# CLASS XI CHE CH: 9

## SET 5 – General Organic Reactions and Mechanisms (MCQs)

1. The ability of carbon to form long chains is known as –
   a) Isomerism b) Catenation c) Polymerisation d) Substitution

2. The phenomenon of existence of compounds with same molecular formula but different structure is –
   a) Isomerism b) Polymerisation c) Resonance d) Tautomerism

3. Structural isomerism arises due to difference in –
   a) Molecular formula b) Arrangement of atoms c) Type of atoms d) Bond energy

4. Functional isomerism is shown by –
   a) Alcohols and ethers b) Aldehydes and acids c) Both d) None

5. Chain isomerism is shown by –
   a) Pentane and isopentane b) Propane and butane c) Ethane and ethene d) Benzene and toluene

6. Position isomerism is shown by –
   a) 1-butene and 2-butene b) Butane and isobutane c) Propane and ethane d) Benzene and toluene

7. Tautomerism involves –
   a) Structural rearrangement b) Change in oxidation number c) Change in hybridisation only d) Change in total atoms

8. The most common type of tautomerism is –
   a) Keto–enol b) Chain c) Geometrical d) Optical

9. Geometrical isomerism occurs due to restricted rotation around –
   a) C–C single bond b) C=C double bond c) C–O bond d) C–N bond

10. The more stable geometrical isomer is usually –
    a) Cis b) Trans c) Both equally d) None

11. The species $CH_3^+$ is known as –
    a) Free radical b) Carbocation c) Carbanion d) Nucleophile

12. The species $CH_3^\cdot$ is –
    a) Carbocation b) Free radical c) Carbanion d) Cation

13. The species $CH_3^-$ is –
    a) Carbocation b) Carbanion c) Free radical d) None

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14. The carbon atom in carbocation is –
a) $sp^3$ hybridised b) $sp^2$ hybridised c) sp hybridised d) $dsp^2$ hybridised

15. The carbon atom in carbanion is –
a) $sp^3$ hybridised b) $sp^2$ hybridised c) sp d) None

16. Carbocations are stabilised by –
a) Electron-donating groups b) Electron-withdrawing groups c) Both d) None

17. Carbanions are stabilised by –
a) Electron-withdrawing groups b) Electron-donating groups c) Alkyl groups d) Hyperconjugation

18. The inductive effect operates through –
a) π bonds b) σ bonds c) Both d) Ionic bonds

19. The resonance effect operates through –
a) σ bonds b) π bonds c) Ionic bonds d) Van der Waals forces

20. +I effect is shown by –
a) $–CH_3$ b) $–NO_2$ c) –CN d) –COOH

21. –I effect is shown by –
a) –Cl b) $–CH_3$ c) $–C_2H_5$ d) –OH

22. +R effect is shown by –
a) –OH b) $–NO_2$ c) –CN d) –COOH

23. –R effect is shown by –
a) $–NH_2$ b) $–NO_2$ c) –OH d) –OR

24. The electromeric effect is temporary and occurs in –
a) σ bonds b) π bonds c) Ionic compounds d) None

25. The +E effect indicates displacement of π electrons –
a) Toward attacking reagent b) Away from attacking reagent c) Between atoms d) None

26. The –E effect indicates displacement of π electrons –
a) Toward attacking reagent b) Away from attacking reagent c) Both d) None

27. The delocalisation of σ-electrons of C–H bond in conjugation with π-system is –
a) Resonance b) Hyperconjugation c) Inductive effect d) Electromeric effect

28. Hyperconjugation is also known as –
a) σ–π conjugation b) π–π conjugation c) σ–σ conjugation d) π–σ conjugation

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29. The temporary dipole created due to unequal electron sharing in σ-bond is due to –
a) Inductive effect b) Resonance c) Hyperconjugation d) Mesomeric effect

30. In electrophilic substitution, attacking species is –
a) Electron-rich b) Electron-deficient c) Neutral d) Radical

31. In nucleophilic substitution, attacking species is –
a) Electron-rich b) Electron-deficient c) Neutral d) Radical

32. Example of electrophile –
a) $Cl^-$ b) $OH^-$ c) $H^+$ d) $NH_3$

33. Example of nucleophile –
a) $H^+$ b) $NO_2^+$ c) $Cl^-$ d) $AlCl_3$

34. Homolytic fission produces –
a) Ions b) Free radicals c) Carbanions d) Carbocations

35. Heterolytic fission produces –
a) Free radicals b) Ions c) Atoms d) Molecules

36. The reagent that donates electrons is called –
a) Nucleophile b) Electrophile c) Catalyst d) Inhibitor

37. The reagent that accepts electrons is –
a) Nucleophile b) Electrophile c) Base d) Reducing agent

38. The order of stability of carbocations is –
a) 1° < 2° < 3° b) 3° < 2° < 1° c) 2° < 3° < 1° d) All equal

39. The order of stability of free radicals is –
a) 1° < 2° < 3° b) 3° < 2° < 1° c) 2° < 3° < 1° d) Equal

40. The order of stability of carbanions is –
a) 3° > 2° > 1° b) 1° > 2° > 3° c) 2° > 1° > 3° d) Equal

41. The movement of electron pair toward or away from atom/group is –
a) Resonance b) Inductive effect c) Mesomeric effect d) Hyperconjugation

42. Which method is used to purify camphor and naphthalene?
a) Sublimation b) Distillation c) Crystallisation d) Chromatography

43. Steam distillation is used for –
a) Water-insoluble volatile liquids b) Non-volatile solids c) Salts d) Metals

44. Simple distillation is used to separate liquids –
a) With large difference in boiling point b) Close boiling points c) Same melting

points d) Different colours

45. Fractional distillation is used when liquids –
a) Have close boiling points b) Have high difference in boiling points c) Are immiscible d) Are non-volatile

46. The purity of organic solid is tested by –
a) Melting point b) Colour c) Odour d) Density

47. The purity of organic liquid is tested by –
a) Boiling point b) Colour c) Odour d) Density

48. Chromatography is based on difference in –
a) Adsorption b) Boiling point c) Density d) Colour

49. Column chromatography separates compounds on the basis of –
a) Differential adsorption b) Density c) Colour d) Mass

50. The drying agent used to remove water from organic solvents is –
a) $CaCl_2$ b) NaCl c) $NH_4Cl$ d) $K_2SO_4$

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## ✅ Answers – SET 5

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|---|---|---|---|---|---|---|---|---|---|
| 1–b | 2–a | 3–b | 4–c | 5–a | 6–a | 7–a | 8–a | 9–b | 10–b |
| 11–b | 12–b | 13–b | 14–b | 15–a | 16–a | 17–a | 18–b | 19–b | 20–a |
| 21–a | 22–a | 23–b | 24–b | 25–a | 26–b | 27–b | 28–a | 29–a | 30–b |
| 31–a | 32–c | 33–c | 34–b | 35–b | 36–a | 37–b | 38–a | 39–a | 40–b |
| 41–b | 42–a | 43–a | 44–a | 45–a | 46–a | 47–a | 48–a | 49–a | 50–a |