

[N.B. — The figures in the right margin indicate full marks. Read the stems carefully and answer any four questions.]

1. **★** A hydrocarbon contains 17.24% Hydrogen and its molecular mass is 58.

- a. What is sublimation? 1
- b. How many changes are occurred during the burning of candle? Explain it. 2
- c. Find out the molecular formula of the compound stated in the stem. 3
- d. Is it possible to prepare fatty acid from mentioned compound of the stem? Give opinion. 4

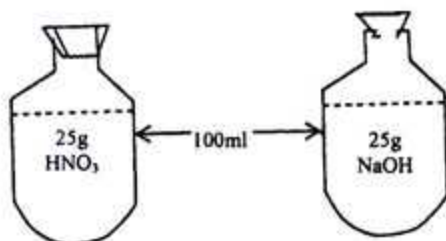
2. **▶** A part of the periodic table is given below :—

Li			A
B	D		Cl
C			Br

[Here A, B, C and D are not the symbol of any regular element]

- a. What is nucleon number? 1
- b. Why the melting point and boiling point of a same compound are different? 2
- c. Arrange A, B, and D elements according to their atomic size. 3
- d. Between the mentioned two groups, elements of one group form ionic bond and elements of another group form both ionic and covalent bond. Analyze it. 4

3. **▶**



- a. What is called inert gas? 1
- b. Why NH_4^+ is a radical? Explain it. 2
- c. Find out the limiting reagent, if both of the reagents are mixed together in an appropriate condition. 3
- d. Will the concentration of both reagents be same? Give mathematical logic. 4

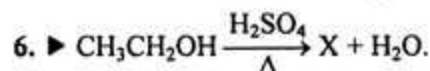
4. **▶** In an electrolytic cell NaCl solution is taken as an electrolyte.

- a. What is strong acid? 1
- b. Why pure hydrochloric acid is not a electrical conductor? Explain it. 2
- c. Calculate the number of molecule in 50g of mentioned electrolyte. 3
- d. Write the reactions occur in the electrode if CaCl_2 is taken instead of solute of the stem and explain it with your logic. 4

5. **★** (i) $2\text{H}_2(\text{g}) + \text{O}_2(\text{g}) \longrightarrow 2\text{H}_2\text{O}(\text{g}); \Delta H = -488\text{KJ}$.
 (ii) $\text{KOH}(\text{aq}) + \text{HCl}(\text{aq}) \longrightarrow \text{K}^+(\text{aq}) + \text{Cl}(\text{aq}) + \text{H}_2\text{O}(\text{l})$
 (iii) $\text{A} + \text{BSO}_4 \longrightarrow \text{ASO}_4 + \text{B}$.

[Atomic number of 'A' and 'B' are 30 and 29 respectively]

- a. What is ore? 1
- b. Why alkanes are called paraffin? 2
- c. In the reaction No. (i) of the stem, bond energy of H—H, O—H are 435, 464KJ/mol respectively. Find out the bond energy of O=O. 3
- d. Between the reaction No. (ii) and (iii) one is oxidation-reduction reaction and another one does not. Explain it. 4



- a. What is fossil fuel? 1
- b. What is the reason of hardness of water? 2
- c. Compound 'X' is an unsaturated hydrocarbon. Prove it by experiment. 3
- d. Is it possible to prepare food preservatives from the mentioned reaction? Analyze logically. 4

Time—35 minutes

Creative Multiple Choice Questions

[NB. Answer all the questions. Each question carries one mark. Block fully, with a ball point pen, the circle of the letter that stands for the correct/best answer in the "Answer Sheet" for the Multiple Choice Questions Examination.]

- Which gas is used to prevent foods from getting rotten?
 - SO₂
 - CO₂
 - NO₂
 - N₂O₄
 - In petroleum—
 - having 5% Petrol
 - having 10% Naphtha
 - having 98% H₂SO₄
 Which one is correct?
 - i and ii
 - ii and iii
 - i and iii
 - i, ii and iii
 - Which one is alkene?
 - C₂H₂
 - C₂H₆
 - C₃H₈
 - C₃H₆
 - ★ Which is used to make cloths of pants and shirts?
 - Nylon
 - Ethanol
 - Terylene
 - Teflon
 - Which is used to preserve pickles?
 - Vinegar
 - Slaked lime
 - Lime
 - Salt
 - What is the amount of nitrogen in urea?
 - 40%
 - 50%
 - 56%
 - 46%
 - 2H₂(g) + O₂(g) → 2H₂O(g)
In the reaction—
 - H–H bond energy is 435kJ mol⁻¹
 - O–H bond energy is 464kJ mol⁻¹
 - on the reaction ΔH = – 572kJ
 Which one is correct?
 - i and ii
 - i and iii
 - ii and iii
 - i, ii and iii
 - Which one is the main chemical constituent of wood?
 - Methane
 - Cellulose
 - Wax
 - Hydrogen
 - Where was international ray sign used first?
 - Japan
 - Russia
 - America
 - Egypt
 - Which gas is used as fuel for vehicles?
 - Methane
 - Propane
 - Butane
 - CO₂
 - Which one is sublimate substance?
 - Sand
 - Lime
 - Potassium iodide
 - Iodine
 - ★ What happens at the temperature of boiling?
 - Temperature increases due to applying heat
 - Temperature remains same
 - Pressure remain constant
 Which one is correct?
 - i and ii
 - ii and iii
 - i and iii
 - i, ii and iii
 - What is the atomic number of Iron?
 - 56
 - 46
 - 36
 - 26
 - Which relative molecular mass is more?
 - CO₂
 - HCl
 - F₂
 - N₂
 - ★ Which isotope is used to the treatment of bone pain?
 - ⁶⁰Co
 - ¹³¹I
 - ¹²⁵I
 - ⁸⁹Sr
 - Which one is the element of 4th period?
 - Mg
 - Cl
 - Cr
 - Sr
- Answer to the questions No. 17 and 18. on the basis of the following stem :—
- | Element | P | Q | R | S |
|---------------|----|----|----|----|
| Atomic Number | 14 | 15 | 16 | 17 |
- [Here, P, Q, R, S are not symbol of any regular element]
- The element 'Q' belongs to which group of the periodic talbe?
 - 13
 - 14
 - 15
 - 16

