Class : 12

Register Number

FIRST MID TERM TEST - 2023

CHEMISTRY

Time Allowed : 1.30 Hours] [Max. Marks : 50

PART – I

(i) **Answer all the questions.**

(ii) **Choose the correct answer.** 10x1=10

1. The metal oxide which cannot be reduced to metal by carbon is
   (a) PbO (b) Al_2O_3 (c) ZnO (d) FeO
2. In diborane, the number of electrons that accounts for banana bonds is
   (a) Six (b) Two (c) Four (d) Three
3. **Assertion** : Bond dissociation energy of fluorine is greater than chlorine gas.
   Reason : Chlorine has more electronic repulsion than fluorine.
   (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.
4. Ammonia reacts with excess of Chlorine forms --------
   (a) N_2 (b) NH_4Cl (c) NCl_3 (d) H_2
5. The cation leaves its normal position in the crystal and moves to some interstitial position, the defect in the crystal is known as
   (a) Schottky defect (b) F center
   (c) Frenkel defect (d) Non - Stoichiometric defect
6. The half life period of a radioactive element is 140 days. After 560 days. 1g of element will be reduced to
   (a) $\left(1/2\right)$ g (b) $\left(1/4\right)$ g (c) $\left(1/8\right)$ g (d) $\left(1/16\right)$ g
7. $2A + 3B \rightarrow$ products. rate = $k[A]^{1/2}[B]^{2}$ order of this reaction is ----------
   (a) $1/2$ (b) 2 (c) $5/2$ (d) $3/2$
8. Which of the following compound can be used as artifreeze in automobile radiators?
   (a) Methanol (b) Ethanol
   (c) Neopentyl Alcohol (d) Ethan - 1, 2 -diol
9. Oxidation of glycerol by Bismuth Nitrate Gives
   (a) Glyceric acid (b) Meso Oxalic acid
   (c) Oxalic acid (d) Tartaric acid
10. Which of the following plot gives Ellingham Diagram
    (a) ΔS Vs T (b) ΔG^{o} Vs T (c) ΔG^{o} Vs $1/T$ (d) ΔG^{o} Vs T^2

PART – II

Answer any Five questions. Q.No. 18 is compulsory. 5x2=10

11. What are the various steps involved in extraction of pure metals from their ores?
12. What is the role of NaCN in froth flotation process?

13. Explain the McAfee process of preparing Aluminimum Chloride.
14. Define Inert Pair effect.
15. What is bragg's equation?
16. Distinguish order of Reaction and Molecularity.
17. How will you prepare 1,4 Dioxane.
18. Barium has a body centered cubic unit cell with a length of 508pm along an edge. What is the density of Barium in g cm^{-3}? (Molar mass of Barium 137.3 $gmol^{-1}$

PART- C

Answer any Five questions. Q. no. 26 is compulsory. **5x3=15**

19. Explain Magnetic Separation process.
20. Complete the following equations:
    i) $HCOOH + H_2SO_4 \rightarrow$?
    ii) $B + NaOH \rightarrow$?
    iii) $H_2B_4O_7 \xrightarrow{\text{red hot}}$
21. Write the short note on Zeolites.
22. List the property of inter halogen compounds.
23. Define the Isotrophy and Anisotropy with example.
24. Derive integrated rate law for a first order reaction.
25. How does diethyl ether react with following reagents
    i) HI ii) Cl_2 iii) PCl_5
26. The rate constant for a first order reaction is 1.54×10^{-3} S^{-1}. Calculate its half life time.

PART - D

Answer the All questions: **3x5=15**

27. a) i) Describe a method for refining of nickel by the Mond's Process.
    ii) What is Catenation?

    (OR)

    b) Calculate the percentage efficiency of packing in case of face centered cubic crystal.
28. a) i) What is the hybridisation of IF_7? Give its structure.
    ii) Explain Pseudo first order reaction with an example.

    (OR)

    b) i) Differentiate the Crystalline solids from Amorphous solids.
    ii) How will you prepare the Borazole?
29. a) i) How is Acrolein prepared?
    ii) Write the Friedel - Crafts reaction of anisole.

    (OR)

    b) $C_6H_5\text{-}OH \xrightarrow{\text{Zn dust}} A \xrightarrow[\text{Anhydrs } AlCl_3]{CH_3Cl} B \xrightarrow{\text{acid } KMnO_4} C$
    Find A,B and C.