

# PREVIOUS YEAR QUESTION

1.

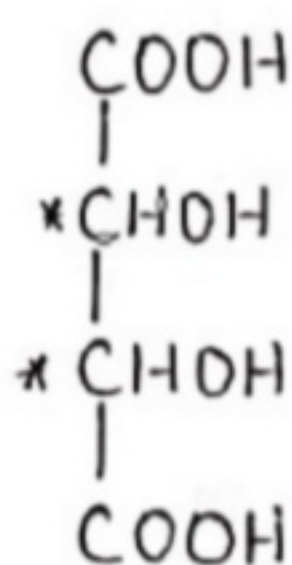
(with answer)

Deg-I (Hons.) ,10/11/2020

Explain the Following :-

**Q. Tartaric acid exhibits optical isomerism.**

**Ans.** Tartaric acid exhibits optical isomerism due to presence of two chiral carbon.



Star marked carbon is  
Chiral carbon.

Tartaric acid

\* Due to presence of chiral carbon Tartaric acid molecule is asymmetric as show optical isomerism.

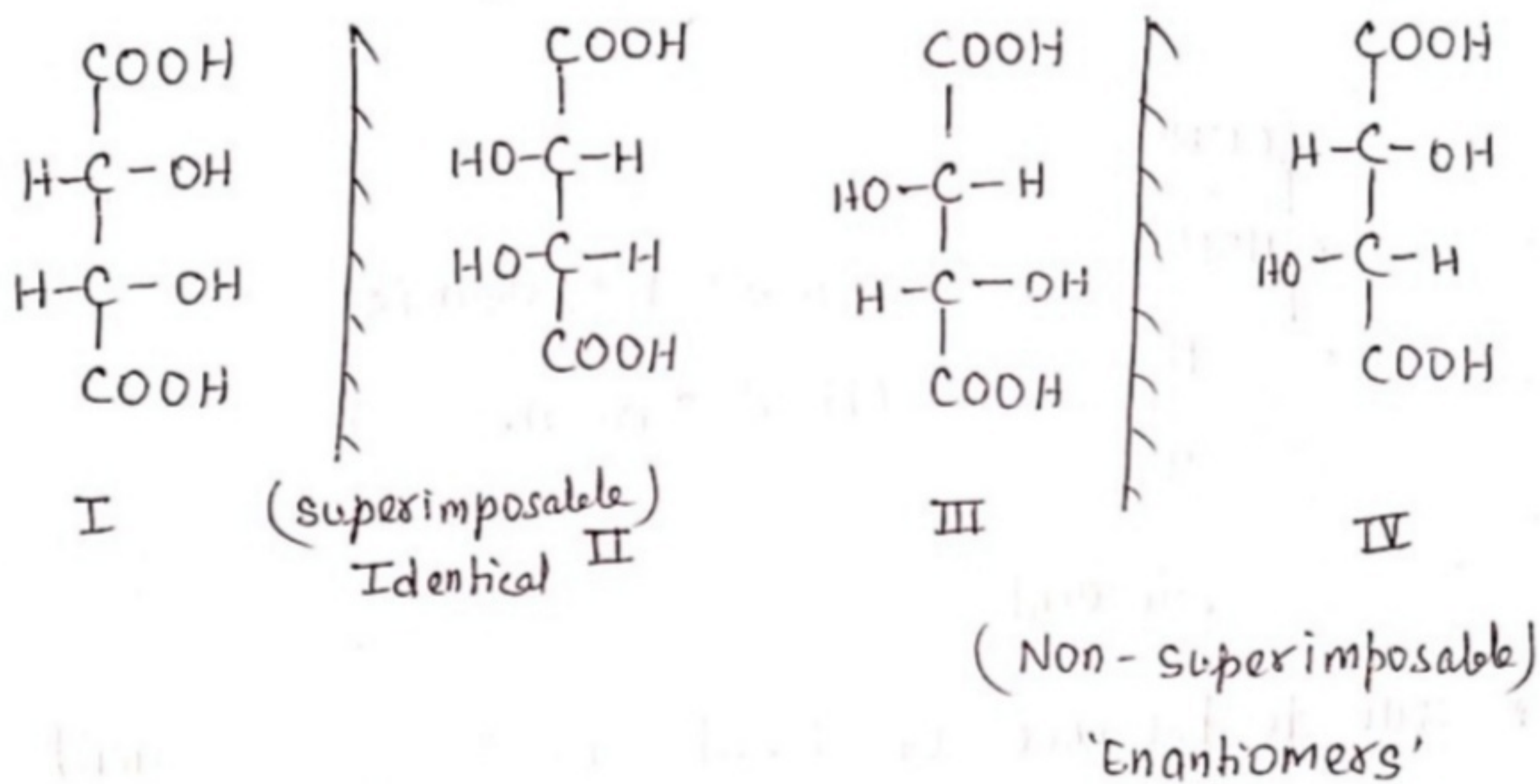
∴ No. of optical isomerism is given by formula  $2^n$ , where  $n = \text{No. of chiral carbon}$ .

