12425

3 Hours / 70 Marks Seat No. | | | | | | | | |

Instructions : (1) All Questions are *compulsory.*

(2) Figures to the right indicate full marks.

(3) Assume suitable data, if necessary.

Marks

1. Attempt any FIVE of the following : **10**

(a) pH scale ranges from 0-14. Explain.

(b) Classify salts with suitable example.

(c) Define the terms :

(i) Mole fraction

(ii) Molarity

(d) Define :

(i) Exothermic reaction

(ii) Endothermic reaction

(e) Define oxidation and reduction with respect to oxygen atom.

(f) State second law of thermodynamics.

(g) Write the principle of extraction theory.

2. Attempt any THREE of the following : **12**

(a) Explain Lewis concept of acids and bases with example. Give its advantages.

(b) Explain the term emulsion. Classify water based emulsions.

(c) Explain the factors affecting the rate of chemical reaction.

(d) Describe the role of oxidizing and reducing agent in wet processing.

3. Attempt any THREE of the following : **12**

(a) Wool and silk are dyed at acidic pH. Justify the statement.

(b) Explain the following terms :

(i) Percentage by weight (W/W)

(ii) Percentage by volume (V/V)

(c) Explain the following terms :

(i) Rate of chemical reaction.

(ii) Order of chemical reaction.

(d) Write the properties of oxidizing agent and reducing agent with example.

4. Attempt any THREE of the following : **12**

(a) A solution is found to contain 0.63 gm of Nitric acid per 100 ml of the solution. If the acid is completely dissociated, calculate the pH of the solution.

(b) State and explain first law of thermodynamics.

(c) Explain the role of thermochemistry in wet processing in textile industry.

(d) Distinguish between association and dissociation of solute.

(e) Explain the distribution law with labelled diagram.

5. Attempt any TWO of the following : **12**

(a) Wool fabric requires mild acidic pH for applying acidic dye. Suggest a proper reagent which can maintain acidic pH. Indicate its dissociation in aqueous solution with chemical equation. Predict the effect on processing if strong acid is used instead of the reagent.

(b) Write the applications of Ostwald's viscometer.

A solution contains 25% water, 25% ethanol and 50% ethanoic acid. Calculate the mole fraction of each compound.

(c) Describe dyeing of cellulose fiber with cold brand reactive dye at room temperature.

6. Attempt any TWO of the following : **12**

(a) Explain the use of oxidizing agent and reducing agent in vat dyeing.

(b) Explain the phenomenon of :

(i) Heat of displacement

(ii) Heat of neutralization

(c) Explain the applications of distribution law in industry and laboratory.
