12 - STD

II REVISION TEST – 2024
CHEMISTRY

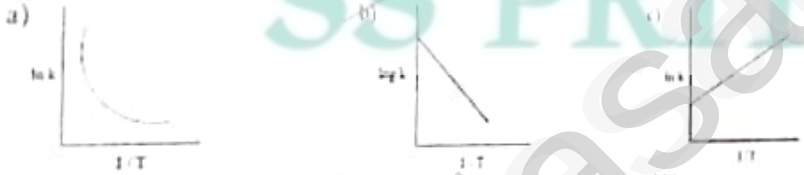
Time allowed = 3 hours

Maximum Marks = 70

PART – I

Note 1) Answer all the questions. 2) Choose the most suitable answer from the given four alternatives and write the option code and the corresponding answer. 15 X 1 = 15

1. The incorrect statement among the following is
   a) Nickel is refined by Mond's process b) Titanium is refined by Van Arkel's process
   c) Zinc blende is concentrated by froth floatation
   d) In the metallurgy of gold, the metal is leached with dilute sodium chloride solution
2. In diborane, the number of electrons that accounts for banana bond is
   a) six b) two c) four d) three
3. Which one of the fcollowing orders is correct for the bond dissociation enthalpy of halogen molecule?
   a) $Br_2 > I_2 > F_2 > Cl_2$ b) $F_2 > Cl_2 > Br_2 > I_2$ c) $I_2 > Br_2 > Cl_2 > F_2$ d) $Cl_2 > Br_2 > F_2 > I_2$
4. Which one of the following ions of salt is white in colour?
   a) Cd^{2+} b) Cu^{2+} c) Co^{3+} d) V^{3+}
5. Co-ordination number of Ni in $[Ni(C_2O_4)_3]^{4-}$ is
   a) 3 b) 6 c) 4 d) 2
6. Assertion : due to Frenkel defect, density of the crystalline solid decreases.
   Reason : in Frenkel defect cation and anion leaves the crystal
   a) Both assertion and reason are true and reason is the correct explanation of assertion.
   b) Both assertion and reason are true but reason is not the correct explanation of assertion.
   c) Assertion is true but reason is false.
   d) Both assertion and reason are false.
7. Among the following graphs showing variation of rate constant with temperature (T) for a reaction, the one that exhibits Arrhenius behaviour over the entire temperature range is



8. Conjugate base for Bronsted acids H_2O and HF are
   a) OH^- and $H2FH^+$, respectively b) $H3O^+$ and F^-, respectively c) OH^- and F^-, respectively d) $H3O^+$ and $H2F^+$, respectively
9. Faradays constant is defined as
   a) charge carried by 1 electron b) charge carried by one mole of electrons
   c) charge required to deposit one mole of substance d) charge carried by 6.22×10^{10} electrons.
10. Which of the following process best describes the purification of muddy water by addition of alum?
    a) Absorption b) Coagulation c) Dialysis d) Electro dialysis
11. In the following sequence of reactions.

$$CH_3 - Br \xrightarrow{KCN} A \xrightarrow{H_3O^+} B \xrightarrow[ether]{LiAlH_4} C$$

    the end product (C) is
    a) acetone b) methane c) acetaldehyde d) ethyl alcohol
12. Which one of the following undergoes reaction with 50% sodium hydroxide solution is give the corresponding alcohol and acid?
    a) Phenylmethanal b) ethanal c) ethanol d) methanol
13. The product formed by the reaction an aldehyde with a primary amine.
    a) carboxylic acid b) aromatic acid c) schiff's base d) ketone
14. Reducing sugars are
    a) Carbohydrates that reduce Fehling's solution and tollen's reagent
    b) Carbohydrates that reduce only Tollen's reagent
    c) Carbohydrates that reduce only Fehling's solution d) Carbohydrates that reduce HI

15. Aspirin is a / an
a) acetylsalicylic acid b) benzoyl salicylic acid c) chlorobenzoic acid d) anthranilic acid

PART – II

6 X 2 = 12

Answer any six questions and question number **24** is **compulsory**.

16. Give the uses of zinc.
17. What is inert pair effect?
18. Transition elements exhibit variable oxidation states. Why?
19. Write Bragg's equation.
20. Name the factors affecting adsorption.
21. How will you convert ethyl acetate into ethyl acetoacetate?
22. Differentiate Harmones and Vitamins.
23. How will you classify the following as which type of drugs?
a) milk of magnesia b) aspirin c) penicillin d) procaine
24. The reaction $Zn_{(s)} + Co^{2+} \rightleftharpoons Co_{(s)} + Zn^{2+}$ occurs in a cell. Compute the standard emf of the cell.
Given that $E^{\circ}_{Zn|Zn^{2+}} = 0.76$ V $E^{\circ}_{Co|Co^{2+}} = 0.28$V.

PART – III

6 x 3 = 18

Answer any six questions and question number **33** is **compulsory**.

25. Describe zone refining.
26. Explain ethyl borate test.
27. What are interstitial compounds? What are their properties?
28. Derive an expression for the hydrolysis constant and pH of salt of strong acid and weak base.
29. Write short notes on a) dehydration of glycerol b) Reimer – Tiemann reaction.
30. Give the tests for carboxylic acid group.
31. Write the reduction reactions of nitrobenzene in all 3 medium (acid, base and neutral)
32. Define specific conductance and molar conductance. How are they related?
33. A first order reaction is 40% complete in 50 minutes. Calculate the value of the rate constant. In what time will the reaction be 80% complete?

PART - IV

5 x 5 = 25

Answer all the questions.

34. A. (i) Give two examples for sulphide and oxide ores. (2)
(ii) What hybridisation occur in the following a) BrF b) BrF_3 c) BrF_5 (OR) (3)
B. (i) Among Mn^{2+} and Mn^{3+}, which is more stable? Why? (2)
(ii) What is inorganic benzene? How it is prepared? (3)
35. A. Explain Werner theory. (OR) (5)
B. (i) What is meant by the term "Coordination number"? (2)
(ii) Calculate the packing fraction of bcc unit cell (3)
36. A. (i)Define common ion effect. (2)
(ii) What is buffer solution? What are the types of buffer solution? Give example. (OR) (3)
B. Explain any 2 methods for the preparation of colloidal solution by dispersion methods. (5)
37. A. (i) What do you understand by auto oxidation of ethers (2)
(ii) Explain Ozonolysis reaction with an example. (OR) (3)
B. (i) How will you convert benzaldehyde → malachite green (2)
(ii) An organic compound A (C_2H_3N) is reduced by $Na(Hg)/C_2H_5OH$ gives B with molecular formula C_2H_7N. Compound B undergoes carbylamine reaction. Compound B react with nitrous acid gives C with molecular formula C_2H_6O by eliminating nitrogen. Identify A, B and C. (3)
38. A. Explain the structure of fructose (OR) (5)
B. (i) How is Terelene prepared? (2)
(ii) Explain cleansing action of soap and detergent (3)