ORGANIC CHEMISTRY

STRUCTURAL ISOMERISM

1. The correct combination of names for isomeric alcohols with molecular formula $C_4H_{10}O$ is/are-

[JEE(Advanced) 2014]

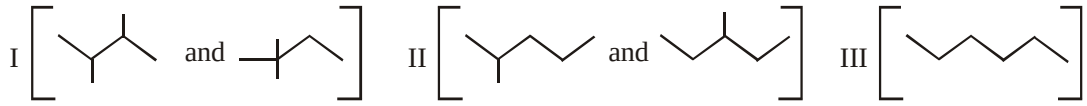
(A) *tert*-butanol and 2-methylpropan-2-ol

(B) *tert*-butanol and 1, 1-dimethylethan-1-ol

(C) *n*-butanol and butan-1-ol

(D) isobutyl alcohol and 2-methylpropan-1-ol

2. Isomers of hexane, based on their branching, can be divided into three distinct classes as shown in the figure.



The correct order of their boiling point is **[JEE(Advanced) 2014]**

(A) I > II > III

(B) III > II > I

(C) II > III > I

(D) III > I > II

SOLUTIONS

1. Ans. (A, B, C, D)

Sol. The combination of names for isomeric alcohols with molecular formula $C_4H_{10}O$ is/are

Formula	Names
$CH_3CH_2CH_2\ CH_2OH$	n-butyl alcohol / n-butanol / butan-1-ol
$CH_3-\underset{\displaystyle CH_3}{\underset{\vert}{CH}}-CH_2-OH$	isobutyl alcohol / 2-methyl propan-1-ol
$CH_3-CH_2-\underset{\displaystyle CH_3}{\underset{\vert}{CH}}-OH$	Secondary butyl alcohol/butan-2-ol
$CH_3-\underset{\displaystyle CH_3}{\overset{\displaystyle CH_3}{\overset{\vert}{\underset{\vert}{C}}}}-OH$	Tertiary butyl alcohol / tertbutanol/ 2-methyl propan-2-ol / 1,1-dimethyl ethan-1-ol

Reference : National Institute of standards and technology (NIST)

2. Ans. (B)

Sol. In the given compounds (isomeric hexane) as the branching increases, the surface area of the molecules decreases, so the Vanderwall force decreases, hence boiling point decreases. Hence correct answer is (B)