

Dipole moment, resonance and reaction intermediates

- 41. (d)** $CH_3CH_2OH \xrightarrow{\text{Heterolytic cleavage}} CH_3CH_2^+ + OH^-$

- 42** (b) Carbanion ion

- 43. (d)** $CH_3 - \begin{array}{c} H \\ | \\ C - Cl \\ | \\ \text{C}_6\text{H}_5 \end{array} \xrightarrow{SbCl_5} \begin{array}{c} H \\ | \\ C - Cl - CH_3 \\ | \\ \text{C}_6\text{H}_5 \end{array} + CH_3 - \begin{array}{c} H \\ | \\ C - Cl \\ | \\ \text{C}_6\text{H}_5 \end{array}$

(d) form *(l) form*

44. (b) The reaction of an alkyl halide or aryl halide with benzene in the presence of a Lewis acid, generally $AlCl_3$, is known as Friedel Craft's reaction.

45. (b)  gives only monosubstitution product as $-NO_2$ group is meta directing and only one m -position is possible in m -dinitrobenzene.

- 46.** (a) According to Huckel rule, all aromatic compounds must have $(4n + 2)\pi$ electrons where n is an integer, i.e., $n = 0, 1, 2, 3, \dots$ and possesses unusual stability due to the complete delocalisation of π -electrons.

- 47.** (b) $H-\ddot{O}-H$, $:NH_3$, $R-\ddot{O}-R$ - nucleophiles SO_3^- has electron deficient centre (a reagent which can accept an electron pair in a reaction, is called an electrophile)

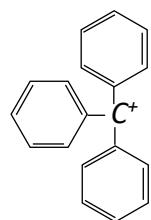
48. (d) Chlorine atom is *ortho-para* directing group.

- 49.** (b) Stability of carbonium ions.

tertiary alkyl > secondary alkyl > primary alkyl > methyl.

More the number of alkyl groups, the greater the dispersal of positive charge and therefore, more the stability of carbonium ion is observed.





triphenylmethyl cation

Dispersal of positive charge increases with the increase in the number of benzene ring.

