4 point function

$$\langle\phi_x\phi_y\phi_z\phi_a\rangle = \frac{1}{Z[0]}\frac{\partial^4}{\partial J_x\partial J_y\partial J_z\partial J_a}\Bigg|_{J=0}$$
$$= \frac{1}{Z[0]}\frac{\partial^4}{\partial J_x\partial J_y\partial J_z\partial J_a}[1+\frac{\lambda}{4!}[3\Delta_{ii}\Delta_{ii}U + (J_m\Delta_{im})^4U \qquad (1)$$
$$+ 6(J_m\Delta_{im})^2\Delta_{ii}U]]\mathcal{N}_0 e^{\frac{1}{2}J_m\Delta_{mn}J_n}\Bigg|_{J=0}$$

First term of eqn $[takinge^{\frac{1}{2}J_m\Delta_{mn}J_n} = U]$

$$\frac{\partial^4}{\partial J_x\partial J_y\partial J_z\partial J_a}U = \frac{\partial^3}{\partial J_y\partial J_z\partial J_a}\Delta_{xm}J_mU$$
$$= \frac{\partial^2}{\partial J_z\partial J_a}[\Delta_{xy}U + \Delta_{xm}J_m\Delta_{ym}J_mU]$$
$$= \frac{\partial}{\partial J_a}[\Delta_{xz}\Delta_{ym}J_mU + \Delta_{xm}J_m\Delta_{yz}U + \Delta_{xm}J_m\Delta_{ym}J_m\Delta_{zm}J_mU$$
$$+ \Delta_{xy}\Delta_{zm}J_mU]$$
$$= \Delta_{xy}\Delta_{za} + \Delta_{xz}\Delta_{ya} + \Delta_{xa}\Delta_{yz} \qquad \text{putting J=0}$$
$$= 3\Delta_{xy}\Delta_{za}$$

Second term of equation

$$\frac{\partial^4}{\partial J_x\partial J_y\partial J_z\partial J_a}3\Delta_{ii}\Delta_{ii}U = \frac{\partial^3}{\partial J_y\partial J_z\partial J_a}3\Delta_{ii}\Delta_{ii}\Delta_{xm}J_mU$$
$$= \frac{\partial^2}{\partial J_z\partial J_a}3\Delta_{ii}^2\Delta_{xy}U + 3\Delta_{ii}^2\Delta_{xm}J_m\Delta_{ym}J_mU$$
$$= \frac{\partial}{\partial J_a}3\Delta_{ii}^2\Delta_{xy}\Delta_{zm}J_mU + 3\Delta_{ii}^2\Delta_{xz}\Delta_{ym}J_mU + 3\Delta_{ii}^2\Delta_{xm}J_m\Delta_{yz}U$$
$$+ 3\Delta_{ii}^2\Delta_{xm}J_m\Delta_{ym}J_m\Delta_{zm}J_mU$$
$$= 9\Delta_{ii}^2\Delta_{xy}\Delta_{za}$$

Third term of equation

$$\frac{\partial^4}{\partial J_x\partial J_y\partial J_z\partial J_a}(J_m\Delta_{im})^4U$$
$$= 24\Delta_{ai}\Delta_{zi}\Delta_{xi}\Delta_{yi}\Delta_{yi}$$

Fourth term of equation

$$\frac{\partial^4}{\partial J_x \partial J_y \partial J_z \partial J_a}(J_m \Delta_{im})^4 U$$
$$= 12 * 6 \Delta_{ai} \Delta_{zi} \Delta_{xz} \Delta_{yi} \Delta_{ii}$$

So the 4 point function

$$\langle \phi_x \phi_y \phi_z \phi_a \rangle = \frac{3\Delta_{xy}\Delta_{za} + \frac{\lambda}{4!}[9\Delta_{ii}^2 \Delta_{xy}\Delta_{za} + 24\Delta_{ai}\Delta_{zi}\Delta_{xi}\Delta_{yi}\Delta_{yi} + 12 * 6\Delta_{ai}\Delta_{zi}\Delta_{xz}\Delta_{yi}\Delta_{ii}]}{1 + \frac{\lambda}{4!}3\Delta_{ii}\Delta_{ii}}$$
$$= 3\Delta_{xy}\Delta_{za} + \frac{\lambda}{4!}[24\Delta_{ai}\Delta_{zi}\Delta_{xi}\Delta_{yi}\Delta_{yi} + 12 * 6\Delta_{ai}\Delta_{zi}\Delta_{xz}\Delta_{yi}\Delta_{ii}]$$

so the diagram will be