

22242

23242

3 Hours / 70 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.
  - (4) Use of Non-programmable Electronic Pocket Calculator is permissible.
  - (5) Use following data :  
S = 32  
Na = 23  
(A.W., H = 1, C = 12, O = 16, K = 39, Mn = 55, Cr = 52)
  - (6) Abbreviations used convey usual meaning.

**Marks**

1. Answer any FIVE :

5 × 2 = 10

- (a) Represent a 'pH scale'. An aqueous solution has  $[H^+] = 10^{-4.6}$ . Find its p(OH).  
Is the solution acidic or alkaline ?
- (b) Define 'Scouring'. Name two scouring agents.
- (c) Draw a labelled diagram of an 'Ostwald' viscometer.
- (d) (i) Define molarity.  
(ii) Write molarity of :
  - (1) 1 N HCl
  - (2) 0.5 N H<sub>2</sub>SO<sub>4</sub>



- (e) Define reactive dyes. Give two examples.
- (f) (i) Write the formula and chemical name of 'bleaching powder'.  
(ii) Define available chlorine in bleaching powder.
- (g) Explain second law of thermodynamics.
- (h) Define association of a solute. Give two examples.

**2. Answer any THREE :** **12**

- (a) (i) Define acidity of a base. **1**  
(ii) Write giving an example, dissociation of a tribasic acid in aqueous solution. **3**
- (b) Describe dyeing of a polyester fibre at high temperature and high pressure.
- (c) Explain effect of any two parameters on bleaching.
- (d) (i) Name types of 'wet processing' in textiles. **1**  
(ii) Explain 'role of thermochemistry' in any one type of wet processing. **3**

**3. Answer any THREE :** **12**

- (a) (i) Write stepwise procedure to 'determine pH' of a textile auxiliary. **3**  
(ii) State 'precautions' to be taken. **1**
- (b) Explain application of 'reverse osmosis' in wet processing.
- (c) (i) Give an example of a 'reversible reaction'. **1**  
(ii) Explain ways to direct the reaction in forward direction. **3**
- (d) (i) Is potassium permanganate an oxidizing or reducing agent? Write the action of acidified potassium permanganate on ferrous sulphate (by 'balanced equation').  
(ii) State valency of manganese in the manganate and the product formed. Hence find EW of potassium permanganate.

**4. Answer any THREE :****12**

- (a) Explain importance of pH in dyeing process.
- (b) Name the compound  $\text{Na}_2\text{S}_2\text{O}_3 \cdot 5\text{H}_2\text{O}$ . Calculate and write the procedure to prepare 250 ml of 0.2 N of above compound.
- (c) Explain effect of :
- (i) Pressure
  - (ii) Catalyst
- on rate of reaction
- (d) (i) Write in usual notation, equation for first order reaction.
- (ii) Use this equation to find :
- (1) unit of 'k'
  - (2) equation for half life
- (e) Explain with examples, enthalpy of neutralisation.

**5. Answer any TWO :****12**

- (a) Explain meaning of :
- (i) 'Double salt'
  - (ii) 'Complex salt'
- Name two salts of each type and write their formula.
- (b) (i) Write reaction for bleaching of silk using sodium hydrosulphite. State 'conditions' involved in the process.
- (ii) Outline double bleaching process for silk-full white.
- (c) (i) State and explain distribution law. **4**
- (ii) State its limitations. **2**

**P.T.O.**

6. Answer any TWO : 12
- (a) (i) Define colloids. Diagrammatically represent relative sizes of a true solution, colloidal solution and a dispersion. 2
- (ii) Explain giving examples : 4
- (1) Multimolecular colloid
- (2) Associated colloid
- (b) (i) Define enthalpy. For the reaction :  
$$\text{C}(\text{graphite}) + 2\text{H}_2 \rightarrow \text{CH}_4, \Delta H_f = -74.8 \text{ kJ. Explain the meaning.}$$
- (ii)  $\Delta H_f$  for HI, HCl, HF, HBr are respectively +26.9, -92.4, -161.7 and -36.1 kJ. Arrange them in the increasing order of reactivity.
- (c) Describe with an example, the process for separation of two immiscible liquids.
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