# 17222

**15116**

**3 Hours / 100 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.

(6) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

**Marks**

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

   a) Define Lewis acid and Lewis base.

   b) Give two uses of salts in 'Wet processing'.

   c) Define Normality and Molarity.

   d) Distinguish between hydrophilic sols and hydrophobic sols.

   e) Define:

      (i) Rate of chemical reaction.

      (ii) Rate constant of chemical reaction.

   f) State law of mass action.

   g) Define:

      (i) Surface tension

      (ii) Cohesive force

**Marks**

    h) What are Surfactants? Give two examples.

    i) Give two examples of oxidising and reducing agents.

    j) Give structural formula of sodium metanitro benzene sulphonate. Where is it used?

    k) State second law of Thermodynamics.

    l) Define:

        (i) Thermodynamics

        (ii) Thermochemistry

    m) State distribution law.

    n) Define:

        (i) Dissociation

        (ii) Association

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

    a) Distinguish between acid and base.

    b) What is strength of an acid? Give the classification of acid depending upon the number of $H^+$ present in acids.

    c) Define pH. Derive mathematical expression for pH.

    d) What is pH of extremly acidic and extremly basic solution? Draw a pH scale. Indicate 'neutral pH' on the scale.

    e) State and explain four importances of pH in textile wet processing - in dyeing and in printing.

    f) Define salts. Give classification of salts with their examples.

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

    a) Define Osmosis. Describe the process of Osmosis with a labelled diagram.

    b) Discuss the effect of temperature and pressure on viscosity of a liquid.

    c) Name and explain different types of solutions used in textile wet processing.

**Marks**

d) Define:

    (i)    Saturated solution

    (ii)   Viscosity

    (iii)  Osmotic pressure

    (iv)  Reverse osmotic pressure.

e) Define colloids. Give the classification of colloids, with examples of each.

f) (i)    Give example of liquid solutions:

        1)   Liquid in liquid

        2)   Solid in liquid.

    (ii)   Define emulsion. Name its types.

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

a) Distinguish between reversible and irreversible reaction. Give an example of each.

b) State and explain factors affecting rate of a chemical reaction.

c) Explain factors which affect rate of diazotisation.

d) Explain endothermic and exothermic reaction with one example of each.

e) Distinguish between emulsifying agent and dispersing agent. Give an example of each.

f) Define:

    (i)    Interface

    (ii)   Interficial tension

    (iii)  Angle of contact

    (iv)  Adhesive force

**Marks**

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

   a) Explain the role of surfactants in textile industry.

   b) (i) Explain use of $SnCl_2$ in wet processing.

       (ii) Define reactive dyes. Give two examples.

   c) State the role of - $K_2Cr_2O_7$, $Na_2S_2O_4$, $H_2O_2$ and $NaOCl$ in textile industry.

   d) Explain - Vat dyeing and Sulphur dyeing.

   e) Explain with example - addition of oxygen and removal of oxygen in oxidation and reduction reaction.

   f) How do sodium m-nitrobenzene sulphonate prevent hydrolysis of reactive dyes?

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

   a) Define and give chemical equation for:

       (i) heat of formation

       (ii) heat of neutralisation

   b) Give four applications of heat of reaction in textiles.

   c) State and explain four applications of laws of thermodynamics.

   d) Explain principle of extraction. Explain the process of extraction for mixture of solution.

   e) Give four applications of distribution law.

   f) (i) Explain the role of alkali liberating agent in wet processing.

       (ii) Define semipermeable membrane. Give two examples.

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