

17222

21718

3 Hours / 100 Marks

Seat No.

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- 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. Answer any TEN :**

**20**

- (a) Define :
  - (i) Lewis acid
  - (ii) Lewis base with an example each.
- (b) Classify acids and bases on the basis of their strength. Write example of each.
- (c) Define :
  - (i) normality
  - (ii) molarity
- (d) Differentiate between true solution and colloidal solution.
- (e) Define :
  - (i) rate of chemical reaction
  - (ii) equilibrium constant of a reversible reaction
- (f) Distinguish between reversible and irreversible reaction.
- (g) Define :
  - (i) cohesive force
  - (ii) adhesive force

- (h) State the various types of surface active agents used in textile processing.
- (i) Define :
  - (i) oxidation
  - (ii) oxidising agent
- (j) List the oxidising and reducing agents used in textiles
- (k) State second law of thermodynamics.
- (l) Define :
  - (i) heat of combustion
  - (ii) heat of dilution
- (m) State distribution law.
- (n) Define :
  - (i) association
  - (ii) dissociation

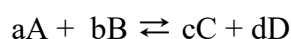
**2. Answer any FOUR :**

**16**

- (a) Explain the term pH of a solution. Draw pH scale, show acidic and basic pH range.
- (b) Define : Viscosity. Explain relation between viscosity and (i) concentration of solute and (ii) temperature.
- (c) Explain following concepts with an example : (i) exothermic reactions  
(ii) endothermic reactions.
- (d) State the role of surface active agents in wet processing.
- (e) Explain following terms with suitable chemical reactions : (i) reduction  
(ii) reducing agent.
- (f) State and explain first law of thermodynamics.

**3. Answer any FOUR :****16**

- (a) Why is acetic acid, a weak acid while sulphuric acid is a strong acid ?
- (b) Explain following concepts drawing labelled diagram : (i) Osmosis  
(ii) Osmotic pressure.
- (c) Consider following reaction and derive the expression for rate constant of following reaction :



- (d) How does soap and detergents act as dispersing agent in wet processing ?
- (e) Explain role of sodium sulphide in sulphur dyeing.
- (f) Why 'heat of dilution' be considered in wet processing ?

**4. Answer any FOUR :****16**

- (a) Explain giving examples, classification of salts.
- (b) How will you prepare 1000 ml, 1 N solution of  $\text{Na}_2\text{CO}_3$  ? State the relation between normal and molar solution of  $\text{Na}_2\text{CO}_3$ . (A.W. C = 12, 'O' = 16, Na = 23)
- (c) State and explain factors affecting on rate of chemical reaction.
- (d) Distinguish between surface tension and interfacial tension.
- (e) Write a chemical reaction indicating decomposition of hydrogen peroxide. State its role in textile wet processing.
- (f) Define – Heat of Neutralization. Explain the concept with chemical reaction.

**P.T.O.**

**5. Answer any FOUR :****16**

- (a) Explain the role of acid liberating agents in wet processing.
- (b) How will you classify colloidal solutions based on dispersed phase and dispersion phase ?
- (c) Why should the parameters like temperature and time be controlled in wet processing ?
- (d) Explain the term redox reaction with a chemical reaction.
- (e) Define – ‘Heat of solution’. Why heat of solution must be considered while preparing solutions used in wet processing ?
- (f) Explain Extraction theory.

**6. Answer any FOUR :****16**

- (a) Explain role of salt in dyeing of cellulosic fibre with reactive dyes.
  - (b) State applications of emulsions in textiles.
  - (c) Why are wool and silk dyed by maintaining acidic pH ?
  - (d) Explain reverse osmosis process drawing a labelled diagram. State its applications.
  - (e) State the role of following compounds :
    - (i)  $\text{SnCl}_2$
    - (ii)  $\text{H}_2\text{O}_2$
    - (iii)  $\text{Na}_2\text{S}_2\text{O}_4$
    - (iv)  $\text{NaOCl}$
  - (f) Write applications of Extraction theory.
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