414}} \quad \mathbb{G}_{2,1}^{(1,-1;c)}(T_u, b) = \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{\tilde{c}} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,-1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{\tilde{c}}$$

$$\boxed{\text{z1415}} \quad \mathbb{G}_{2,2}^{(1,-1;c)}(T_u, b) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{c} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,-1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{c}$$

$$\boxed{z1416} \quad \mathbb{G}_{2,3}^{(1,-1;c)}(T_u, b) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,-1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{c} + \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,-1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{c}$$

$$\boxed{z1417} \quad \mathbb{G}_{4,1}^{(1,-1;c)}(T_u, 1) = \frac{\sqrt{15}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,3}^{(b)}(T_u)}{-12} - \frac{\mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,3}^{(b)}(T_u)}{4} - \frac{\sqrt{15}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,2}^{(b)}(T_u)}{-12} - \frac{\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,2}^{(b)}(T_u)}{4}$$

$$\boxed{\text{z1418}} \quad \mathbb{G}_{4,2}^{(1,-1;c)}(T_u, 1) = -\frac{\sqrt{15}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,3}^{(b)}(T_u)}{12} - \frac{\mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,3}^{(b)}(T_u)}{12} + \frac{\sqrt{15}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1)\mathbb{T}_{1,1}^{(b)}(T_u)}{12} - \frac{\mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2)\mathbb{T}_{1,1}^{(b)}(T_u)}{12}$$

$$\mathbb{G}_{\mathfrak{t},3}^{(1,-1;c)}(T_u,1) = \frac{\sqrt{15}\mathbb{M}_{3,1}^{(1,-1;a)}(T_g,1)\mathbb{T}_{1,2}^{(b)}(T_u)}{\mathbb{M}_{3,1}^{(1,-1;a)}(T_g,2)\mathbb{T}_{1,2}^{(b)}(T_u)} - \frac{\sqrt{15}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g,1)\mathbb{T}_{1,1}^{(b)}(T_u)}{\mathbb{M}_{3,2}^{(1,-1;a)}(T_g,2)\mathbb{T}_{1,1}^{(b)}(T_u)}$$

$$\mathbb{G}_{t,i}^{(1,-1;c)}(T_u,2) = -\frac{\sqrt{105}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g,1)\mathbb{T}_{1,3}^{(b)}(T_u)}{} - \frac{3\sqrt{7}\mathbb{M}_{3,2}^{(1,-1;a)}(T_g,2)\mathbb{T}_{1,3}^{(b)}(T_u)}{} - \frac{\sqrt{105}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g,1)\mathbb{T}_{1,2}^{(b)}(T_u)}{} + \frac{3\sqrt{7}\mathbb{M}_{3,3}^{(1,-1;a)}(T_g,2)\mathbb{T}_{1,2}^{(b)}(T_u)}{}$$

$$\boxed{\text{_____}} \quad (1,-1;c) \quad \sqrt{105}\mathbb{M}_{3,1}^{(1,-1;a)}(T_q,1)\mathbb{T}_{1,3}^{(b)}(T_u) \quad 3\sqrt{7}\mathbb{M}_{3,1}^{(1,-1;a)}(T_q,2)\mathbb{T}_{1,3}^{(b)}(T_u) \quad \sqrt{105}\mathbb{M}_{3,3}^{(1,-1;a)}(T_q,1)\mathbb{T}_{1,1}^{(b)}(T_u) \quad 3\sqrt{7}\mathbb{M}_{3,3}^{(1,-1;a)}(T_q,2)\mathbb{T}_{1,1}^{(b)}(T_u) \quad \sqrt{7}\mathbb{M}_3^{(1,-1;a)}(A_q)\mathbb{T}_{1,2}^{(b)}(T_u)$$

$$\sqrt{105}\mathbb{M}_{2,1}^{(1,-1;a)}(T_a,1)\mathbb{T}_{1,2}^{(b)}(T_u) - 3\sqrt{7}\mathbb{M}_{2,1}^{(1,-1;a)}(T_a,2)\mathbb{T}_{1,2}^{(b)}(T_u) + \sqrt{105}\mathbb{M}_{2,2}^{(1,-1;a)}(T_a,1)\mathbb{T}_{1,1}^{(b)}(T_u) - 3\sqrt{7}\mathbb{M}_{2,2}^{(1,-1;a)}(T_a,2)\mathbb{T}_{1,1}^{(b)}(T_u) + \sqrt{7}\mathbb{M}_2^{(1,-1;a)}(A_a)\mathbb{T}_{1,2}^{(b)}(T_u)$$

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$$\boxed{\text{z1423}} \quad \mathbb{G}_{2,1}^{(1,0;c)}(T_u) = \frac{\sqrt{6}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{6} + \frac{\sqrt{2}\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{6} - \frac{\sqrt{2}\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{6} + \frac{\sqrt{2}\mathbb{T}_{2,3}^{(1,0;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z1424}} \quad \mathbb{G}_{2,2}^{(1,0;c)}(T_u) = -\frac{\sqrt{6}\mathbb{T}_{2,1}^{(1,0;a)}(E_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{6} + \frac{\sqrt{2}\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{6} + \frac{\sqrt{2}\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{6} - \frac{\sqrt{2}\mathbb{T}_{2,3}^{(1,0;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z1425}} \quad \mathbb{G}_{2,3}^{(1,0;c)}(T_u) = -\frac{\sqrt{2}\mathbb{T}_{2,1}^{(1,0;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{6} - \frac{\sqrt{2}\mathbb{T}_{2,2}^{(1,0;a)}(E_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{3} + \frac{\sqrt{2}\mathbb{T}_{2,2}^{(1,0;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z1426}} \quad \mathbb{G}_{2,1}^{(1,1;c)}(T_u) = \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,1;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z1427}} \quad \mathbb{G}_{2,2}^{(1,1;c)}(T_u) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,1;a)}(T_g)\mathbb{T}_{1,3}^{(b)}(T_u)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{6}$$

$$\boxed{\text{z1428}} \quad \mathbb{G}_{2,3}^{(1,1;c)}(T_u) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,1;a)}(T_g)\mathbb{T}_{1,2}^{(b)}(T_u)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,1;a)}(T_g)\mathbb{T}_{1,1}^{(b)}(T_u)}{6}$$

— Atomic SAMB —

- bra: $\langle s, \uparrow |, \langle s, \downarrow |$
- ket: $|s, \uparrow \rangle, |s, \downarrow \rangle$

$$\boxed{\text{x1}} \quad \mathbb{Q}_0^{(a)}(A_g) = \begin{bmatrix} \frac{\sqrt{2}}{2} & 0 \\ 0 & \frac{\sqrt{2}}{2} \end{bmatrix}$$

$$\boxed{\text{x2}} \quad \mathbb{M}_{1,1}^{(1,-1;a)}(T_g) = \begin{bmatrix} 0 & \frac{\sqrt{2}}{2} \\ \frac{\sqrt{2}}{2} & 0 \end{bmatrix}$$

$$\boxed{\text{x3}} \quad \mathbb{M}_{1,2}^{(1,-1;a)}(T_g) = \begin{bmatrix} 0 & -\frac{\sqrt{2}i}{2} \\ \frac{\sqrt{2}i}{2} & 0 \end{bmatrix}$$

