CLASS 12 – CHEMISTRY

MODEL QUESTION PAPER

(SET–1)

Time: 3 Hours **Maximum Marks: 70**

Section A (1×16 = 16 Marks)

(12 MCQs + 4 Assertion-Reason)

Q1–Q12 MCQs

1. Which of the following is a strong electrolyte?
   (a) CH_3COOH
   (b) NaCl
   (c) NH_4OH
   (d) C_2H_5OH

2. The IUPAC name of $CH_3–CH=CH–CHO$ is:
   (a) But-2-enal
   (b) But-3-enal
   (c) Butanal
   (d) 2-Butanal

3. The unit of molar conductivity is:
   (a) S cm^2 mol^{-1}
   (b) S cm^{-1}
   (c) Ω cm
   (d) S mol^{-1}

4. Which is a coordination compound?
   (a) NaCl
   (b) $K_4[Fe(CN)_6]$
   (c) H_2SO_4
   (d) NH_3

5. Rate of reaction doubles when temperature increases by:
   (a) 1°C

(b) 5°C
(c) 10°C
(d) 100°C

6. Which polymer is biodegradable?
   (a) Nylon-6
   (b) PVC
   (c) PHBV
   (d) Bakelite

7. Vitamin C is:
   (a) Fat soluble
   (b) Water soluble
   (c) Steroid
   (d) Hormone

8. Hybridisation in SF_6 is:
   (a) sp^3
   (b) sp^3d
   (c) sp^3d^2
   (d) sp^2

9. The oxidising agent in Daniell cell is:
   (a) Zn
   (b) Cu^{2+}
   (c) SO_4^{2-}
   (d) H_2

10. Glucose and Fructose are:
    (a) Isomers
    (b) Homologues
    (c) Polymers
    (d) Tautomers

11. Which is a nucleophile?
    (a) NO_2^+
    (b) OH^-
    (c) H^+
    (d) $AlCl_3$

12. Order of reaction for rate = $k[A]^2$ is:
    (a) 1
    (b) 2

(c) 0
(d) 3

Assertion–Reason (Q13–Q16)

13. A: Primary amines give carbylamine test.
    R: They react with chloroform and alcoholic KOH.

14. A: Electrochemical cells convert chemical energy into electrical energy.
    R: Oxidation occurs at cathode.

15. A: Aldehydes are more reactive than ketones.
    R: Due to less steric hindrance.

16. A: Transition metals show variable oxidation states.
    R: Due to participation of (n-1)d electrons.

Section B (2×5 = 10 Marks)

17. Define molality.

18. What is meant by order of reaction?

19. Write two differences between adsorption and absorption.

20. Give two uses of coordination compounds.

21. Write structure of benzene.

Section C (3×7 = 21 Marks)

22. Explain Raoult's law with example.

23. Derive Nernst equation.

24. Explain SN1 reaction with example.

25. What are enzymes? Write properties.

26. Explain Freundlich adsorption isotherm.

27. Write preparation and properties of haloalkanes.

28. Define polymerisation. Explain addition polymerisation.

Section D (Case Study) (4×2 = 8 Marks)

29. Case Study: Electrolysis of molten NaCl
    (i) What is formed at cathode?
    (ii) What is formed at anode?
    (iii) Write half reactions.
    (iv) Why graphite electrode is used?

30. Case Study: Glucose structure
    (i) Why glucose does not react with $NaHSO_3$?
    (ii) What is cyclic structure?
    (iii) Define mutarotation.
    (iv) Is glucose reducing sugar?

Section E (5×3 = 15 Marks)

31. Explain electrochemical cell with diagram.

32. Describe Aldol condensation reaction.

33. Explain crystal field theory for octahedral complex.
