



- iii. How can it be proved that benzene has three double bonds?
- iv. Define resonance energy. What is the resonance energy of benzene?
- v. How is benzene prepared from acetylene?
- vi. What is nitration of benzene? Give its mechanism.
- vii. Give two reactions in which benzene behaves as saturated compounds.
- viii. What happens when benzene is heated with conc. H_2SO_4 at $250^\circ C$?
- ix. How can toluene be converted into benzoic acid?
- x. How will you prepare o-nitrotoluene from benzene in two steps?

SECTION-II

NOTE: Attempt All Questions:

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- Q.3: Draw structural formulas for the following compounds: (i) m-Chlorobenzoic acid (ii) 2,4,6-Trinitrotoluene (iii) p-Hydroxybenzoic acid (iv) m-Nitrophenol.
- Q.4: Explain the structure of benzene on the basis of atomic orbital treatment.
- Q.5: Convert benzene into: (i) Cyclohexane (ii) Maleic acid (iii) Gloxal (iv) Benzene sulphonic acid (v) Acetophenon.