

CHAPTER
9

AROMATIC HYDROCARBONS

MULTIPLE CHOICE QUESTIONS

1. Which of the following acid can be used as a catalyst in Friedel Craft's reaction:
(a) AlCl_3 (b) HNO_3
(c) BeCl_2 (d) NaCl
2. During nitration of benzene, the active nitrating agent is:
(a) NO_3 (b) NO_2^+
(c) NO_2^- (d) HNO_3
3. The electrophile in aromatic sulphonation is:
(a) H_2SO_4 (b) HSO_4^-
(c) SO_3^+ (d) SO_3
4. Hydrogen to carbon ratio in aromatic hydrocarbons is:
(a) Low (b) High
(c) Equal (d) None
5. The second substitution in benzene ring would give rise isomeric products:
(a) One (b) Two
(c) Three (d) Four
6. Molecular mass of benzene is determined by:
(a) Vapour density method (b) X-ray diffraction
(c) Elemental analysis (d) Degradation method
7. C – H bond lengths in benzene are:
(a) 0.99 \AA (b) 1.09 \AA
(c) 1.12 \AA (d) 1.397 \AA

- 18.** The molecular formula of naphthalene is:
- (a) C₁₀H₈ (b) C₁₀H₁₀
 (c) C₁₀H₁₂ (d) C₁₂H₁₂
- 19.** Chlorine react with benzene in the presence of sunlight to give:
- (a) Chlorobenzene (b) Benzoyl chloride
 (c) Ortho-para dichlorobenzene (d) Hexachlorobenzene
- 20.** Effect of substituent on benzene ring is due to:
- (a) Resonance (b) Inductive effect
 (c) Both (a) and (b) (d) Unpredictable
- 21.** In which of the following cases, the benzene rings are isolated:
- (a) Naphthalene (b) Phenanthrene
 (c) Anthracene (d) Triphenylmethane
- 22.** Benzene is stable than ethene because it has:
- (a) More π -bonds (b) Localized π -electrons
 (c) Delocalized π -electrons (d) More σ -bonds
- 23.** Which of the following is ortho and para directing group:
- (a) –OH (b) –OCH₃
 (c) –CHO (d) –NH₂
- 24.** Among the following compounds which can be readily sulphonated:
- (a) Phenol (b) Benzene
 (c) Nitrobenzene (d) Chlorobenzene
- 25.** Structure of benzene is resonance hybrid of all ——— structures:
- (a) 3 (b) 4
 (c) 5 (d) 6
- 26.** Aromatic hydrocarbons are derivatives of:
- (a) Paraffins (b) Alkene
 (c) Benzene (d) Cyclohexane
- 27.** Which of the following explains the structure of benzene:
- (a) Atomic orbital treatment of benzene
 (b) Resonance method
 (c) Both (a) and (b)
 (d) None

28. The conversion of n-hexane into benzene by heating in the presence of ($\text{Al}_2\text{O}_3 + \text{SiO}_2 + \text{Cr}_2\text{O}_3$) is called:

- (a) Isomerization
- (b) Aromatization
- (c) Dealkylation
- (d) Rearrangement

29. Which of the following is called benzyl radical:

- (a) $\text{C}_6\text{H}_5 -$
- (b) $\text{C}_6\text{H}_5 - \overset{|}{\text{CH}}$
- (c) $\text{C}_6\text{H}_5 - \text{CH}_2 -$
- (d) $\text{C}_6\text{H}_5 - \overset{|}{\underset{|}{\text{C}}} -$

30. Toluene can be converted to benzoic acid in the presence of:

- (a) dil. NaOH
- (b) dil. HNO_3
- (c) Conc. HNO_3
- (d) Acidified KMnO_4

31. Cyclic structure of benzene was proposed by:

- (a) Dewar
- (b) Faraday
- (c) Down
- (d) Kekule

32. Benzene does not undergo:

- (a) Addition
- (b) Substitution
- (c) Polymerization
- (d) Aromatization

answers

1.	(a)	2.	(b)	3.	(d)	4.	(a)	5.	(c)
6.	(a)	7.	(b)	8.	(b)	9.	(c)	10.	(b)
11.	(b)	12.	(a)	13.	(d)	14.	(d)	15.	(c)
16.	(c)	17.	(b)	18.	(a)	19.	(d)	20.	(c)
21.	(d)	22.	(c)	23.	(a)	24.	(a)	25.	(c)
26.	(c)	27.	(c)	28.	(b)	29.	(c)	30.	(d)
31.	(d)	32.	(c)						