21718

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.

(5)   Assume suitable data, if necessary.

Marks

1.   Answer any FIVE :   **5 × 2 = 10**

(a)   Define pH scale. Show acidic & basic pH range on it.

(b)   Classify salt with one example of each.

(c)   Define normality and molarity.

(d)   State difference between endothermic and exothermic reaction. (any two points)

(e)   Define oxidation and reduction reaction.

(f)   State second law of thermodynamics.

(g)   Write any two applications of extraction theory.

2.   Answer any THREE :   **3 × 4 = 12**

(a)   Describe the procedure to measure the concentration and pH of a given textile auxiliary.

(b)   A.W. of Na = 23. Calculate weight of NaOH required to make 250 ml of 0.1 N solution.

(c)   Explain any two factors affecting rate of reaction.

(d)   State the role of oxidising and reducing agent in dyeing and printing.

3.   **Answer any THREE of the following :**   **3 × 4 = 12**

(a)   Explain Arrhenius and Lewis concepts with an example.

(b)   (i)   Define emulsions. State types of emulsion with one example.

       (ii) Write two properties of emulsions.

(c)   Describe dyeing of a polyester fibre at high temperature and high pressure.

(d)   Explain oxidation and reduction with chemical reactions.

4.   **Answer any THREE of the following :**   **3 × 4 = 12**

(a)   Define pH and pOH. Explain the importance of pH when wool and silk are dyed.

(b)   Explain the important role of maintaining specific temperature in dyeing, printing and scouring.

(c)   Explain the following terms :

       (i)   Heat of formation

       (ii)   Heat of combustion

       (iii) Heat of dilution

       (iv) Heat of displacement

(d)   Describe association and dissociation of solutes.

(e)   Explain distribution law. Explain its limitations.

5. **Answer any TWO :** 2 × 6 = 12

(a) (i) Acetic acid is weak acid but nitric acid is strong. Explain with balanced chemical reaction.

(ii) Write importance of pH in scouring and bleaching processing.

(b) (i) Write use of Ostwald's Viscometer. State precautions to taken in its use.

(ii) Explain principle of 'reverse osmosis'.

(c) (i) Describe the specified type of reaction :

(1) Reversible

(2) Irreversible

(3) Exothermic

(ii) In dyeing of cellulose fabric with cold brand reactive dyes, the process time was reduced from one hour to half an hour. Predict the effect on dyeing.

6. **Answer any TWO :** 2 × 6 = 12

(a) Vat dyes are insoluble in water, and made soluble in alkaline reduced condition. Suggest the reagents which can maintain this condition. Suggest the oxidising agent used in this process with justification.

(b) Describe the procedure of measuring heat changes occuring during chemical wet processing. Compare the fuel which will be economical for textile industry based on characteristics.

(c) 25 ml benzene-alcohol homogenous mixture containing 5 ml benzene is supplied. Suggest a method of separation of benzene from this mixture; with justification. Show it using a labelled diagram.

_____