Class : 12

Register Number

FIRST MID TERM TEST - 2024

CHEMISTRY

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

PART – A

I. Answer all the questions 10x1=10

1. Considering Ellingham diagram, which of the following metals can be used to reduce alumina?
   a) Fe b) Cu c) Mg d) Zn
2. Which of the following is used for concentrating ore in metallurgy?
   a) Leaching b) Roasting c) Froth floatation d) Both (a) and (c)
3. In ring silicates, each silicate unit shares ---- of its oxygen atoms with other units.
   a) 3 b) 1 c) 2 d) 4
4. The geometry at which carbon atom in diamond are bonded to each other is ----------
   a) linear b) hexagonal c) Octahedral d) Tetrahedral
5. Graphite and diamond are ----------
   a) Covalent and molecular crystals b) ionic and covalent crystals
   c) both covalent crystals d) both molecular crystals
6. Ice is an example of ---------- solid.
   a) Covalent b) metallic c) molecular d) ionic
7. The rate constant of a reaction is 5.8×10^{-2} lit mol^{-1} s^{-1}. The order of the reaction is ----------
   a) First order b) zero order c) Second order d) Third order
8. **Assertion** : Rate of reaction doubles when the concentration of the reactant is doubles if it is a first order reaction.
   Reason : Rate constant also doubles
   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.
9. Which one of the following is the strongest acid?
   a) 2 - nitrophenol b) 4 – chlorophenol c) 4 – nitrophenol d) 3 – nitrophenol
10. Glycol on heating with periodic acid gives ----------
    a) Methanoic acid b) Glyoxal c) Methanal d) CO_2

PART – B

5x2=10

II. Answer any 5 questions. Question number 17 is compulsory.

11. Which type of ores can be concentrated by froth floatation method? Give two examples for such ores.
12. Write Fischer Tropsch synthesis?

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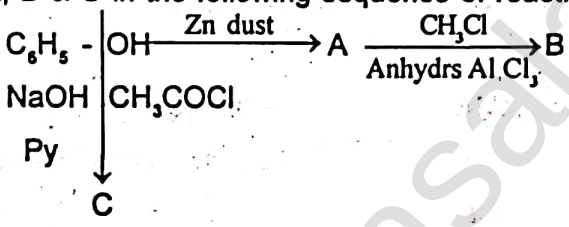
13. Draw the structure of diborane.
14. Write Bragg's equation
15. Convert Glycerol → acrolein
16. What is pseudo first order reaction?
17. Calculate the half-life of a first order reaction whose rate constant is $1.54 \times 10^{-3}\ s^{-1}$

PART – C **5x3=15**

III. Answer any 5 questions. Question number 24 is compulsory.

18. Explain Mond's process.
19. Give the uses of Borax.
20. Write a note on Frenkel defect
21. Calculate the percentage efficiency of packing in case of body centered cubic crystal (BCC).
22. Give the differences between rate and rate constant of a reaction.
23. How diethyl ether reacts with a. Cl_2 in the presence of light b. with HI
24. Predict the products A, B & C in the following sequence of reactions.



PART – D **3x5=15**

IV. Answer all the questions.

25. a) Explain Zone refining process.

(OR)

b) Complete the following reactions.

i) $B_2H_6 + 6RCH = CHR \rightarrow$

ii) $2Ca_2B_6O_{11} + 3Na_2CO_3 + H_2O \rightarrow$

iii) $2Al_2O_3 + 3C + 6Cl_2 \rightarrow$

26. a) i) Distinguish between hexagonal close packing (hcp) and cubic close packing (ccp).

ii) ZnO is colourless at room temperature. Why?

(OR)

b) Derive integrated rate law for a first order reaction. A → product

27. a) i) Explain Kolbe's reaction (3)

ii) Write.Williamson ether synthesis (2)

(OR)

b) How will you differentiate 1°, 2° & 3°alcohols using Victor Meyer's test with relevant equations.