# FIRST MID TERM EXAMINATION - 2024

**CHEMISTRY**

CLASS : 12                  Reg.No : 12069

TIME : 1.30 Hrs.                               TOTAL MARKS : 50

## PART- I

I) **Answer all the questions. 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 froth flotation which one of the following is used as depressing agent

 a) Calcium Carbonate        b) Sodium cyanide

 c) Sodium bicarbonate        d) Calcium Chloride

3. An aqueous solution of borax is

 a) Neutral       b) Acidic       c) Amphoteric       d) Basic

4. Which one of the following is cyclic silicate

 a) Thortveitite       b) Spodumene       c) Beryl       d) Olivine

5. The ratio of close packed atoms to teterahedral hole in cubic packing is

 a) 1:1       b) 1:2       c) 2:1       d) 1:4

6. The vaccant space in fcc latice unit cell is

 a) 48%       b) 23%       c) 32%       d) 26%

7. The decomposition of phosphine ($PH_3$) *on* tungsten at low pressure is a first order reaction. It is because the

 a) Rate is proportional to the surface coverage

 b) Rate is inversely proportional to the surface coverage

 c) Rate is independent of the surface coverage

 d) Rate of decomposition is slow

8. The rate constant for a first order reaction is $1.54 \times 10^{-3} S^{-1}$ the half life time is

 a) 450 seconds    b) 45 seconds    c) 400 seconds    d) 40 seconds

9. Which of the following compounds on reaction with methyl magnesium bromide will give tertiary alcohol

 a) benzaldehyde    b) propanoic acid    c) methyl propanoate    d) Acetaldehyde

10. $HO-CH_2-CH_2-OH$ on heating with periodic acid gives

 a) Methanoic acid    b) Glyoxal    c) Methanal    d) $CO_2$

## PART-II

**III. Answer any five questions . Q.No. 16 is compulsory**       **5x2=10**

11. Which type of ores can be concentrated by froth flotation process? Give examples .

12. How will you identify borate radical ?

13. Why ionic crystals are hard and brittle?

14. Give two examples for zero order reaction?

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15. Convert Glycol to 1, 4 dioxane

16. If the number of close packed sphere is 6. calculate the number of octahedral voids and Tetrahedral voids generated.

## PART-III

**III) Answer any five Questions. Q.No. 22 is compulsory**        5x3=15

17. How Titanium is refined by the Van Arkel method

18. What is catenation? What are the conditions for catenation?

19. Explain schottky defect?

20. Write Arrhenius equation and explain the terms involved

21. How will you differenciate primary, secondary and tertiary alcohols by lucas test?

22. Write a note on Kolbe's reaction

## PART-IV

**IV) Answer all the questions**        3x5=15

23. a) Explain Zone refining process with an example      (5)

**[OR]**

   b) i) Write a note on Fischer Tropsch synthesis      (2)

     ii) Give the uses of silicones      (3)

24. a) What are the difference between crystalline and amorphous solids      (5)

**[OR]**

   b) Derive integrated rate law for first order reaction.      (5)

25. a) i) Define unit cell      (2)

     ii) Derive an equation for half life period of zero order reaction (3)

**[OR]**

   b) Write a note on

     i) Coupling reaction      (2)

   ii) Williamsons Synthesis      (1 1/2 )

   iii) Dows process      (1 1/2 )

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