CO **COMMON FIRST MID - TERM TEST - 2019**

STANDARD - XII Reg.No. | | | | | | |

Time : 1.30 hours **CHEMISTRY** *Marks: 50*

PART - I

I. Choose the best answer: **10×1=10**

1. Which of the following plot gives Ellingham diagram.
   a) ΔS vs T b) ΔG^o Vs T c) ΔG^o Vs $\frac{1}{T}$ d) ΔG^o Vs T^2
2. The metal oxide which cannot be reduced to metal by Carbon is
   a) PbO b) Al_2O_3 c) ZnO d) FeO
3. The basic structural unit of silicates is
   a) $(SiO_3)^{2-}$ b) $(SiO_4)^{2-}$ c) $(SiO)^-$ d) $(SiO_4)^{4-}$
4. The stability of +1 oxidation state increases in the sequence.
   a) Al < Ga < In < Tl b) Tl < In < Ga < Al
   c) In < Tl < Ga < Al d) Ga < In < Al < Tl
5. Which of the following is called inorganic benzene?
   a) benzene b) diborane c) borazine d) boron-trifluoride
6. The composition of a sample of Wurtzite is $Fe_{0.93}O_{1.00}$. What % of Iron present in the form of Fe^{3+}
   a) 16.05% b) 15.05% c) 18.05% d) 17.05%
7. The vacant space in Sc lattice unit cell is
   a) 52.31% b) 47.69% c) 48% d) 23%
8. The crystal with a metal deficiency defect is
   a) NaCl b) FeO c) ZnO d) KCl
9. The addition of a catalyst during a chemical reaction alters which of the following quantities.
   a) Enthalpy b) Activation energy c) Entropy d) Internal energy
10. In a first order reaction $x \rightarrow y$, if k is the rate constant and the initial concentation of the reactant x is 0.1M, then half life is
    a) $\left(\frac{\log 2}{k}\right)$ b) $\frac{0.693}{(0.1)\,k}$ c) $\left(\frac{\ell n\, 2}{k}\right)$ d) none of these

PART - II

Answer any five of the following questions. Question Number 17 is compulsory: **5×2=10**

11. What is the difference between minerals and ores?
12. Why aluminium can not be extracted by reducing alumina with carbon?
13. Give the structure of CO and CO_2.
14. Atoms 'X' and 'Y' form bcc crystalline structure. Atoms '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?

15. Write seven types of unit cell.
16. Write the rate law for the following reactions:
    a) A reaction that is 3/2 order in X and zero order in y.
    b) A reaction that is second order in NO and first order in Br_2.
17. Define average rate and instantaneous rate.

PART - III

Answer any five of the following questions. Question No.24 is compulsory. **5×3=15**

18. What is cyanide leaching? Give an example.
19. Write a note on Fisher tropsch synthesis.
20. Write a note on Zeolites.
21. $AlCl_3$ behaves like a Lewis acid substantiate this statement.
22. Write any three difference between tetrahedral and Octahedral voids.
23. Explain Frenkel defect.
24. Distinguish between order of a reaction and Molecularity of a reaction.

PART - IV

Answer all the questions: **3×5=15**

25. a) Write a note on thermodynamic principle of metallurgy.

(OR)

b) Expalin refining of i) Titanium by Van- Arkel method ii) Nickel by Mond's process.

26. a) Explain the structure of diborane.

(OR)

b) i) How will you identity borate radical?
ii) A double salt which contains fourth period alkali metal (A) on heating at 500k gives (B). Aqueous solution of (B) gives white precipitate with $BaCl_2$ and gives a red colour compound with alizarin. Identify 'A' and 'B'

27. a) Calculate the packing efficiency of fcc.

(OR)

b) Explain the factors affecting the rate of reaction.

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CHEMISTRY.

PART - I.

1) b) ΔG° Vs T

2) b) Al_2O_3

3) d) $(SiO_4)^{4-}$

4) a) Al < Ga < In < Tl

5) c) borazine

6) b) 15.05 %.

7) b) 47.69 %.

8) b) FeO

9) b) Activation Energy

10) c) $\left(\frac{\ln 2}{k}\right)$.