15162

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.

  (4) Assume suitable data, if necessary.

Marks

1.   **Attempt any <u>FIVE</u> of the following:**   **20**

a) Define 'salts'. Give its classification and state its uses in textile wet processing.

b) How will you prepare $2N$ solution of HCl and $2N$ solution of H_2SO_4 volume to be prepared in each case is 500 ml.

c) (i)   Define the term pH ? pOH write relation between them.

  (ii) How will you prepare $2.5N$ NaOH solution ?

d) Differentiate between reversible and ineversible reactions giving an example of each.

e) What are surfactants ? Give its mechanism of functioning.

f) Write the defination of 'heat of formation' and 'heat of combustion'. Give one example of each.

g) State 'Distribution Law'. Explain its limitations.

h) What is 'heat of dilution' and heat of neutralisation ?
Give one example of each.

Marks

2.   **Attempt any TWO of the following:**   **16**

   a) (i) Explain the 'Arrhenius Theory' and 'Lewis Concept' of acids and bases.

      (ii) Give the classification based on $H^{\oplus}$ and $OH^{\ominus}$ ions.

   b) (i) Explain 'Endothermic' and 'Exothermic' reaction. Give an example of each.

      (ii) Write diazotisation reaction. Explain precaution to be taken in the process.

   c) Explain the terms: 'Oxidizing agent' and 'Reducing agent'. Give two examples of each. Write chemical reactions involved.

3.   **Attempt any TWO of the following:**   **16**

   a) (i) Define and explain the concept and process of osmosis. Write its application in textile wet processing ?

      (ii) Define 'osmatic pressure' and 'reverse osmosis'.

   b) (i) Define and explain the terms 'Surface tension'. 'Interfacial tension' and 'Contact angle'.

      (ii) Give two examples where its application is observed.

   c) Explain the role of sodium hydro sulphite and potassium dichromate at various stages of textile wet processing.

4.   **Attempt any TWO of the following:**   **16**

   a) (i) Explain the concept of strength of acid and bases.   5

      (ii) Explain the role of alkali and acid liberating agents in wet processing of textiles.   3

   b) (i) State and explain the law of mass action .

      (ii) Give two examples of its relevance in textile wet processing. State the order of reaction in each case.

   c) State and explain the first and second law of thermodynamics.

Marks

5. **Attempt any TWO of the following:** 16

  a) (i) Define the term 'viscosity' State the units of viscosity. 2

    (ii) Explain the factors affecting viscosity. 4

    (iii) Give two evidences of this concept in textile processing. 2

  b) (i) Distinguish between emulsifying agents and dispersing agents (any four)

    (ii) Give two evidences each of emulsifying agent and dispersing agents used in textile wet processing.

  c) (i) Write down the theory of solvent extraction. 3

    (ii) Describe the process. 4

    (iii) Write two applications of the same in textile processing. 1

6. **Attempt any TWO of the following:** 16

  a) (i) Write the concept of pH scale.

    (ii) Give the importance of pH in bleaching, dyeing, printing and finishing with one suitable example of each.

  b) (i) Define colloids. Give its classification.

    (ii) Explain the importance and relevance of the same at various stages of textile wet processing.

  c) Explain (any two) the role of sodium sulphide, sodium hypochlorite and hydrogen peroxide at various stages of textile processing.

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