SALEM DISTRICT

QL **12** - Std

QUARTERLY EXAMINATION - 2024
CHEMISTRY

Time : 3.00 Hrs

Marks : 70

PART - I

I **1) Answer all the questions. 2) Choose the correct option code and write the answer.** 15 X 1 = 15

1. Elements like Silicon and Germanium to be used of a semiconductor is purified by
   a) heating under Vacuum b) Van - Arkel Method c) Zone refining d) Electrolysis
2. Roasting of Sulphide ore gives the gas (A). (A) is a colourless gas. Aqueous solution of (A) is acidic. The gas (A) is
   a) CO_2 b) SO_2 c) SO_3 d) H_2S
3. Which of the following is not Sp^2 hybridised?
   a) Graphite b) Dry ice c) Graphene d) Fullerene
4. On hydrolysis, PCl_3 gives
   a) H_3PO_3 b) PH_3 c) H_3PO_4 d) $POCl_3$
5. Which of the following is strongest acid among all?
   a) HF b) HI c) HCl d) HBr
6. The most common oxidation state of actinoids is
   a) +2 b) +4 c) +6 d) +3
7. The magnetic moment of Mn^{2+} ion is
   a) 5.92BM b) 2.80BM c) 8.95BM d) 3.90BM
8. Solid CO_2 is an example of
   a) Covalent solid b) Metallic solid c) Molecular solid d) Ionic solid
9. The packing efficiency of a fcc centered cubic structure is
   a) 74% b) 68% c) 52.38% d) 48%
10. If 75% of a first order reaction was completed in 60 minutes. 50% of the same reaction under the same conditions would be completed in
    a) 20 minutes b) 30 minutes c) 35 minutes d) 75minutes
11. The pH of 10^{-5} MKOH solution will be
    a) 5 b) 19 c) 9 d) none of these
12. Conjugate acid of NH_2^- is
    a) NH_4^+ b) NH_2 c) NH d) NH_3
13. On reacting with neutral Ferric chloride, Phenol gives
    a) red colour b) violet colour c) green colour d) no colouration
14. The major product obtained when Phenol reacts with Con H_2SO_4 at 280K is
    a) Salicylic acid b) Picric acid
    c) O - Phenol Sulphonic Acid d) P - Phenol Sulphonic acid
15. ..... is used in the manufacture of thermo softering plastic Perspex.
    a) Benzaldehyde b) Acetaldehyde c) Bensophenone d) Acetone

PART - II

II Answer any six questions. Q.No. 24is compulsory. 6 x 2 = 12

16. What are the various steps involved in extracion of pure metal from their ores?
17. What is water gas equlibrium?
18. Write the uses of Helium.
19. What are inner transition elements.
20. What is meant by coordination number. What is the coordination number of an atom in a bcc structure?
21. Give two examples for zero order reaction.
22. Write the dehydration reaction of Glycerol.
23. What is Urotropine? How it is prepared?
24. Write the pH value of the following substances.
    i) Vinegar ii) Black coffee c) Baking soda d) Soapy water

PART - III

III Answer any six only. Q.No. 33 is compulsory. 6 x 3 = 18

25. What is common ion effect? Give example.
26. Differentiate order of reaction and molecularity of a reaction.
27. Write the classification of point defects.
28. Write note on - Gravity separation process.
29. Give the structure of CO and CO_2.
30. Sulphuric acid is dibasic - why?
31. What are the effects of Lanthanide contraction.
32. Write Benzoin condensation.
33. $C_6H_5OH \xrightarrow{Zn\ dust} A \xrightarrow[anhydrous\ AlCl_3]{CH_3Cl} B \xrightarrow[KMnO_4]{acidified} C$. Name A, B and C.

PART - IV

IV Answer all the questions. 5 X 5 = 25

34. Explain the electrometallurgy of Aluminium. ***(OR)***
    b) Explain the Lucas test to distinguish 1°, 2°, 3° alcohals.
35. a) Describe the structure of diborane. ***(OR)***
    b) Describe the preparation Potassium dichromate.
36. a) i) What is inert pair effect. ii) Write the reason for the anamolous behaviour of Nitrogen.
    b) Explain the reaction mechanism of Aldol condensation.
37. a) Derive an expression for Ostwald's dilution law. ***(OR)***
    b) Explain metal excess and metal deficiency defect with an example.
38. a) Define Half life of period of a reaction and derive an equation for half life period of first order equation. ***(OR)***
    b) Compound A of molecular formula C_6H_6O gives purple colouration with neutral $FeCl_3$. Compound A reacts with Ammonia to give compound B and it also react with Zn dust to give compound C. Identify A, B and C and write the equations.