## Structural and stereo isomerism

**41.** (c) $C_2H_5-O-C_2H_5$ and $CH_3-O-C_3H_7$

are metamers.

**42.** (a) $\underset{\text{n-propyl alcohol}}{CH_3-CH_2-CH_2-OH}$ and $\underset{\text{Iso-propyl alcohol}}{CH_3-\underset{\underset{OH}{|}}{CH}-CH_3}$

are position isomers of each other.

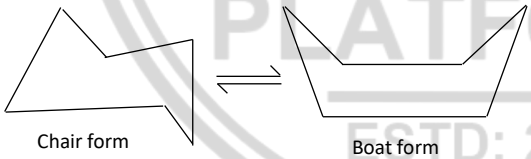
**43.** **(d)**

**44.** (a) $R-N\equiv C$ and $R-C\equiv N$ are functional isomers.

**45.** (b) Optical isomerism because chiral centre is present $(CH_3)_2-C=CH-\underset{\underset{CH_3}{|}}{\overset{\overset{H}{|}}{C^*}}-COOH$ .

**46.** (d) Butanone $CH_3-\underset{\underset{O}{||}}{C}-CH_2-CH_3\,(C_4H_8O)$ is not an isomer of $C_2H_5-O-C_2H_5\,(C_4H_{10}O)$

**47.** (d) Chair and boat form differ in energy by 44 *kJ/mol.*




**48.** (b) $CH_3-O-CH_2-CH_3$ and $CH_3CH_2CH_2-OH$

ethylmethyl ether and propylalcohol are functional isomers.

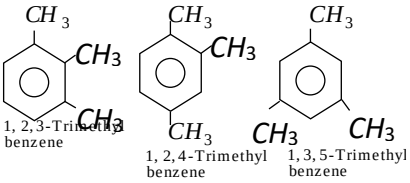
**49.** (c) $\underset{\text{Ethoxypropane}}{CH_3-CH_2-CH_2-O-C_2H_5}$

$\underset{\text{Propoxy ethane}}{CH_3-CH_2-CH_2-O-C_2H_5}$

Both are same compounds.

**50.** (a) $CH_3 - CO - CH_3$ and $CH_3 - CH_2 - CHO$ are functional isomers.

**51.** (b) Three isomers are possible



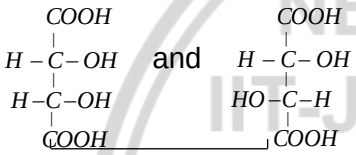

1, 2, 3-Trimethyl benzene

1, 2, 4-Trimethyl benzene

1, 3, 5-Trimethyl benzene

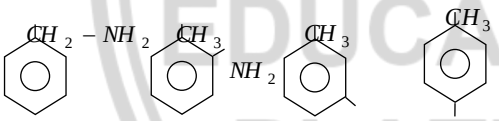
**52.** (d) Diastereoisomers – Optical isomers which are not mirror images of each other.

*e.g.*




Diastereoisomers

**53.** (b) $C_7H_9N$ has 5 isomers

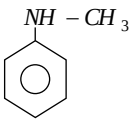



Benzylamine

*O*–Methylaniline

*m*–methyl aniline

*p*–methyl aniline




*n*–methyl aniline

**54.** (d) (1) $CH_3 - CH_2 - CH_2 - CH = CH_2$

Pent-1-ene

(2) $CH_3 - CH_2 - CH = CH - CH_3$

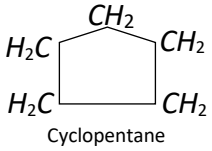
Pent-2-ene

(3) $CH_3-CH_2-\underset{\underset{CH_3}{|}}{C}=CH_2$

2–Methyl–1–butene

(4) $CH_3-CH=\underset{\underset{CH_3}{|}}{C}-CH_3$

2–Methyl–2–butene

(5) 

Cyclopentane

**55.** (d) $CH_3-\underset{\underset{OH}{|}}{\overset{\overset{H}{|}}{C^*}}-COOH$ asymmetric

2 – hydroxy propanoic acid (lactic acid)

**56.** **(d) All of these**

**57.** **(b)** $C_2H_5CH(CH_3)C_3H_7$

**58.** (d) $CH_3-\underset{\underset{CH_3}{|}}{C}=CH_2$

2-methyl propene does not show geometrical isomerism.

**59.** (b) Conformers - Conformation arises because of free rotation around $C-C$ bond axis.

**60.** (d) $CH_3-\underset{\underset{Br}{|}}{\overset{\overset{H}{|}}{C_*}}-\underset{\underset{Br}{|}}{\overset{\overset{H}{|}}{C_*}}-COOH$

Number of enantiomers = $2^n$ ($n$ = asymmetric Carbon atom) = $2^2$ = 4.