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

- bra: $\langle s, \uparrow |, \langle s, \downarrow |$

- ket: $|p_x, \uparrow\rangle, |p_x, \downarrow\rangle, |p_y, \uparrow\rangle, |p_y, \downarrow\rangle, |p_z, \uparrow\rangle, |p_z, \downarrow\rangle$

$$\boxed{x5} \quad \mathbb{Q}_{1,1}^{(a)}(T_u) = \begin{bmatrix} \frac{1}{2} & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{1}{2} & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{x6} \quad \mathbb{Q}_{1,2}^{(a)}(T_u) = \begin{bmatrix} 0 & 0 & \frac{1}{2} & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{1}{2} & 0 & 0 \end{bmatrix}$$

$$\boxed{x7} \quad \mathbb{Q}_{1,3}^{(a)}(T_u) = \begin{bmatrix} 0 & 0 & 0 & 0 & \frac{1}{2} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{1}{2} \end{bmatrix}$$

$$\boxed{x8} \quad \mathbb{Q}_{1,1}^{(1,0;a)}(T_u) = \begin{bmatrix} 0 & 0 & -\frac{\sqrt{2}i}{4} & 0 & 0 & \frac{\sqrt{2}}{4} \\ 0 & 0 & 0 & \frac{\sqrt{2}i}{4} & -\frac{\sqrt{2}}{4} & 0 \end{bmatrix}$$

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

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

$$\boxed{x11} \quad \mathbb{G}_{2,1}^{(1,-1;a)}(E_u) = \begin{bmatrix} 0 & -\frac{\sqrt{6}i}{12} & 0 & -\frac{\sqrt{6}}{12} & \frac{\sqrt{6}i}{6} & 0 \\ -\frac{\sqrt{6}i}{12} & 0 & \frac{\sqrt{6}}{12} & 0 & 0 & -\frac{\sqrt{6}i}{6} \end{bmatrix}$$

$$\boxed{x12} \quad \mathbb{G}_{2,2}^{(1,-1;a)}(E_u) = \begin{bmatrix} 0 & \frac{\sqrt{2}i}{4} & 0 & -\frac{\sqrt{2}}{4} & 0 & 0 \\ \frac{\sqrt{2}i}{4} & 0 & \frac{\sqrt{2}}{4} & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{x13} \quad \mathbb{G}_{2,1}^{(1,-1;a)}(T_u) = \begin{bmatrix} 0 & 0 & \frac{\sqrt{2}i}{4} & 0 & 0 & \frac{\sqrt{2}}{4} \\ 0 & 0 & 0 & -\frac{\sqrt{2}i}{4} & -\frac{\sqrt{2}}{4} & 0 \end{bmatrix}$$

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

$$\boxed{x15} \quad \mathbb{G}_{2,3}^{(1,-1;a)}(T_u) = \begin{bmatrix} 0 & \frac{\sqrt{2}}{4} & 0 & \frac{\sqrt{2}i}{4} & 0 & 0 \\ -\frac{\sqrt{2}}{4} & 0 & \frac{\sqrt{2}i}{4} & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{x16} \quad \mathbb{G}_0^{(1,1;a)}(A_u) = \begin{bmatrix} 0 & \frac{\sqrt{3}i}{6} & 0 & \frac{\sqrt{3}}{6} & \frac{\sqrt{3}i}{6} & 0 \\ \frac{\sqrt{3}i}{6} & 0 & -\frac{\sqrt{3}}{6} & 0 & 0 & -\frac{\sqrt{3}i}{6} \end{bmatrix}$$

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

$$\boxed{x18} \quad \mathbb{M}_{2,2}^{(1,-1;a)}(E_u) = \begin{bmatrix} 0 & \frac{\sqrt{2}}{4} & 0 & \frac{\sqrt{2}i}{4} & 0 & 0 \\ \frac{\sqrt{2}}{4} & 0 & -\frac{\sqrt{2}i}{4} & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{x19} \quad \mathbb{M}_{2,1}^{(1,-1;a)}(T_u) = \begin{bmatrix} 0 & 0 & \frac{\sqrt{2}}{4} & 0 & 0 & -\frac{\sqrt{2}i}{4} \\ 0 & 0 & 0 & -\frac{\sqrt{2}}{4} & \frac{\sqrt{2}i}{4} & 0 \end{bmatrix}$$

$$\boxed{x20} \quad \mathbb{M}_{2,2}^{(1,-1;a)}(T_u) = \begin{bmatrix} \frac{\sqrt{2}}{4} & 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{4} \\ 0 & -\frac{\sqrt{2}}{4} & 0 & 0 & \frac{\sqrt{2}}{4} & 0 \end{bmatrix}$$

$$\boxed{x21} \quad \mathbb{M}_{2,3}^{(1,-1;a)}(T_u) = \begin{bmatrix} 0 & -\frac{\sqrt{2}i}{4} & 0 & \frac{\sqrt{2}}{4} & 0 & 0 \\ \frac{\sqrt{2}i}{4} & 0 & \frac{\sqrt{2}}{4} & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{x22} \quad \mathbb{M}_0^{(1,1;a)}(A_u) = \begin{bmatrix} 0 & \frac{\sqrt{3}}{6} & 0 & -\frac{\sqrt{3}i}{6} & \frac{\sqrt{3}}{6} & 0 \\ \frac{\sqrt{3}}{6} & 0 & \frac{\sqrt{3}i}{6} & 0 & 0 & -\frac{\sqrt{3}}{6} \end{bmatrix}$$

$$\boxed{x23} \quad \mathbb{T}_{1,1}^{(a)}(T_u) = \begin{bmatrix} \frac{i}{2} & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{i}{2} & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{x24} \quad \mathbb{T}_{1,2}^{(a)}(T_u) = \begin{bmatrix} 0 & 0 & \frac{i}{2} & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{i}{2} & 0 & 0 \end{bmatrix}$$

$$\boxed{x25} \quad \mathbb{T}_{1,3}^{(a)}(T_u) = \begin{bmatrix} 0 & 0 & 0 & 0 & \frac{i}{2} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{i}{2} \end{bmatrix}$$

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

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

$$\boxed{x28} \quad \mathbb{T}_{1,3}^{(1,0;a)}(T_u) = \begin{bmatrix} 0 & \frac{\sqrt{2}i}{4} & 0 & \frac{\sqrt{2}}{4} & 0 & 0 \\ -\frac{\sqrt{2}i}{4} & 0 & \frac{\sqrt{2}}{4} & 0 & 0 & 0 \end{bmatrix}$$

