Benzene & Aromatic Compounds
40 MCQs (Choose the Correct Answer)

1. Which statement best explains why benzene does NOT undergo typical addition reactions?
A. Benzene has alternating single and double bonds
B. Benzene is aromatic and stabilized by resonance
C. Benzene has sp^3 hybridized carbons
D. Benzene lacksπ electrons

2. All carbon–carbon bond lengths in benzene are equal because:
A. Benzene rapidly undergoes addition reactions
B. Benzene exists as two separate structures
C. Benzene is a resonance hybrid
D. Benzene contains localized double bonds

3. Which of the following is NOT a requirement for aromaticity?
A. Cyclic structure
B. Complete conjugation
C. Planarity
D. Presence of heteroatoms

4. A compound that is cyclic, planar, fully conjugated, and contains 6 π electrons is classified as:
A. Antiaromatic
B. Nonaromatic
C. Aromatic
D. Aliphatic

5. Cyclooctatetraene is classified as nonaromatic because it:
A. Violates Hückel's rule
B. Is not planar
C. Is not cyclic
D. Lacks conjugation

6. Which compound is considered a polycyclic aromatic hydrocarbon (PAH)?
A. Cyclohexane
B. Benzene
C. Naphthalene
D. Toluene

7. In biphenyl, the two benzene rings:
A. Are fully conjugated with each other
B. Shareπ electrons extensively
C. Show little interaction between rings
D. Are fused together

8. Which heterocycle listed below is aromatic?
A. 2H-pyran
B. Cyclopentane
C. Pyrilium ion
D. Cyclobutadiene

9. Furan is aromatic because:
A. All atoms are sp^3 hybridized
B. It has 4 π electrons
C. One lone pair participates in conjugation
D. It contains a positive charge

10. A benzene ring acting as a substituent is called:
A. Benzyl
B. Phenyl
C. Aryl
D. Alkyl

11. The group –CH■–C■H■ is known as:
A. Phenyl
B. Aryl
C. Benzyl
D. Toluyl

12. Which name correctly represents 1,3-dibromobenzene?
A. o-dibromobenzene
B. m-dibromobenzene
C. p-dibromobenzene
D. iso-dibromobenzene

13. Which reaction type is characteristic of benzene?
A. Electrophilic addition
B. Radical addition
C. Electrophilic aromatic substitution
D. Nucleophilic addition

14. Bromination of benzene requires the presence of:
A. UV light
B. FeB■
C. H■SO■
D. NaOH

15. Which reagent mixture is used for nitration of benzene?
A. HNO■ only
B. HNO■ / H■SO■
C. H■SO■ / HCl
D. NO■ / FeCl■

16. Which functional group can be introduced into benzene by sulfonation?
A. –NO■
B. –SO■H
C. –COOH
D. –CN

17. Friedel–Crafts alkylation works best with:
A. Vinyl halides
B. Aryl halides
C. Primary alkyl halides
D. Secondary and tertiary alkyl halides

18. Which compound does NOT undergo Friedel–Crafts alkylation?
A. Benzene
B. Toluene
C. Nitrobenzene
D. Ethylbenzene

19. A major limitation of Friedel–Crafts alkylation is:
A. No carbocation formation
B. Rearrangement of carbocations
C. Inability to use Lewis acids
D. Formation of only mono-substituted products

20. Compared to alkylation, Friedel–Crafts acylation:
A. Produces rearranged products
B. Always gives disubstitution
C. Avoids carbocation rearrangement
D. Requires stronger Lewis acids

21. Which substituent is a strong activating group?
A. –NO■2
B. –CF■3
C. –NH■2
D. –CN

22. An electron-donating substituent generally:
A. Deactivates the benzene ring
B. Directs substitution to meta position
C. Activates the benzene ring
D. Removes aromaticity

23. Which group is deactivating but ortho/para directing?
A. –NO■
B. –OH
C. –CH■
D. –Cl

24. A nitro group (–NO2) is:
A. Activating, ortho/para directing
B. Activating, meta directing
C. Deactivating, ortho/para directing
D. Deactivating, meta directing

25. The directing effect of –OR groups is mainly due to:
A. Inductive effect only
B. Resonance donation
C. Steric hindrance
D. Hyperconjugation

26. Which position is favored when a +R group is present?
A. Meta only
B. Ortho and para
C. Meta and para
D. Random positions

27. A benzene ring bearing –CF■3 is:
A. Activated
B. Deactivated
C. Aromatic only when heated
D. Nonaromatic

28. In disubstituted benzenes, steric hindrance is greatest at the:
A. Meta position
B. Ortho position
C. Para position
D. Benzylic position

29. Amines react with nitrous acid to form:
A. Nitro compounds
B. Diazonium salts
C. Azo dyes
D. Amides

30. Aryl diazonium salts are useful because:
A. N■ is a poor leaving group
B. They only undergo addition reactions
C. N■ can be replaced by various nucleophiles
D. They deactivate the aromatic ring

31. The Sandmeyer reaction involves:
A. Direct halogenation of benzene
B. Replacement using Cu salts
C. Oxidation of side chains
D. Nitration

32. Which group cannot be introduced directly by EAS but via diazonium salts?
A. –CH■3
B. –Br
C. –F
D. –NO■2

33. Coupling of diazonium salts produces:
A. Ketones
B. Amines
C. Azo compounds
D. Phenols

34. Azo compounds are typically:
A. Colorless
B. Saturated
C. Highly conjugated
D. Nonaromatic

35. SNAr is favored when the ring contains:
A. Electron-donating groups
B. Alkyl groups
C. Electron-withdrawing groups
D. No substituents

37. Benzylic C–H bonds are weak because:
A. sp^2 hybridization
B. Resonance-stabilized radical
C. Steric hindrance
D. Lack of σ bonds

38. Strong oxidation of an alkylbenzene side chain gives:
A. Aldehyde
B. Alcohol
C. Benzoic acid
D. Ketone

39. Which reaction occurs at the benzylic position?
A. Nitration
B. Sulfonation
C. Radical halogenation
D. Friedel–Crafts acylation

40. Which structure corresponds to toluene?

A. Benzene–OH

B. Benzene–CH■ 3

C. Benzene–NO■ 2

D. Benzene–CH■OH

2

Model Answers

1. B
2. C
3. D
4. C
5. B
6. C
7. C
8. C
9. C
10. B
11. C
12. B
13. C
14. B
15. B
16. B
17. D
18. C
19. B
20. C
21. C
22. C
23. D
24. D
25. B
26. B
27. B
28. B
29. B
30. C
31. B
32. C
33. C
34. C
35. C
36. C
37. B
38. C
39. C
40. B