

For calculating the NO. of optical isomers, use the following formulae:-

I See whether the Terminal groups are Same or Not.

I) If not same,

$$\text{No. of optical isomers} = 2^n.$$

II) If same, see whether the 'n' value / No. of chiral centres are odd or even.

a) If odd,

$$\text{No. of optical isomers} = 2^{n-1}$$

b) If even,

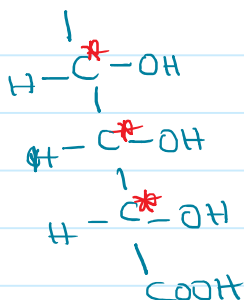
$$\text{No. of optical isomers} = 2^{n-1} + 2^{\frac{(n-2)}{2}}$$

So Now,

In the Question,

a) OC(=O)C(O)C(O)C(=O)O

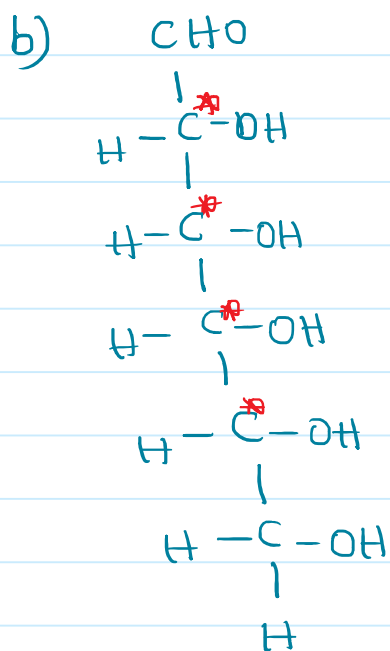
C* = chiral
carbon.



→ I) Terminal carbons are same.

II) $n = 3$ (odd)

$$\begin{aligned}\therefore \text{Total No. of optical isomers} &= 2^{n-1} \\ &= 2^{3-1} \\ &= 2^2 \Rightarrow 4 // -\end{aligned}$$



→ In this compound,

Terminal groups are different.

∴ Total no. of optical isomers

$$= 2^n$$

$$= 2^4$$

$$= 8 //$$