- bra: $\langle p_x, \uparrow |, \langle p_x, \downarrow |, \langle p_y, \uparrow |, \langle p_y, \downarrow |, \langle p_z, \uparrow |, \langle p_z, \downarrow |$

- ket: $|p_x, \uparrow\rangle, |p_x, \downarrow\rangle, |p_y, \uparrow\rangle, |p_y, \downarrow\rangle, |p_z, \uparrow\rangle, |p_z, \downarrow\rangle$

$$\boxed{x29} \quad \mathbb{Q}_0^{(a)}(A_g) = \begin{bmatrix} \frac{\sqrt{6}}{6} & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{6}}{6} & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{6}}{6} & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{6}}{6} & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{6} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{6} \end{bmatrix}$$

$$\boxed{x30} \quad \mathbb{Q}_{2,1}^{(a)}(E_g) = \begin{bmatrix} -\frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{3}}{6} & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{3}}{6} & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{3} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{3} \end{bmatrix}$$

$$\boxed{x31} \quad \mathbb{Q}_{2,2}^{(a)}(E_g) = \begin{bmatrix} \frac{1}{2} & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{1}{2} & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{1}{2} & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{1}{2} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{x32} \quad \mathbb{Q}_{2,1}^{(a)}(T_g) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{1}{2} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{1}{2} \\ 0 & 0 & \frac{1}{2} & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{1}{2} & 0 & 0 \end{bmatrix}$$

$$\boxed{x33} \quad \mathbb{Q}_{2,2}^{(a)}(T_g) = \begin{bmatrix} 0 & 0 & 0 & 0 & \frac{1}{2} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{1}{2} \\ 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{1}{2} & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{1}{2} & 0 & 0 & 0 & 0 \end{bmatrix}$$

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

$$\boxed{x35} \quad \mathbb{Q}_{2,1}^{(1,-1;a)}(E_g) = \begin{bmatrix} 0 & 0 & -\frac{\sqrt{6}i}{6} & 0 & 0 & -\frac{\sqrt{6}}{12} \\ 0 & 0 & 0 & \frac{\sqrt{6}i}{6} & \frac{\sqrt{6}}{12} & 0 \\ \frac{\sqrt{6}i}{6} & 0 & 0 & 0 & 0 & \frac{\sqrt{6}i}{12} \\ 0 & -\frac{\sqrt{6}i}{6} & 0 & 0 & \frac{\sqrt{6}i}{12} & 0 \\ 0 & \frac{\sqrt{6}}{12} & 0 & -\frac{\sqrt{6}i}{12} & 0 & 0 \\ -\frac{\sqrt{6}}{12} & 0 & -\frac{\sqrt{6}i}{12} & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{x36} \quad \mathbb{Q}_{2,2}^{(1,-1;a)}(E_g) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}}{4} \\ 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{4} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{4} \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{4} & 0 \\ 0 & \frac{\sqrt{2}}{4} & 0 & \frac{\sqrt{2}i}{4} & 0 & 0 \\ -\frac{\sqrt{2}}{4} & 0 & \frac{\sqrt{2}i}{4} & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{x37} \quad \mathbb{Q}_{2,1}^{(1,-1;a)}(T_g) = \begin{bmatrix} 0 & 0 & 0 & -\frac{\sqrt{2}}{4} & \frac{\sqrt{2}i}{4} & 0 \\ 0 & 0 & \frac{\sqrt{2}}{4} & 0 & 0 & -\frac{\sqrt{2}i}{4} \\ 0 & \frac{\sqrt{2}}{4} & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{2}}{4} & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{2}i}{4} & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{2}i}{4} & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{x38} \quad \mathbb{Q}_{2,2}^{(1,-1;a)}(T_g) = \begin{bmatrix} 0 & 0 & 0 & -\frac{\sqrt{2}i}{4} & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{2}i}{4} & 0 & 0 & 0 \\ 0 & \frac{\sqrt{2}i}{4} & 0 & 0 & -\frac{\sqrt{2}i}{4} & 0 \\ \frac{\sqrt{2}i}{4} & 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{4} \\ 0 & 0 & \frac{\sqrt{2}i}{4} & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{2}i}{4} & 0 & 0 \end{bmatrix}$$

$$\boxed{x39} \quad \mathbb{Q}_{2,3}^{(1,-1;a)}(T_g) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{4} \\ 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{4} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}}{4} \\ 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{4} & 0 \\ 0 & -\frac{\sqrt{2}i}{4} & 0 & \frac{\sqrt{2}}{4} & 0 & 0 \\ -\frac{\sqrt{2}i}{4} & 0 & -\frac{\sqrt{2}}{4} & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{x40} \quad \mathbb{Q}_0^{(1,1;a)}(A_g) = \begin{bmatrix} 0 & 0 & -\frac{\sqrt{3}i}{6} & 0 & 0 & \frac{\sqrt{3}}{6} \\ 0 & 0 & 0 & \frac{\sqrt{3}i}{6} & -\frac{\sqrt{3}}{6} & 0 \\ \frac{\sqrt{3}i}{6} & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{6} \\ 0 & -\frac{\sqrt{3}i}{6} & 0 & 0 & -\frac{\sqrt{3}i}{6} & 0 \\ 0 & -\frac{\sqrt{3}}{6} & 0 & \frac{\sqrt{3}i}{6} & 0 & 0 \\ \frac{\sqrt{3}}{6} & 0 & \frac{\sqrt{3}i}{6} & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{x41} \quad \mathbb{G}_{1,1}^{(1,0;a)}(T_g) = \begin{bmatrix} 0 & 0 & 0 & -\frac{\sqrt{2}}{4} & -\frac{\sqrt{2}i}{4} & 0 \\ 0 & 0 & \frac{\sqrt{2}}{4} & 0 & 0 & \frac{\sqrt{2}i}{4} \\ 0 & \frac{\sqrt{2}}{4} & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{2}}{4} & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{2}i}{4} & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{2}i}{4} & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{x42} \quad \mathbb{G}_{1,2}^{(1,0;a)}(T_g) = \begin{bmatrix} 0 & 0 & 0 & \frac{\sqrt{2}i}{4} & 0 & 0 \\ 0 & 0 & \frac{\sqrt{2}i}{4} & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{2}i}{4} & 0 & 0 & -\frac{\sqrt{2}i}{4} & 0 \\ -\frac{\sqrt{2}i}{4} & 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{4} \\ 0 & 0 & \frac{\sqrt{2}i}{4} & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{2}i}{4} & 0 & 0 \end{bmatrix}$$

$$\boxed{x43} \quad \mathbb{G}_{1,3}^{(1,0;a)}(T_g) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{4} \\ 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{4} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{4} \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}}{4} \\ 0 & -\frac{\sqrt{2}i}{4} & 0 & -\frac{\sqrt{2}}{4} & 0 & 0 \\ -\frac{\sqrt{2}i}{4} & 0 & \frac{\sqrt{2}}{4} & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{x44} \quad \mathbb{M}_{1,1}^{(a)}(T_g) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{i}{2} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{i}{2} \\ 0 & 0 & \frac{i}{2} & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{i}{2} & 0 & 0 \end{bmatrix}$$

