

CLASS 12 – CHEMISTRY
MODEL QUESTION PAPER
(SET–3)

Time: 3 Hours

Maximum Marks: 70

General Instructions:

1. All questions are compulsory.
 2. Use of calculator is not permitted.
 3. Draw neat and labelled diagrams wherever required.
 4. Internal choices are given in some questions.
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Section A (1×16 = 16 Marks)

(12 MCQs + 4 Assertion–Reason)

Q1–Q12 MCQs

1. Which of the following is a non-ideal solution?
(a) Benzene + Toluene
(b) Acetone + Chloroform
(c) n-Hexane + n-Heptane
(d) $\text{CCl}_4 + \text{CHCl}_3$
2. The order of reaction for rate = k is:
(a) 0
(b) 1
(c) 2
(d) 3
3. Which of the following is a bidentate ligand?
(a) Cl^-
(b) H_2O

- (c) en
 - (d) NH_3
4. Which polymer is formed by condensation reaction?
- (a) PVC
 - (b) Polythene
 - (c) Nylon-6,6
 - (d) Teflon
5. Which compound gives iodoform test?
- (a) Methanol
 - (b) Ethanol
 - (c) Benzene
 - (d) Toluene
6. The hybridisation of PCl_5 is:
- (a) sp^3
 - (b) sp^3d
 - (c) sp^3d^2
 - (d) sp^2
7. Which vitamin helps in blood clotting?
- (a) A
 - (b) B
 - (c) C
 - (d) K
8. The oxidation number of Mn in KMnO_4 is:
- (a) +2
 - (b) +4
 - (c) +6
 - (d) +7
9. Which of the following is an ambidentate ligand?
- (a) CN^-
 - (b) NH_3
 - (c) H_2O
 - (d) CO
10. The unit of cell potential is:
- (a) Volt
 - (b) Ampere
 - (c) Ohm
 - (d) Coulomb

11. Which reaction follows SN2 mechanism?
(a) Tertiary haloalkane
(b) Primary haloalkane
(c) Benzyl halide
(d) Allyl halide
12. Which colloidal system is an example of gel?
(a) Milk
(b) Jelly
(c) Smoke
(d) Foam
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Assertion–Reason (Q13–Q16)

13. A: Osmotic pressure is a colligative property.
R: It depends upon number of solute particles.
14. A: Copper shows +1 and +2 oxidation states.
R: Due to involvement of 3d electrons.
15. A: Phenol is more acidic than alcohol.
R: Phenoxide ion is resonance stabilised.
16. A: Catalyst increases rate of reaction.
R: It increases activation energy.
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Section B (2×5 = 10 Marks)

(VERY SHORT QUESTION)

17. Define molarity.
18. Write expression for equilibrium constant (Kc).
19. What is chelation? Give one example.
20. Write two differences between lyophobic and lyophilic sols.
21. What are reducing sugars?
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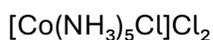
Section C (3×7 = 21 Marks)

22. Explain relative lowering of vapour pressure.

23. Derive half-life expression for first order reaction.
 24. Describe Werner's theory of coordination compounds.
 25. Explain Hoffmann bromamide reaction.
 26. What are antiseptics and disinfectants? Give examples.
 27. Explain Freundlich adsorption isotherm with equation.
 28. Write preparation and chemical properties of aldehydes.
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Section D (Case Study Based) (4×2 = 8 Marks)

29. Case Study: Coordination Compound



- (i) Find oxidation state of Co.
 - (ii) What is coordination number?
 - (iii) Name the compound.
 - (iv) Is it electrolyte? Why?
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30. Case Study: Electrochemistry

Electrolysis of aqueous NaCl solution is carried out.

- (i) What is formed at cathode?
 - (ii) What is formed at anode?
 - (iii) Write balanced half reactions.
 - (iv) Define Faraday's law of electrolysis.
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Section E (Long QUESTION) (5×3 = 15 Marks)

31. Explain electrochemical series and its applications.
32. Describe Cannizzaro reaction with mechanism.
33. Explain types of polymerisation with examples.