∴ No. of optical isomerism shown by tartaric acid should be  $2^2 = 4$ , But actual no. of optical

isomer in this case is 3.

2.

- \* One is dextro, other is laevo and another is meso.
- \* Out of these three dextro and laevo form are optically active while meso form is optically inactive due to internal compensation.
- \* Tartaric acid may be represented in the following four forms.



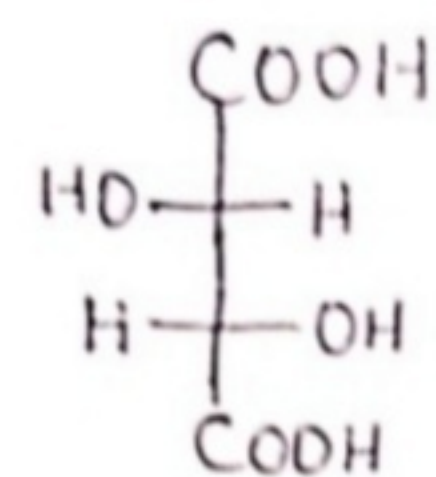
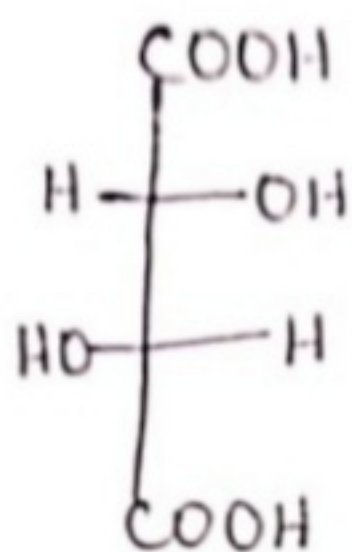
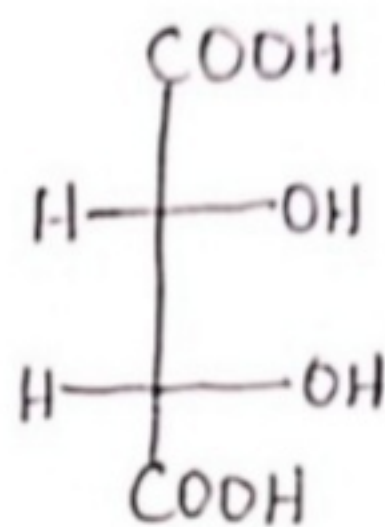
- \* Since, I & II are superimposable and hence they are identical.

Thus tartaric acid exists in three, rather than four, stereoisomeric forms.

Of the three isomeric forms of tartaric acid, two III & IV are non-superimposable mirror image (enantiomers)

3.

of each other, hence optically active, but as the third possesses a plane of symmetry, and hence it is optically inactive.

(+)  
form(-)  
formMeso  
form

Enantiomers

~ Completed ~

Revision Notes

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