$$\boxed{x45} \quad \mathbb{M}_{1,2}^{(a)}(T_g) = \begin{bmatrix} 0 & 0 & 0 & 0 & \frac{i}{2} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{i}{2} \\ 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{i}{2} & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{i}{2} & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{x46} \quad M_{1,3}^{(a)}(T_g) = \begin{bmatrix} 0 & 0 & -\frac{i}{2} & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{i}{2} & 0 & 0 \\ \frac{i}{2} & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{i}{2} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{x47} \quad M_3^{(1,-1;a)}(A_g) = \begin{bmatrix} 0 & 0 & \frac{\sqrt{3}}{6} & 0 & 0 & -\frac{\sqrt{3}i}{6} \\ 0 & 0 & 0 & -\frac{\sqrt{3}}{6} & \frac{\sqrt{3}i}{6} & 0 \\ \frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{6} \\ 0 & -\frac{\sqrt{3}}{6} & 0 & 0 & \frac{\sqrt{3}}{6} & 0 \\ 0 & -\frac{\sqrt{3}i}{6} & 0 & \frac{\sqrt{3}}{6} & 0 & 0 \\ \frac{\sqrt{3}i}{6} & 0 & \frac{\sqrt{3}}{6} & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{x48} \quad M_{1,1}^{(1,-1;a)}(T_g) = \begin{bmatrix} 0 & \frac{\sqrt{6}}{6} & 0 & 0 & 0 & 0 \\ \frac{\sqrt{6}}{6} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{6}}{6} & 0 & 0 \\ 0 & 0 & \frac{\sqrt{6}}{6} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{6} \\ 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{6} & 0 \end{bmatrix}$$

$$\boxed{x49} \quad M_{1,2}^{(1,-1;a)}(T_g) = \begin{bmatrix} 0 & -\frac{\sqrt{6}i}{6} & 0 & 0 & 0 & 0 \\ \frac{\sqrt{6}i}{6} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{6}i}{6} & 0 & 0 \\ 0 & 0 & \frac{\sqrt{6}i}{6} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}i}{6} \\ 0 & 0 & 0 & 0 & \frac{\sqrt{6}i}{6} & 0 \end{bmatrix}$$

$$\boxed{x50} \quad M_{1,3}^{(1,-1;a)}(T_g) = \begin{bmatrix} \frac{\sqrt{6}}{6} & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{6}}{6} & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{6}}{6} & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{6}}{6} & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{6} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{6} \end{bmatrix}$$

$$\boxed{x51} \quad \mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 1) = \begin{bmatrix} 0 & \frac{\sqrt{5}}{5} & 0 & \frac{\sqrt{5}i}{10} & -\frac{\sqrt{5}}{10} & 0 \\ \frac{\sqrt{5}}{5} & 0 & -\frac{\sqrt{5}i}{10} & 0 & 0 & \frac{\sqrt{5}}{10} \\ 0 & \frac{\sqrt{5}i}{10} & 0 & -\frac{\sqrt{5}}{10} & 0 & 0 \\ -\frac{\sqrt{5}i}{10} & 0 & -\frac{\sqrt{5}}{10} & 0 & 0 & 0 \\ -\frac{\sqrt{5}}{10} & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{10} \\ 0 & \frac{\sqrt{5}}{10} & 0 & 0 & -\frac{\sqrt{5}}{10} & 0 \end{bmatrix}$$

$$\boxed{x52} \quad \mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 1) = \begin{bmatrix} 0 & \frac{\sqrt{5}i}{10} & 0 & -\frac{\sqrt{5}}{10} & 0 & 0 \\ -\frac{\sqrt{5}i}{10} & 0 & -\frac{\sqrt{5}}{10} & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{5}}{10} & 0 & -\frac{\sqrt{5}i}{5} & -\frac{\sqrt{5}}{10} & 0 \\ -\frac{\sqrt{5}}{10} & 0 & \frac{\sqrt{5}i}{5} & 0 & 0 & \frac{\sqrt{5}}{10} \\ 0 & 0 & -\frac{\sqrt{5}}{10} & 0 & 0 & \frac{\sqrt{5}i}{10} \\ 0 & 0 & 0 & \frac{\sqrt{5}}{10} & -\frac{\sqrt{5}i}{10} & 0 \end{bmatrix}$$

$$\boxed{x53} \quad \mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 1) = \begin{bmatrix} -\frac{\sqrt{5}}{10} & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{10} \\ 0 & \frac{\sqrt{5}}{10} & 0 & 0 & -\frac{\sqrt{5}}{10} & 0 \\ 0 & 0 & -\frac{\sqrt{5}}{10} & 0 & 0 & \frac{\sqrt{5}i}{10} \\ 0 & 0 & 0 & \frac{\sqrt{5}}{10} & -\frac{\sqrt{5}i}{10} & 0 \\ 0 & -\frac{\sqrt{5}}{10} & 0 & \frac{\sqrt{5}i}{10} & \frac{\sqrt{5}}{5} & 0 \\ -\frac{\sqrt{5}}{10} & 0 & -\frac{\sqrt{5}i}{10} & 0 & 0 & -\frac{\sqrt{5}}{5} \end{bmatrix}$$

$$\boxed{x54} \quad \mathbb{M}_{3,1}^{(1,-1;a)}(T_g, 2) = \begin{bmatrix} 0 & 0 & 0 & -\frac{\sqrt{3}i}{6} & -\frac{\sqrt{3}}{6} & 0 \\ 0 & 0 & \frac{\sqrt{3}i}{6} & 0 & 0 & \frac{\sqrt{3}}{6} \\ 0 & -\frac{\sqrt{3}i}{6} & 0 & \frac{\sqrt{3}}{6} & 0 & 0 \\ \frac{\sqrt{3}i}{6} & 0 & \frac{\sqrt{3}}{6} & 0 & 0 & 0 \\ -\frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{6} \\ 0 & \frac{\sqrt{3}}{6} & 0 & 0 & -\frac{\sqrt{3}}{6} & 0 \end{bmatrix}$$

$$\boxed{x55} \quad \mathbb{M}_{3,2}^{(1,-1;a)}(T_g, 2) = \begin{bmatrix} 0 & \frac{\sqrt{3}i}{6} & 0 & -\frac{\sqrt{3}}{6} & 0 & 0 \\ -\frac{\sqrt{3}i}{6} & 0 & -\frac{\sqrt{3}}{6} & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{3}}{6} & 0 & 0 & \frac{\sqrt{3}}{6} & 0 \\ -\frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{6} \\ 0 & 0 & \frac{\sqrt{3}}{6} & 0 & 0 & -\frac{\sqrt{3}i}{6} \\ 0 & 0 & 0 & -\frac{\sqrt{3}}{6} & \frac{\sqrt{3}i}{6} & 0 \end{bmatrix}$$

