

Note: Time allowed for section B and C is 2 hours and 40 minutes.

SECTION "B"

Marks: 40

II. Attempt any Ten Parts out of the following. Each Part carries equal marks.

- i. How soaps and detergents increase the cleansing action of water?
- ii. Calculate the wave number of a spectral line of electron when jumps from $n=4$ to $n=2$
- iii. Why balanced chemical equations are used in stoichiometric problems?
- iv. How dipole moment helps to determine the structures of covalent molecules?
- v. Calculate pH and pOH of 0.0005M $\text{Ca}(\text{OH})_2$ solution.
- vi. Why rapid expansion of gases causes cooling?
- vii. What is meant by specific rate constant? Give its units for 1st and 2nd order reactions.
- viii. What is meant by state and state function?
- ix. How corrosion of metals can be prevented?
- x. What are the four types of crystalline solids on the basis of nature of bonding?
- xi. How pressure change affects the equilibrium state of a chemical reaction?
- xii. Calculate the mole fraction of NaOH when 40g NaOH is dissolved in 54g H_2O .
- xiii. What is meant by Joule Thomson effect?

SECTION "C"

Marks: 27

Note: Attempt any Three questions of the following. Each question carries equal Marks.

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| III. | (a) | State and explain law of mass action. | 5 |
| | (b) | Why earthen pots keep water cool in hot summer? | 4 |
| IV. | (a) | What are Quantum numbers? Explain Principle and Azimuthal Quantum number in detail. | 5 |
| | (b) | How limiting reactant can be identified in chemical reaction? | 4 |
| V. | (a) | Define hybridization? Discuss sp^3 and sp^2 hybridization in detail. | 5 |
| | (b) | How buffer solution keeps its pH constant? | 4 |
| VI. | (a) | What is meant by molarity and molality of solution? | 4 |
| | (b) | What is electrode potential? How it can be measured? | 5 |