Class 11 Hydrocarbons MCQs

1. When acetylene is treated with HBr, the product is —--------
   (a) Methyl bromide (b) Ethylene bromide
   (c) Ethyl bromide (d) Ethylidene bromide

   Ans: (d)
   Solution: Ethylidene bromide is formed.
   $CH \equiv CH + HBr \rightarrow CH_2=CHBr + HBr \rightarrow CH_3\text{-}CHBr_2$

2. The dihedral angle in the staggered conformation of C2H6 is
   (a) 120^0 (b) 60^0 (c) 0^0 (d) 90^0

   Ans: (b)
   Solution: The dihedral angle is 60^0.

3. Bond length of (I) ethane, (II) ethene, (III) acetylene and (IV) benzene follows the order:
   (a) I > II > III > IV (b) I > II > IV> III
   (c) I > IV > II > III (d) III > IV > II > I

   Ans (c)
   Solution: Bond order is inversely proportional to bond length: I > IV > II > III

4. Which of the following participate in the sulphonation of benzene?
   (a) SO_2 (b) SO_3H^+ (c) SO_3 (d) SO_3H^-

   Ans: (c)
   Solution: SO_3 participates in the sulphonation of benzene.

5. Which one of the following is not an isomer of 3-Methylbut-1-yne?
   (a) Pent-1-yne (b) Buta-1,3-diene
   (c) Pent-2-yne (d) Penta-1,3-diene

   Ans: (b)
   Solution: Buta-1,3-diene (four carbon atoms) is not an isomer of 3-Methylbut-1-yne (five carbon atoms)

6. Which of the following can be used as the halide component of a friedel craft reaction?
   (a) Chlorobenzene (b) Bromobenzene

(c) Chloroethene (d) Isopropyl chloride

Ans: (d)
Solution: Only isopropyl chloride can be used as the halide component for friedel craft reaction. In all other cases the cleavage of C-X bond is not possible.

7. Which of the compounds show dipole moment?
   (a) 1,4-dichlorobenzene
   (b) 1,2-dichlorobenzene
   (c) trans-1,2-dichloroethane
   (d) trans-but-2-ene

   Ans: (b)
   Solution: 1,2-dichlorobenzene shows dipole moment because the rest are all symmetrical in nature.

8. Which of the following compounds will exhibit cis-trans isomerism?
   (a) Butanol (b) 2- Butyne
   (c) 2-Butenol (d) 2-Butene

   Ans: (d)
   Solution: $CH_3CH=CHCH_3$ will exhibit geometrical isomerism.

9. Benzene reacts with CH_3Cl in the presence of anhydrous $AlCl_3$ to form
   (a) Chlorobenzene (b) Benzyl chloride
   (c) xylene (d) toluene

   Ans: (d)
   Solution: Benzene reacts with CH_3Cl in the presence of anhydrous $AlCl_3$ undergoes Friedel craft alkylation which produces toluene.

10. What happens when a mixture of acetylene and hydrogen is passed over heated Lindlar's catalyst?
    (a) Ethylene and water are formed
    (b) Ethane and water are formed
    (c) Ethylene is formed
    (d) Acetylene and ethane are formed

    Ans: (c)
    Solution: Ethylene is formed as a result of controlled hydrogenation of acetylene.