$$\boxed{x56} \quad \mathbb{M}_{3,3}^{(1,-1;a)}(T_g, 2) = \begin{bmatrix} \frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{6} \\ 0 & -\frac{\sqrt{3}}{6} & 0 & 0 & \frac{\sqrt{3}}{6} & 0 \\ 0 & 0 & -\frac{\sqrt{3}}{6} & 0 & 0 & \frac{\sqrt{3}i}{6} \\ 0 & 0 & 0 & \frac{\sqrt{3}}{6} & -\frac{\sqrt{3}i}{6} & 0 \\ 0 & \frac{\sqrt{3}}{6} & 0 & \frac{\sqrt{3}i}{6} & 0 & 0 \\ \frac{\sqrt{3}}{6} & 0 & -\frac{\sqrt{3}i}{6} & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{x57} \quad \mathbb{M}_{1,1}^{(1,1;a)}(T_g) = \begin{bmatrix} 0 & \frac{\sqrt{30}}{15} & 0 & -\frac{\sqrt{30}i}{20} & \frac{\sqrt{30}}{20} & 0 \\ \frac{\sqrt{30}}{15} & 0 & \frac{\sqrt{30}i}{20} & 0 & 0 & -\frac{\sqrt{30}}{20} \\ 0 & -\frac{\sqrt{30}i}{20} & 0 & -\frac{\sqrt{30}}{30} & 0 & 0 \\ \frac{\sqrt{30}i}{20} & 0 & -\frac{\sqrt{30}}{30} & 0 & 0 & 0 \\ \frac{\sqrt{30}}{20} & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}}{30} \\ 0 & -\frac{\sqrt{30}}{20} & 0 & 0 & -\frac{\sqrt{30}}{30} & 0 \end{bmatrix}$$

$$\boxed{x58} \quad \mathbb{M}_{1,2}^{(1,1;a)}(T_g) = \begin{bmatrix} 0 & \frac{\sqrt{30}i}{30} & 0 & \frac{\sqrt{30}}{20} & 0 & 0 \\ -\frac{\sqrt{30}i}{30} & 0 & \frac{\sqrt{30}}{20} & 0 & 0 & 0 \\ 0 & \frac{\sqrt{30}}{20} & 0 & -\frac{\sqrt{30}i}{15} & \frac{\sqrt{30}}{20} & 0 \\ \frac{\sqrt{30}}{20} & 0 & \frac{\sqrt{30}i}{15} & 0 & 0 & -\frac{\sqrt{30}}{20} \\ 0 & 0 & \frac{\sqrt{30}}{20} & 0 & 0 & \frac{\sqrt{30}i}{30} \\ 0 & 0 & 0 & -\frac{\sqrt{30}}{20} & -\frac{\sqrt{30}i}{30} & 0 \end{bmatrix}$$

$$\boxed{x59} \quad \mathbb{M}_{1,3}^{(1,1;a)}(T_g) = \begin{bmatrix} -\frac{\sqrt{30}}{30} & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{20} \\ 0 & \frac{\sqrt{30}}{30} & 0 & 0 & \frac{\sqrt{30}}{20} & 0 \\ 0 & 0 & -\frac{\sqrt{30}}{30} & 0 & 0 & -\frac{\sqrt{30}i}{20} \\ 0 & 0 & 0 & \frac{\sqrt{30}}{30} & \frac{\sqrt{30}i}{20} & 0 \\ 0 & \frac{\sqrt{30}}{20} & 0 & -\frac{\sqrt{30}i}{20} & \frac{\sqrt{30}}{15} & 0 \\ \frac{\sqrt{30}}{20} & 0 & \frac{\sqrt{30}i}{20} & 0 & 0 & -\frac{\sqrt{30}}{15} \end{bmatrix}$$

$$\boxed{x60} \quad \mathbb{T}_{2,1}^{(1,0;a)}(E_g) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{4} \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{4} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{4} \\ 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{4} & 0 \\ 0 & \frac{\sqrt{2}i}{4} & 0 & \frac{\sqrt{2}}{4} & 0 & 0 \\ -\frac{\sqrt{2}i}{4} & 0 & \frac{\sqrt{2}}{4} & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{x61} \quad \mathbb{T}_{2,2}^{(1,0;a)}(E_g) = \begin{bmatrix} 0 & 0 & -\frac{\sqrt{6}}{6} & 0 & 0 & -\frac{\sqrt{6}i}{12} \\ 0 & 0 & 0 & \frac{\sqrt{6}}{6} & \frac{\sqrt{6}i}{12} & 0 \\ -\frac{\sqrt{6}}{6} & 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{12} \\ 0 & \frac{\sqrt{6}}{6} & 0 & 0 & \frac{\sqrt{6}}{12} & 0 \\ 0 & -\frac{\sqrt{6}i}{12} & 0 & \frac{\sqrt{6}}{12} & 0 & 0 \\ \frac{\sqrt{6}i}{12} & 0 & \frac{\sqrt{6}}{12} & 0 & 0 & 0 \end{bmatrix}$$

$$\boxed{x62} \quad \mathbb{T}_{2,1}^{(1,0;a)}(T_g) = \begin{bmatrix} 0 & 0 & 0 & \frac{\sqrt{6}i}{12} & \frac{\sqrt{6}}{12} & 0 \\ 0 & 0 & -\frac{\sqrt{6}i}{12} & 0 & 0 & -\frac{\sqrt{6}}{12} \\ 0 & \frac{\sqrt{6}i}{12} & 0 & \frac{\sqrt{6}}{6} & 0 & 0 \\ -\frac{\sqrt{6}i}{12} & 0 & \frac{\sqrt{6}}{6} & 0 & 0 & 0 \\ \frac{\sqrt{6}}{12} & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{6} \\ 0 & -\frac{\sqrt{6}}{12} & 0 & 0 & -\frac{\sqrt{6}}{6} & 0 \end{bmatrix}$$

$$\boxed{x63} \quad \mathbb{T}_{2,2}^{(1,0;a)}(T_g) = \begin{bmatrix} 0 & \frac{\sqrt{6}i}{6} & 0 & \frac{\sqrt{6}}{12} & 0 & 0 \\ -\frac{\sqrt{6}i}{6} & 0 & \frac{\sqrt{6}}{12} & 0 & 0 & 0 \\ 0 & \frac{\sqrt{6}}{12} & 0 & 0 & -\frac{\sqrt{6}}{12} & 0 \\ \frac{\sqrt{6}}{12} & 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{12} \\ 0 & 0 & -\frac{\sqrt{6}}{12} & 0 & 0 & -\frac{\sqrt{6}i}{6} \\ 0 & 0 & 0 & \frac{\sqrt{6}}{12} & \frac{\sqrt{6}i}{6} & 0 \end{bmatrix}$$

$$\boxed{x64} \quad \mathbb{T}_{2,3}^{(1,0;a)}(T_g) = \begin{bmatrix} \frac{\sqrt{6}}{6} & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{12} \\ 0 & -\frac{\sqrt{6}}{6} & 0 & 0 & -\frac{\sqrt{6}}{12} & 0 \\ 0 & 0 & -\frac{\sqrt{6}}{6} & 0 & 0 & -\frac{\sqrt{6}i}{12} \\ 0 & 0 & 0 & \frac{\sqrt{6}}{6} & \frac{\sqrt{6}i}{12} & 0 \\ 0 & -\frac{\sqrt{6}}{12} & 0 & -\frac{\sqrt{6}i}{12} & 0 & 0 \\ -\frac{\sqrt{6}}{12} & 0 & \frac{\sqrt{6}i}{12} & 0 & 0 & 0 \end{bmatrix}$$

