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12 - Std

MONTHLY TEST - JUNE - 2025

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Marks : 40

Time : 1.30 Hrs

SJM CHEMISTRY

## PART - I

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10 X 1 = 10

## I Answer all the questions.

- Bauxite has the composition  
a)  $\text{Al}_2\text{O}_3$  b)  $\text{Al}_2\text{O}_3 \cdot n\text{H}_2\text{O}$  c)  $\text{Fe}_2\text{O}_3 \cdot 2\text{H}_2\text{O}$  d) None of these
- Electro chemical process is used to extract  
a) Iron b) Lead c) Sodium d) Silver
- Which of the following plot gives Ellingham diagram  
a)  $\Delta S$  VST b)  $\Delta G^\circ$  VS  $1/T$  c)  $\Delta G^\circ$  VST<sup>2</sup> d)  $\Delta G^\circ$  VST
- Oxidation state of carbon in its hydrides  
a) +4 b) -4 c) +3 d) +2
- An aqueous solution of borax is  
a) neutral b) acidic c) basic d) amphoteric
- Elements present in zeolites  
a) Al, Si, C b) Al, C, O c) Si, O, C d) Al, Si, O
- The vacant space in bcc lattice unit cell is  
a) 48% b) 23% c) 32% d) 26%
- Solid  $\text{CO}_2$  is an example of  
a) molecular solid b) covalent solid c) metallic solid d) ionic solid
- The packing efficiency of a fcc centered cubic structure is  
a) 74% b) 68% c) 52.38% d) 48%
- Which of the following pairs of metal is purified by Van - Arkel method?  
a) Ga, In b) Ni, Fe c) Ag, Au d) Zr, Ti

## PART - II

3x2=6

## II Answer any three questions. Answer question number 15 is compulsory.

- What are the various steps involved in extraction of pure metals from their ores?
- Give the basic requirements for vapour phase refining.
- Give the uses of Borax.
- Calculate the number of atoms in a fcc unit cell.
- Classify the following solids. a) P<sub>4</sub> b) NaCl c) Brass d) Diamond

## PART - III

## III Answer any three questions. Answer Q.No. 20 is compulsory.

3x3=9

- What are the differences between minerals and ores.
- Describe a method for refining nickel.
- Write note on Fishertropsch synthesis.
- Give any three characteristics of ionic crystals.
- Write the formula for density of unit cell and explain the terms.

## PART - IV

## IV Answer all the questions.

3 x 5 = 15

- a) Explain zone refining process with an example. (OR)  
b) i) Define calcination. ii) Give the Limitations of Ellingham diagram.
- a) i) What is catenation? ii) Give the structure of CO and CO<sub>2</sub>. (OR)  
b) Write the uses of Silicones.
- a) Differentiate crystalline solids and amorphous solids. (OR)  
b) Explain stoichiometric defects in ionic solids.

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