SOLUTION DPP- 1

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1.) OPTION (A, B and C)

Positional isomers have same molecular formula and same carbon skeleton. However,

they differ in the position of the functional group

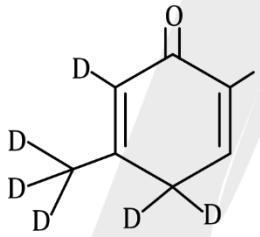
Option A, they are position isomers as position of alcohol is different having same molecular formula

Option B, they are position isomers as position of cyanide group is different having same molecular formula

Option C, they are position isomers as position of carboxylic acid different having same molecular formula

In option D, they have same number of carbons in the parent chain, fuctional group is different. First one is alcohol and other one phenol. Hence they are functional isomers.

2.) OPTION (A) Total number of hydrogen that will be replaced by deuterium is 6



3.) OPTION (D)

(A) Enol form is more stable due to chelation (hydrogen bonding)

(B)enol is more stable due to chelation and conjugation

(C) enol is more stable due to chelation and conjugation

(D)keto is more dominating hence Keq is more than 1

4). **(a)** In $C_5H_{12}O$,Double bond equivalent $\rightarrow \frac{2\times5+2+0-12-0}{2} = \frac{12-12}{2} \rightarrow 0$

Total structural isomers of alcohol for $C_4H_6Cl_2$ is 8

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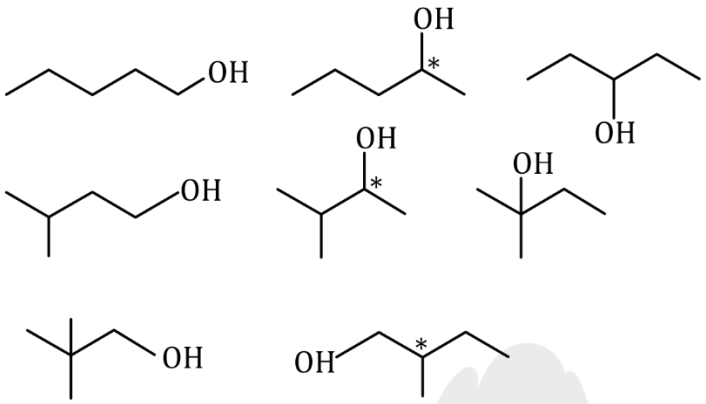

(b.) metamers - This type of Isomerism arises due to unequal distribution of alkyl substituents around a polyvalent functional group

In $C_5H_{12}O$ 2 two cases are possible, one is alcohol and the other is ether but in case of alcohol there will primary, secondary and tertiary alcohol and all 3 are considered to be different functional group Hence in ether 6 cases are possible

$CH_3 - O - CH_2CH_2CH_2CH_3$

$CH_3 - CH_2 - O\,CH_2CH_2CH_3$

$CH_3-CH_2-O-\underset{\displaystyle CH_3}{\overset{\displaystyle CH_3}{\overset{|}{\underset{|}{CH}}}}$

$CH_3-\underset{\displaystyle CH_3}{\overset{\displaystyle CH_3}{\overset{|}{\underset{|}{CH}}}}-O-CH_2-CH_3$

$CH_3-O-CH_2-\underset{\displaystyle CH_3}{\overset{\displaystyle CH_3}{\overset{|}{\underset{|}{CH}}}}-CH_3$

$CH_3-O-\underset{\displaystyle CH_3}{\overset{\displaystyle CH_3}{\overset{|}{\underset{|}{C}}}}-CH_3$

5.) Option (B) and (C)

There are 4 aldehyde forms out of which three can show tautomerism and 3 ketone forms and all can show tautomerism for $C_5H_{10}O$

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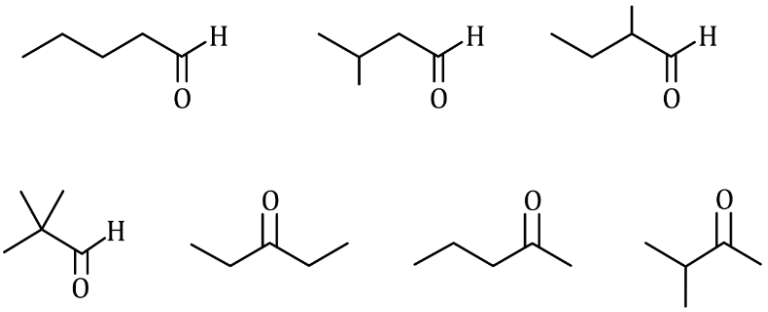
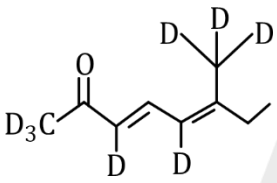


Total number of structural isomers (aldehydes and ketones) of $C_5H_{10}O$ are 7.

6.)



Total hydrogen that are replaced by dueterium= 8

7.) Total number of structural isomers of $C_4H_6Cl_2$ is 9