Cluster SAMB

- Site cluster

** Wyckoff: 3d

$$\boxed{y1} \quad \mathbb{Q}_0^{(s)}(A_g) = \left[\frac{\sqrt{3}}{3}, \frac{\sqrt{3}}{3}, \frac{\sqrt{3}}{3} \right]$$

$$\boxed{y2} \quad \mathbb{Q}_{2,1}^{(s)}(E_g) = \left[-\frac{10\sqrt{2778}}{1389}, -\frac{23\sqrt{2778}}{2778}, \frac{43\sqrt{2778}}{2778} \right]$$

[y3] $\mathbb{Q}_{2,2}^{(s)}(E_g) = \left[\frac{11\sqrt{926}}{463}, -\frac{21\sqrt{926}}{926}, -\frac{\sqrt{926}}{926} \right]$

- Bond cluster

** Wyckoff: 3c@3c

[y4] $\mathbb{Q}_0^{(s)}(A_g) = \left[\frac{\sqrt{3}}{3}, \frac{\sqrt{3}}{3}, \frac{\sqrt{3}}{3} \right]$

[y5] $\mathbb{Q}_{2,1}^{(s)}(E_g) = \left[-\frac{10\sqrt{2778}}{1389}, -\frac{23\sqrt{2778}}{2778}, \frac{43\sqrt{2778}}{2778} \right]$

[y6] $\mathbb{Q}_{2,2}^{(s)}(E_g) = \left[\frac{11\sqrt{926}}{463}, -\frac{21\sqrt{926}}{926}, -\frac{\sqrt{926}}{926} \right]$

[y7] $\mathbb{T}_{1,1}^{(s)}(T_u) = [0, 0, i]$

[y8] $\mathbb{T}_{1,2}^{(s)}(T_u) = [i, 0, 0]$

[y9] $\mathbb{T}_{1,3}^{(s)}(T_u) = [0, i, 0]$

** Wyckoff: 3a@1a

[y10] $\mathbb{Q}_0^{(s)}(A_g) = \left[\frac{\sqrt{3}}{3}, \frac{\sqrt{3}}{3}, \frac{\sqrt{3}}{3} \right]$

[y11] $\mathbb{Q}_{2,1}^{(s)}(E_g) = \left[-\frac{10\sqrt{2778}}{1389}, -\frac{23\sqrt{2778}}{2778}, \frac{43\sqrt{2778}}{2778} \right]$

[y12] $\mathbb{Q}_{2,2}^{(s)}(E_g) = \left[\frac{11\sqrt{926}}{463}, -\frac{21\sqrt{926}}{926}, -\frac{\sqrt{926}}{926} \right]$

[y13] $\mathbb{T}_{1,1}^{(s)}(T_u) = [i, 0, 0]$

[y14] $\mathbb{T}_{1,2}^{(s)}(T_u) = [0, i, 0]$

$$\boxed{y15} \quad \mathbb{T}_{1,3}^{(s)}(T_u) = [0, 0, i]$$

** Wyckoff: 3b@3c

$$\boxed{y16} \quad \mathbb{Q}_0^{(s)}(A_g) = \left[\frac{\sqrt{3}}{3}, \frac{\sqrt{3}}{3}, \frac{\sqrt{3}}{3} \right]$$

$$\boxed{y17} \quad \mathbb{Q}_{2,1}^{(s)}(E_g) = \left[-\frac{10\sqrt{2778}}{1389}, -\frac{23\sqrt{2778}}{2778}, \frac{43\sqrt{2778}}{2778} \right]$$

$$\boxed{y18} \quad \mathbb{Q}_{2,2}^{(s)}(E_g) = \left[\frac{11\sqrt{926}}{463}, -\frac{21\sqrt{926}}{926}, -\frac{\sqrt{926}}{926} \right]$$

$$\boxed{y19} \quad \mathbb{T}_{1,1}^{(s)}(T_u) = [0, i, 0]$$

$$\boxed{y20} \quad \mathbb{T}_{1,2}^{(s)}(T_u) = [0, 0, i]$$

$$\boxed{y21} \quad \mathbb{T}_{1,3}^{(s)}(T_u) = [i, 0, 0]$$

** Wyckoff: 12a@12j

$$\boxed{y22} \quad \mathbb{Q}_0^{(s)}(A_g) = \left[\frac{\sqrt{3}}{6}, \frac{\sqrt{3}}{6} \right]$$

$$\boxed{y23} \quad \mathbb{T}_0^{(s)}(A_g) = \left[\frac{\sqrt{3}i}{6}, \frac{\sqrt{3}i}{6} \right]$$

$$\boxed{y24} \quad \mathbb{Q}_{2,1}^{(s)}(E_g) = \left[-\frac{5\sqrt{2778}}{1389}, -\frac{5\sqrt{2778}}{1389}, -\frac{5\sqrt{2778}}{1389}, -\frac{5\sqrt{2778}}{1389}, -\frac{23\sqrt{2778}}{5556}, -\frac{23\sqrt{2778}}{5556}, -\frac{23\sqrt{2778}}{5556}, \frac{43\sqrt{2778}}{5556}, \frac{43\sqrt{2778}}{5556}, \frac{43\sqrt{2778}}{5556}, \frac{43\sqrt{2778}}{5556} \right]$$

$$\boxed{y25} \quad \mathbb{Q}_{2,2}^{(s)}(E_g) = \left[\frac{11\sqrt{926}}{926}, \frac{11\sqrt{926}}{926}, \frac{11\sqrt{926}}{926}, \frac{11\sqrt{926}}{926}, -\frac{21\sqrt{926}}{1852}, -\frac{21\sqrt{926}}{1852}, -\frac{21\sqrt{926}}{1852}, -\frac{\sqrt{926}}{1852}, -\frac{\sqrt{926}}{1852}, -\frac{\sqrt{926}}{1852} \right]$$

$$\boxed{y26} \quad \mathbb{T}_{2,1}^{(s)}(E_g) = \left[-\frac{5\sqrt{2778}i}{1389}, -\frac{5\sqrt{2778}i}{1389}, -\frac{5\sqrt{2778}i}{1389}, -\frac{5\sqrt{2778}i}{1389}, -\frac{23\sqrt{2778}i}{5556}, -\frac{23\sqrt{2778}i}{5556}, -\frac{23\sqrt{2778}i}{5556}, \frac{43\sqrt{2778}i}{5556}, \frac{43\sqrt{2778}i}{5556}, \frac{43\sqrt{2778}i}{5556} \right]$$

$$\boxed{\text{y27}} \quad \mathbb{T}_{2,2}^{(s)}(E_g) = \left[\frac{11\sqrt{926}i}{926}, \frac{11\sqrt{926}i}{926}, \frac{11\sqrt{926}i}{926}, \frac{11\sqrt{926}i}{926}, -\frac{21\sqrt{926}i}{1852}, -\frac{21\sqrt{926}i}{1852}, -\frac{21\sqrt{926}i}{1852}, -\frac{21\sqrt{926}i}{1852}, -\frac{\sqrt{926}i}{1852}, -\frac{\sqrt{926}i}{1852}, -\frac{\sqrt{926}i}{1852}, -\frac{\sqrt{926}i}{1852} \right]$$

