

Class 12 Chemistry Sample Papers CBSE Board

Time-3 hrs

M.M- 70

GENERAL INSTRUCTIONS:

- 1 All questions are compulsory.
2. Question number 1 to 8 are very short answer questions, carry 1 mark each
3. Question number 9 to 18 are short answer questions, carry 2 marks each
4. Questions number 19 to 27 are also short answer questions, carry 3 marks each.
5. Question number 28 to 30 are long answer questions carry 5 marks.

1. What is the difference between ionic bond and metallic bond ?
2. Why does conductivity decrease with dilution ?
3. Comment on the statement that "colloid is not a substance but a state of substance".
4. Why nitrogen is gas and phosphorous is solid ?
5. Write IUPAC name of the following compound:
 $\text{CH}_3\text{CH}_2\text{CH}(\text{CH}_3)\text{CH}(\text{C}_2\text{H}_5)\text{Cl}$
6. Draw structure of 2-(2-Chlorophenyl)-1-iodooctane
7. Define peptide bond of protein ?
8. Discuss the main purpose of vulcanisation of rubber
9. Why non ideal solution shows negative deviation? Explain with example ?

OR

- What type of deviation is observed when n-heptane is added to ethanol ? Explain ?
10. Explain a method to prevent corrosion ?
 11. Calculate the potential of hydrogen electrode in contact with a solution whose pH is 10.
 12. Answer the following:
 - (i) PH_3 has lower boiling point than NH_3 . Why?
 - (ii) Why is BiH_3 the strongest reducing agent amongst?

13 On what ground can you say that scandium ($Z = 21$) is a transition element but zinc ($Z = 30$) is not?

14 (i) Why is sulphuric acid not used during the reaction of alcohols with KI?
(II) Why Grignard reagents should be prepared under anhydrous conditions?

15. Convert- (i) Benzyl chloride \rightarrow Benzyl alcohol
(ii) Methyl magnesium bromide \rightarrow 2-Methylpropan-2-ol

16. Explain

- (i) pK_b of aniline is more than that of methylamine.
- (ii). Aniline does not undergo Friedel-Crafts reaction

17. Explain with one example

- (i) Hofmann's bromamide reaction
- (ii) Diazotisation

18. Explain the difference between Buna-N and Buna-S.? (2)

19 Aluminium crystallises in a cubic close-packed structure. Its metallic radius is 125 pm.

(i) What is the length of the side of the unit cell?

(ii) How many unit cells are there in 1.00 cm^3 of aluminium?? (3)

20. A sample of drinking water was found to be severely contaminated with chloroform (CHCl_3 , M.mass=119.5) supposed to be a carcinogen. The level of contamination was 15 ppm (by mass):

(i) express this in percent by mass

(ii) determine the molality of chloroform in the water sample. (3)

OR

Two elements A and B form compounds having formula AB_2 and AB_4 . When dissolved in 20 g of benzene (C_6H_6), 1 g of AB_2 lowers the freezing point by 2.3 K whereas 1.0 g of AB_4 lowers it by 1.3 K. The molar depression constant for benzene is $5.1 \text{ K kg mol}^{-1}$. Calculate atomic masses of A and B. (3)

21(i). What are enzymes ? Write in brief the mechanism of enzyme catalysis. ?

(ii) What are emulsions? What are their different types?

(iii) Describe some features of catalysis by zeolites. (3)

22. Explain:-

(i) Describe a method for refining nickel?

(ii) How is 'cast iron' different from 'pig iron'?

(iii) What is the significance of leaching in the extraction of aluminium.(3)

23.Explain giving reason-

(i) Why do the transition elements exhibit higher enthalpies of atomisation? ?

(ii) For the first row transition metals the E_o values have irregular trend. Why ?

(iii) Explain why Cu^+ ion is not stable in aqueous solutions?

24. (i) Why $[\text{NiCl}_4]^{2-}$ is paramagnetic.?

(ii) Why aqueous copper sulphate solution (blue in colour) gives a green precipitate with aqueous potassium fluoride.

(iii) Draw figure to show the splitting of d orbitals in an octahedral crystal field.

25. (a)Why cannot vitamin C be stored in our body?

(b)What products would be formed when a nucleotide from DNA containing thymine is hydrolysed?

(c)When RNA is hydrolysed, there is no relationship among the quantities of different bases obtained. What does this fact suggest about the structure of RNA?

26 Describe the following:

(i) Acetylation

(ii) Cannizzaro reaction

(iii) Decarboxylation

27. Explain the following terms with suitable examples

(i) cationic detergents (ii) anionic detergents and (iii) non-ionic detergents

28(a) The decomposition of N_2O_5 in CCl_4 at 318K has been studied . Initially the concentration of N_2O_5 is 2.33 mol L^{-1} and after 184 minutes, it is reduced to 2.08 mol L^{-1} . The reaction takes place according to the equation



Calculate the average rate of this reaction ?

What is the rate of production of NO_2 during this period? (3)

(b) The rate constant for a first order reaction is 60 s^{-1} . How much time will it take to reduce the initial concentration of the reactant to its $1/16^{\text{th}}$ value? (2)

29. Assign reason for the following: 1x5

- (i) Why does O_3 act as a powerful oxidising agent?
- (ii) Which form of sulphur shows paramagnetic behaviour and why ?
- (iii) What happens when sulphur dioxide is passed through an aqueous solution of Fe(III) salt?
- (iv) Sea is the greatest source of some halogens. Comment.
- (v) What inspired N. Bartlett for carrying out reaction between Xe and PtF_6 ?

30.(a) An organic compound with the molecular formula $\text{C}_9\text{H}_{10}\text{O}$ forms 2,4-DNP derivative reduces Tollens' reagent and undergoes Cannizzaro reaction. On vigorous oxidation, it gives 1,2-benzenedicarboxylic acid. Identify the compound (3)

(b) Give simple chemical tests to distinguish between the Phenol and Propanol ? (1)

(c) Write the mechanism of hydration of ethene. (1)



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