

FIRST MID TERM TEST - 2022

12 - Std

CHEMISTRY

Reg.
No.

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Time : 1.30 Hrs

Marks : 35

PART - A

I Choose the correct answer.

7 X 1 = 7

- The incorrect statement among the following is
 - Nickel is refined by Mond's process
 - Titanium is refined by Van Arkel's process
 - Zinc blende is concentrated by froth floatation
 - in the metallurgy of gold, the metal is leached with dilute sodium chloride solution
- Which of the following plot gives Ellingham diagram?
 - ΔS Vs T
 - ΔG° Vs T
 - ΔG Vs $1/T^\circ$
 - ΔG Vs T°
- The ratio of close packed atoms to tetrahedral hole in cubic packing is
 - 1 : 1
 - 1 : 2
 - 2 : 1
 - 1 : 4
- The yellow colour in NaCl crystal is due to
 - Excitation of electrons in F centers
 - Reflection of light from Cl^- ion on the surface
 - Refraction of light from Na^+ ion
 - All of the above
- The addition of a catalyst during a chemical reaction alters which of the following quantities?
 - Enthalpy
 - Activation energy
 - Entropy
 - Internal energy
- The half life period of a radioactive element is 140 days. After 560 days, 1g of element will be reduced to
 - $\left(\frac{1}{2}\right)g$
 - $\left(\frac{1}{4}\right)g$
 - $\left(\frac{1}{8}\right)g$
 - $\left(\frac{1}{16}\right)g$
- The only metal which crystallize in simple cubic pattern among all the metals in the periodic table is
 - Se
 - Te
 - Po
 - Nb

PART - II

II Answer any two of the following.

2 X 2 = 4

- What are the differences between ores and minerals?

9. Calculate the number of atoms in a) FCC b) BCC unit cell
10. Write Arrhenius equation and explain the terms involved.

PART- III

III Answer any three of the following.

3 X 3 = 9

11. Explain zone refining process with an example.
12. Calculate the percentage efficiency of packing in case of body centered cubic crystal.
13. What is an elementary reaction? Give the differences between order and molecularity of a reaction.
14. Differentiate crystalline solids and amorphous solids.
15. Show that in case of first order reaction, the time required for 99.9% completion is nearly ten times the times required for half completion of the reaction.

PART - IV

IV Answer the following

3 X 5 = 15

16. a) i) What is the role of Limestone in the extraction of Iron from its oxide Fe_2O_3 (2)
b) Explain froth floatation method with an example. (3)
(OR) i) Explain the following terms with suitable example.
1) Gangue 2) Slag (2)
ii) Describe the role of the following in the process mentioned.
1) Silica in the extraction of Copper.
2) Iodine in the refining of Zirconium. (3)
17. a) Explain Schottky and Frenkel defect. (5)

(OR)

- b) i) Explain briefly seven types of unit cell. (2)
ii) Atoms X and Y form bcc crystalline structure. Atom X is present at the corners of the cube and y is at the Centre of the cube. What is the formula of the compound. (3)
18. a) Derive integrated rate law for a zero order reaction $A \rightarrow \text{product}$. (5)
(OR)
b) i) The rate constant for a first order reaction is $1.54 \times 10^{-3} \text{S}^{-1}$. Calculate its half life time. (2)
ii) Explain briefly the collision theory of bimolecular reactions. (3)