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

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

$$\boxed{\text{y30}} \quad \mathbb{M}_{1,3}^{(s)}(T_g) = \left[0, 0, 0, 0, 0, 0, 0, \frac{i}{2}, -\frac{i}{2}, -\frac{i}{2}, \frac{i}{2} \right]$$

$$\boxed{\text{y31}} \quad \mathbb{Q}_{2,1}^{(s)}(T_g) = \left[\frac{1}{2}, -\frac{1}{2}, -\frac{1}{2}, \frac{1}{2}, 0, 0, 0, 0, 0, 0, 0, 0 \right]$$

$$\boxed{\text{y32}} \quad \mathbb{Q}_{2,2}^{(s)}(T_g) = \left[0, 0, 0, 0, \frac{1}{2}, -\frac{1}{2}, -\frac{1}{2}, \frac{1}{2}, 0, 0, 0, 0 \right]$$

$$\boxed{\text{y33}} \quad \mathbb{Q}_{2,3}^{(s)}(T_g) = \left[0, 0, 0, 0, 0, 0, 0, \frac{1}{2}, -\frac{1}{2}, -\frac{1}{2}, \frac{1}{2} \right]$$

$$\boxed{\text{y34}} \quad \mathbb{Q}_{1,1}^{(s)}(T_u) = \left[0, 0, 0, 0, \frac{\sqrt{7}}{7}, \frac{\sqrt{7}}{7}, -\frac{\sqrt{7}}{7}, -\frac{\sqrt{7}}{7}, \frac{\sqrt{21}}{14}, -\frac{\sqrt{21}}{14}, \frac{\sqrt{21}}{14}, -\frac{\sqrt{21}}{14} \right]$$

$$\boxed{\text{y35}} \quad \mathbb{Q}_{1,2}^{(s)}(T_u) = \left[\frac{\sqrt{21}}{14}, -\frac{\sqrt{21}}{14}, \frac{\sqrt{21}}{14}, -\frac{\sqrt{21}}{14}, 0, 0, 0, 0, \frac{\sqrt{7}}{7}, \frac{\sqrt{7}}{7}, -\frac{\sqrt{7}}{7}, -\frac{\sqrt{7}}{7} \right]$$

$$\boxed{\text{y36}} \quad \mathbb{Q}_{1,3}^{(s)}(T_u) = \left[\frac{\sqrt{7}}{7}, \frac{\sqrt{7}}{7}, -\frac{\sqrt{7}}{7}, -\frac{\sqrt{7}}{7}, \frac{\sqrt{21}}{14}, -\frac{\sqrt{21}}{14}, \frac{\sqrt{21}}{14}, -\frac{\sqrt{21}}{14}, 0, 0, 0, 0 \right]$$

$$\boxed{\text{y37}} \quad \mathbb{T}_{1,1}^{(s)}(T_u, a) = \left[0, 0, 0, 0, \frac{\sqrt{7}i}{7}, \frac{\sqrt{7}i}{7}, -\frac{\sqrt{7}i}{7}, -\frac{\sqrt{7}i}{7}, \frac{\sqrt{21}i}{14}, -\frac{\sqrt{21}i}{14}, \frac{\sqrt{21}i}{14}, -\frac{\sqrt{21}i}{14} \right]$$

$$\boxed{\text{y38}} \quad \mathbb{T}_{1,2}^{(s)}(T_u, a) = \left[\frac{\sqrt{21}i}{14}, -\frac{\sqrt{21}i}{14}, \frac{\sqrt{21}i}{14}, -\frac{\sqrt{21}i}{14}, 0, 0, 0, 0, \frac{\sqrt{7}i}{7}, \frac{\sqrt{7}i}{7}, -\frac{\sqrt{7}i}{7}, -\frac{\sqrt{7}i}{7} \right]$$

$$\boxed{\text{y39}} \quad \mathbb{T}_{1,3}^{(s)}(T_u, a) = \left[\frac{\sqrt{7}i}{7}, \frac{\sqrt{7}i}{7}, -\frac{\sqrt{7}i}{7}, -\frac{\sqrt{7}i}{7}, \frac{\sqrt{21}i}{14}, -\frac{\sqrt{21}i}{14}, \frac{\sqrt{21}i}{14}, -\frac{\sqrt{21}i}{14}, 0, 0, 0, 0 \right]$$

$$\boxed{y40} \quad \mathbb{T}_{1,1}^{(s)}(T_u, b) = \left[0, 0, 0, 0, \frac{\sqrt{21}i}{14}, \frac{\sqrt{21}i}{14}, -\frac{\sqrt{21}i}{14}, -\frac{\sqrt{21}i}{14}, -\frac{\sqrt{7}i}{7}, \frac{\sqrt{7}i}{7}, -\frac{\sqrt{7}i}{7}, \frac{\sqrt{7}i}{7} \right]$$

$$\boxed{y41} \quad \mathbb{T}_{1,2}^{(s)}(T_u, b) = \left[-\frac{\sqrt{7}i}{7}, \frac{\sqrt{7}i}{7}, -\frac{\sqrt{7}i}{7}, \frac{\sqrt{7}i}{7}, 0, 0, 0, 0, \frac{\sqrt{21}i}{14}, \frac{\sqrt{21}i}{14}, -\frac{\sqrt{21}i}{14}, -\frac{\sqrt{21}i}{14} \right]$$

$$\boxed{y42} \quad \mathbb{T}_{1,3}^{(s)}(T_u, b) = \left[\frac{\sqrt{21}i}{14}, \frac{\sqrt{21}i}{14}, -\frac{\sqrt{21}i}{14}, -\frac{\sqrt{21}i}{14}, -\frac{\sqrt{7}i}{7}, \frac{\sqrt{7}i}{7}, -\frac{\sqrt{7}i}{7}, \frac{\sqrt{7}i}{7}, 0, 0, 0, 0 \right]$$

