R07

I B.Tech Examinations, June 2011 PHYSICAL CHEMISTRY Chemical Engineering

Time: 3 hours

Code No: R07A1BS08

Max Marks: 80

Answer any FIVE Questions All Questions carry equal marks *****

- During electrolysis a solution of potassiumchloride between platinum electrodes 0.0137 g of chloride was lost from the anode compartment and 0.0857 g of silver deposited in a silver coulometer connected in series with a cell. Determine the transport numbers of K⁺ and Cl⁻ ions. [16]
- 2. (a) Describe the influence of temperature in enzyme catalysis.
 - (b) Mention enzyme catalysis industrial application. [8+8]
- 3. Define and explain Einstein law of photo chemical equivalence and give example of its application in photo chemical reaction. Mention the reaction which appear to deviate from law. [16]
- 4. State Nernst distribution law. Derive the expression and state its limitations. [16]
- 5. Explain with neat diagram the voltammograms and their industrial applications.
- 6. Explain the influence of solvent on reaction rates. [16]
- 7. The density of diamond is 3.52 gm/cc and that of graphite is 2.25 gm/cc. At 25 ^oC, the Gibbs energy of formation of diamond from graphite is 2.9 kJ /mol. At 25 ^oC, what pressure must be applied to bring diamond and graphite into equilibrium?

[16]

[16]

[4+4+4+4]

(a) Dialysis.

8. Write notes on

- (b) Ultrafiltration.
- (c) Ultracentrifuging.
- (d) Bredig's arc method.

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