21222

3 Hours / 70 Marks   Seat No.

15 minutes extra for each hour

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)   Use of Non-programmable Electronic Pocket Calculator is permissible.

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

Marks

1.   **Attempt any FIVE of the following :**   **10**

(a)   Write the importance of pH scale.

(b)   Define the term 'concentration of solution.'

(c)   Define molecular weight. Calculate the molecular weight of HCl, H_2SO_4.

(d)   Write the significance of the equilibrium constant.

(e)   Define the term 'rate of a reaction'.

(f)   State the role of Potassium permangnate in wet processing.

(g)   Define 'reducing agent'. Write an example of the same.

2.   **Attempt any THREE of the following :**   **12**

(a)   A sample of milk has pH of 6.2. Calculate $[H^+]$ and $[OH^-]$.

(b)   With the help of well labelled diagram explain 'the process of osmosis'.

(c)   Explain the equilibrium state with suitable chemical reaction.

(d)   Explain the chemical properties of hydrogen peroxide.

3.   **Attempt any THREE of the following :**   12

(a)   Explain the Arrhenius concept of acid and base.

(b)   Show classification of colloidal solution.

(c)   Explain the use of oxidizing agent in bleaching.

(d)   Distinguish between reversible and irreversible reaction.

4.   **Attempt any THREE of the following :**   12

(a)   If 0.4 g of NaOH is present in 40 ml of solution. What is the molarity and normality if the molecular weight of NaOH is 40 ?

(b)   Describe the role of temp. and pressure in dyeing of cotton with various dyes.

(c)   Explain the use of oxidizing and reducing in vat dyeing.

(d)   State first law of thermodynamics.

(e)   Explain the distribution law.

5.   **Attempt any TWO of the following :**   12

(a)   Define salts. Write chemical formula and names of types of salts.

(b)   Explain the procedure of finding heat of neutralization of HCl with NaOH.

(c)   Distinguish between association and dissociation of solutes.

6.   **Attempt any TWO of the following :**   12

(a)   Calculate pH of 0.001 M H_2SO_4, assuming complete dissociation. Explain the effect of pH on cotton dyeing with reactive dyes.

(b)   Distinguish between Isothermal process and Adiabatic process.

(c)   Explain the procedure for separation of oil from water.

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