11819

3 Hours / 100 Marks   Seat No. ☐☐☐☐☐☐☐☐

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

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

(3)   Figures to the right indicate full marks.

Marks

1.   **Attempt any FIVE :**   **5 × 4 = 20**

(a)   Define with examples 'dibasic' acid and 'diacidic' base. Write reaction, showing their dissociation in water.

(b)   Define :

(i)   saturated solution

(ii)   colloid

(iii)   hydrophylic sols

(iv)   hydrophobic sols

(c)   (i)   Define :

(1)   normality

(2)   molarity

(ii)   Explain preparation of 0.1 N (1lit) hydrochloric acid from 0.5 N solution of the acid.

(d)   (i)   Define 'surface tensions'. Write its unit.

(ii)   Define 'angle of contact'. State its significance in wetting.

(e) Define :

(i) interface

(ii) interfacial tension

(iii) cohesive force

(iv) adhesive force

(f) Describe use of sodium – meta – nitrobenzene sulphonate in reactive dyeing.

(g) Describe principle of extraction process.

2. **Attempt any FOUR :** **4 × 4 = 16**

(a) Explain use of salts in textile processing with suitable example.

(b) Define an emulsion. Explain, with an example, two types of emulsions.

(c) State and explain, law of mass action.

(d) Explain with examples, role of surface tension in textile wet processing.

(e) Define reduction reaction. Explain with two examples, reduction reactions.

(f) Explain with examples :

(i) dissociation

(ii) association

3. **Attempt any TWO :** **2 × 8 = 16**

(a) Define and give two examples, each :

(i) acid salt,

(ii) double salt,

(iii) mixed salt,

(iv) complex salt

    (b)   Explain factors, affecting rate of :

        (i)   diazotisation

        (ii)   polyester dyeing

    (c)   Explain with examples, theory of oxidation, through :

        (i)   addition of oxygen

        (ii)   removal of electron

4.   **Attempt any TWO :**   **2 × 8 = 16**

    (a)   (i)   Describe Arrhenius concept of acids and bases.

        (ii)   Explain with examples, concept of strength of acids and bases.

    (b)   (i)   Define viscosity. State its unit. Explain factors, affecting viscosity.

        (ii)   Describe preparation of 500 ml 0.1 N anhydrous sodium carbonate.

             (A.W. : H = 1, O = 16, C = 12, Na = 23)

    (c)   Explain following terms with reaction :

        (i)   heat of dilution

        (ii)   heat of solution

        (iii)   heat of formation

        (iv)   heat of neutralisation

5.   **Attempt any TWO :**   **2 × 8 = 16**

    (a)   (i)   Define 'Osmosis'. Explain its mechanism.   **3**

        (ii)   Name two commercially used semi-permeable membranes. What is an ideal semipermeable membrane ?   **2**

        (iii)   Explain 'reverse osmosis'.   **3**

(b) (i) Distinguish : endothermic and exothermic reaction. Give an example of each.

(ii) Define and give an example of reversible reaction. Explain conditions, under which reaction will be favoured in forward direction.

(c) Describe use of hydrose ($Na_2S_2O_4$) and sodium sulphite in :

Vat dyeing and sulphur dyeing respectively.

6. **Answer any TWO :** **2 × 8 = 16**

(a) (i) Define pH.

An aqueous solution has $[H^+] = 10^{-8.5}$. find its pH. Is the solution, acidic or alkaline ?

(ii) Explain role of alkali liberating, acid liberating agent in wet processing.

(b) Distinguish between : emulsifying agent ; dispersing agent, wetting agent. Give two examples of each.

(c) (i) State and explain two laws of thermodynamics.

(ii) State and explain 'distribution law'.

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