**Code No: R07A1BS08** **R07**

**B. Tech I Year Examinations, May/June-2012**
**PHYSICAL CHEMISTRY**
**(Chemical Engineering)**

**Time: 3 hours** **Max Marks: 80**

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

\- - -
---

1. Write notes on:
   (a) Distribution coefficient
   (b) Applications of distribution law. [8+8]

2. (a) Explain in detail about Faraday's laws of Electrolysis.
   (b) On progressive dilution, specific conductance of an electrolyte decreases but molar conductance increases. Explain.
   (c) Write notes on electrophoresis. [8+4+4]

3. Write an account on:
   (a) Protective action of colloids
   (b) Brownian movement
   (c) Emulsions. [5+6+5]

4. (a) Explain the differences between normal stripping method and adsorptive methods.
   (b) Discuss in detail about the amperometric titrations. [8+8]

5. (a) Explain cooling curves. Illustrate with suitable example the importance of the curves in the study of binary system.
   (b) What are the applications of phase rule? [12+4]

6. Write the cell reactions for the following cell
   (a) Ag, AgC*l* (s), KCl (aq) HC*l* (aq) | $H_2$ (g), Pt
   (b) Pt, C$l_2$ (g) | HC*l* (aq) | | $CuSO_4$ (aq) | Cu
   (c) Define and explain the terms cell constant and degree of dissociation.
   [4+4+8]

7. (a) Derive a mathematical expression for the rate constant of a reaction ($A+B \rightarrow$ products) of the second order.
   (b) Discuss Arrhenius concept of activation energy. Give graphical representation of activation energy diagram. [16]

8. (a) Describe with a neat diagram, the protolytic mechanism.
   (b) Discuss about the factors which affect the enzyme catalysis. [8+8]

********