22242

11920

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

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

(2) Answer each next main Question on a new page.

(3) Illustrate your answers with neat sketches wherever necessary.

(4) Figures to the right indicate full marks.

Marks

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

(a) Define : Acid liberating agent with suitable example.

(b) Draw pH scale. Identify pH range for alkaline substances.

(c) Define following terms :

(i) Normality

(ii) Molarity

(d) Define : Order of reaction

(e) List oxidising and reducing agents used in textile industry.

(f) State Second law of thermodynamics.

(g) State Distribution law.

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

(a) Explain the concept of Arrhenius acid and Arrhenius base with suitable example.

(b) Classify Colloidal solutions on the basis of dispersed phase and dispersion phase giving suitable examples.

(c) Distinguish between Reversible reaction and Irreversible reaction.

(d) Explain the role of oxidising agent in bleaching.

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

(a) pH of 0.1N HCl is 2.28, while pH of 0.1 N Acetic acid is 3.5. Predict the reason of difference in pH value giving suitable chemical reactions.

(b) Stock solution of H_2SO_4 is 16 molar. Calculate the volume of stock solution of H_2SO_4 required for preparing 0.5 normal 1000 ml H_2SO_4 solution.

(c) Explain the factors affecting on rate of dyeing process of polyster fibre.

(d) Explain the role of $Na_2S_2O_4$ in dyeing of cotton fabric with vat dyes.

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

(a) Classify the salts with suitable examples.

(b) Describe the procedure for determining heat change occuring during displacement of copper by zinc from $CuSO_4$ solution.

(c) Differentiate between thermodynamics and thermochemistry.

(d) Explain the applications of distribution law in various fields. Write its limitations.

(e) (i) Suppose solute A is distributed in alcohol and water, apply distribution law and express it in terms of mathametical equation.

(ii) If solute A dissociate in water, predict its effect on distribution process.

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

(a) While bleaching with H_2O_2, Sodium hydroxide is used to mentain pH. Predict the effect on processing if NH_4OH is used for mentaining pH. Write supporting chemical reactions.

(b) Stock solution of HCl is 12 Molar. Calculate the volume of stock solution of HCl required to prepare 0.1 N 100 ml HCl. Suggest the reagent to standerdise HCl solution.

(c) While dyeing cotton, salt is added in two intervals during dyeing process. Predict the effect on dyeing if all the required salt is added initially. Justify your answer.

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

(a) H_2O_2 is used as universal bleaching agent. Predict the effect if NaOCl is used in bleaching. Support your prediction with suitable Chemical reactions.

(b) ΔT for heat of neutralisation of 1N HCl and 1N NaOH is 5 °C. While ΔT for heat of neutralisation of 0.1 N HCl and 0.1 N NaOH is 0.5 °C. Predict the reason of difference in ΔT values.

(c) Suppose a mixture of benzene, alcohol and water is given to you. Predict which two components will form homogeneous mixture. Suggest the procedure to separate the components.
