INTERMEDIATE-I YEAR CHEMISTRY

Model Paper-3

Time: 3hours **Maximum marks: 60**

SECTION-A **10x2=20M**

Note: Answer all questions.

1. Calculate the oxidation state of i) cr in K_2CrO_4 and ii) N in NH_4NO_3.

2. What is the effect of Temperature on

   i.Vapour Pressure ii. Surface Tension.

3. What is the nature of aqueous solution of Na_2CO_3? Why?

4. Write the average composition of Portland cement.

5. What is meant by inert pair effect? Give the stable oxidation state of Thallium.

6. What is producer gas? The calorific value of producer gas is lower than that of syn gas. Why?

7. Calculate the Enthalpy change for the complete combustion of 29gm of Butane if

   $C_4H_{10}(g)+\frac{13}{2}O_2(g)\rightarrow 4CO_2(g)+5H_2O(l),\Delta H = -2658KJ$

8. Define the terms 'Eutrophication' and 'Bioamplification'.

9. Write any two adverse effects caused by acid rain.

10. How is Ethylene is prepared from ethylalcohol? Give equation.

SECTION-B

Note: Answer any Six of the following **6x4m=24 M**

11. Deduce a)Boyle's law and b)Dalton's law from kinetic gas equation.

12. Balance the following equation by Ion electron method

$$P_4 + OH^- \longrightarrow PH_3 + H_2PO_2^-$$

13. State and explainthe Hess's law of constant heat summation.

14. Explain the differences in propertiesof diamond and graphite on the basis of their structures.

15. State Le -Chatelier principle. Discuss the favourable conditions for the Haber's ammonia synthesis by applying Le -Chatelier principle.

16. Write a note on Heavy water.

17. Explain Chain and functional isomerism with one example each.

18. Name the products A,B and C in the following sequence of reactions.

$$CaC_2 \xrightarrow{water} A \xrightarrow{Fe,500^o c} B \xrightarrow{CH_3Cl+AlCl_3} C$$

SECTION -C

NOTE: Answer any three questions. **(2X8=16M)**

19. What are the basic postulates of VSEPR theory? Discuss the shape of Methane and Ammonia molecules on the basis of VSEPR theory.

20. State and explain the following with suitable examples.

a) Auf-bau principle b) Pauli's principle c) Hund's rule.

21. Define first and second ionization potentials. Why is the second ionization potential greater than the first ionization potential? Discuss any three factors affecting IP values of elements