$$\boxed{y43} \quad \mathbb{Q}_{3,1}^{(s)}(T_u, 1) = \left[0, 0, 0, 0, \frac{\sqrt{21}}{14}, \frac{\sqrt{21}}{14}, -\frac{\sqrt{21}}{14}, -\frac{\sqrt{21}}{14}, -\frac{\sqrt{7}}{7}, \frac{\sqrt{7}}{7}, -\frac{\sqrt{7}}{7}, \frac{\sqrt{7}}{7} \right]$$

$$\boxed{y44} \quad \mathbb{Q}_{3,2}^{(s)}(T_u, 1) = \left[-\frac{\sqrt{7}}{7}, \frac{\sqrt{7}}{7}, -\frac{\sqrt{7}}{7}, \frac{\sqrt{7}}{7}, 0, 0, 0, 0, \frac{\sqrt{21}}{14}, \frac{\sqrt{21}}{14}, -\frac{\sqrt{21}}{14}, -\frac{\sqrt{21}}{14} \right]$$

$$\boxed{y45} \quad \mathbb{Q}_{3,3}^{(s)}(T_u, 1) = \left[\frac{\sqrt{21}}{14}, \frac{\sqrt{21}}{14}, -\frac{\sqrt{21}}{14}, -\frac{\sqrt{21}}{14}, -\frac{\sqrt{7}}{7}, \frac{\sqrt{7}}{7}, -\frac{\sqrt{7}}{7}, \frac{\sqrt{7}}{7}, 0, 0, 0, 0 \right]$$

— Site and Bond —

Table 5: Orbital of each site

#	site	orbital
1	A	$ s, \uparrow\rangle, s, \downarrow\rangle, p_x, \uparrow\rangle, p_x, \downarrow\rangle, p_y, \uparrow\rangle, p_y, \downarrow\rangle, p_z, \uparrow\rangle, p_z, \downarrow\rangle$

Table 6: Neighbor and bra-ket of each bond

#	head	tail	neighbor	head (bra)	tail (ket)
1	A	A	[1,2]	[s,p]	[s,p]

— Site in Unit Cell —

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

Table 7: 'A' (#1) site cluster (3d), mmm..

SL	position (s)	mapping
1	[0.50000, 0.00000, 0.00000]	[1,2,3,4,13,14,15,16]
2	[0.00000, 0.50000, 0.00000]	[5,6,7,8,17,18,19,20]
3	[0.00000, 0.00000, 0.50000]	[9,10,11,12,21,22,23,24]

— 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 8: 1-th 'A'-'A' [1] (#1) bond cluster (12a@12j), D, $|\mathbf{v}|=0.70711$ (cartesian)

SL	vector (\mathbf{v})	center (\mathbf{c})	mapping	head	tail	\mathbf{R} (primitive)
1	[0.00000, -0.50000, -0.50000]	[0.00000, 0.25000, 0.75000]	[1,16]	(3,1)	(2,1)	[0,0,1]
2	[0.00000, 0.50000, -0.50000]	[0.00000, 0.75000, 0.75000]	[2,15]	(3,1)	(2,1)	[0,-1,1]
3	[0.00000, -0.50000, 0.50000]	[0.00000, 0.25000, 0.25000]	[3,14]	(3,1)	(2,1)	[0,0,0]
4	[0.00000, 0.50000, 0.50000]	[0.00000, 0.75000, 0.25000]	[4,13]	(3,1)	(2,1)	[0,-1,0]
5	[-0.50000, 0.00000, -0.50000]	[0.75000, 0.00000, 0.25000]	[5,20]	(1,1)	(3,1)	[1,0,0]
6	[-0.50000, 0.00000, 0.50000]	[0.75000, 0.00000, 0.75000]	[6,19]	(1,1)	(3,1)	[1,0,-1]
7	[0.50000, 0.00000, -0.50000]	[0.25000, 0.00000, 0.25000]	[7,18]	(1,1)	(3,1)	[0,0,0]
8	[0.50000, 0.00000, 0.50000]	[0.25000, 0.00000, 0.75000]	[8,17]	(1,1)	(3,1)	[0,0,-1]
9	[-0.50000, -0.50000, 0.00000]	[0.25000, 0.75000, 0.00000]	[9,24]	(2,1)	(1,1)	[0,1,0]
10	[0.50000, -0.50000, 0.00000]	[0.75000, 0.75000, 0.00000]	[10,23]	(2,1)	(1,1)	[-1,1,0]
11	[-0.50000, 0.50000, 0.00000]	[0.25000, 0.25000, 0.00000]	[11,22]	(2,1)	(1,1)	[0,0,0]
12	[0.50000, 0.50000, 0.00000]	[0.75000, 0.25000, 0.00000]	[12,21]	(2,1)	(1,1)	[-1,0,0]

Table 9: 2-th 'A'-'A' [1] (#2) bond cluster (3a@1a), ND, $|\mathbf{v}|=1.0$ (cartesian)

SL	vector (\mathbf{v})	center (\mathbf{c})	mapping	head	tail	\mathbf{R} (primitive)
1	[-1.00000, 0.00000, 0.00000]	[0.00000, 0.00000, 0.00000]	[1,-2,-3,4,-13,14,15,-16]	(1,1)	(1,1)	[1,0,0]

continued ...

Table 9

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

Table 10: 2-th 'A'-'A' [2] (#3) bond cluster (3b@3c), ND, $|\mathbf{v}|=1.0$ (cartesian)

SL	vector (\mathbf{v})	center (\mathbf{c})	mapping	head	tail	\mathbf{R} (primitive)
1	[0.00000, 0.00000, -1.00000]	[0.00000, 0.50000, 0.50000]	[1,2,-3,-4,-13,-14,15,16]	(2,1)	(2,1)	[0,0,1]
2	[-1.00000, 0.00000, 0.00000]	[0.50000, 0.00000, 0.50000]	[5,6,-7,-8,-17,-18,19,20]	(3,1)	(3,1)	[1,0,0]
3	[0.00000, -1.00000, 0.00000]	[0.50000, 0.50000, 0.00000]	[9,10,-11,-12,-21,-22,23,24]	(1,1)	(1,1)	[0,1,0]

Table 11: 2-th 'A'-'A' [3] (#4) bond cluster (3c@3c), ND, $|\mathbf{v}|=1.0$ (cartesian)

SL	vector (\mathbf{v})	center (\mathbf{c})	mapping	head	tail	\mathbf{R} (primitive)
1	[0.00000, -1.00000, 0.00000]	[0.00000, 0.50000, 0.50000]	[1,-2,3,-4,-13,14,-15,16]	(3,1)	(3,1)	[0,1,0]
2	[0.00000, 0.00000, -1.00000]	[0.50000, 0.00000, 0.50000]	[5,-6,7,-8,-17,18,-19,20]	(1,1)	(1,1)	[0,0,1]
3	[-1.00000, 0.00000, 0.00000]	[0.50000, 0.50000, 0.00000]	[9,-10,11,-12,-21,22,-23,24]	(2,1)	(2,1)	[1,0,0]