COURSE CODE (CREDITS): 20MS1PH111 (2)   MAX. MARKS: 25

COURSE NAME: Basics of Physics and Chemistry

COURSE INSTRUCTOR: Dr. Poonam Sharma   MAX. TIME: 1 Hour 30 Minutes

Note: (a)All questions are compulsory.

(b)Marks are indicated against each question in square brackets.

(c) The candidate is allowed to make Suitable numeric assumptions wherever required for solving problems

Q1(a). Molar conductivity for 0.10 M NaCl is 107 $Scm^2 mol^{-1}$. Calculate the degree of dissociation for the Solution. Ionic conductivities for Na^+ (50.1 $Scm^2 mol^{-1}$) and Cl^- (76.4 $Scm^2 mol^{-1}$)

3

(b).   Explain the Kohlrausch's law.

2

Q2(a). Discuss the applications of colloidal solutions.

3

(b).   Elucidate the factors on which solubility of solution depends.

3

Q3(a). How the solute-solvent interactions effect the non-ideal behavior of solutions?   3

(b).   Explain hypertonic and hypotonic solutions.

2

Q4(a). Give classification of colloidal solutions based on interactions between dispersed phase and dispersion medium.

2

(b).   Give comparison between Physisorption and Chemisorption.

3

Q5(a). Calculate the mole fraction of benzene in solution containing 30% by mass in carbon tetrachloride.

3

(b).   How Normality of solution can be calculated?

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