

Code No: R05010802**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY, HYDERABAD****B.Tech I Year Examinations, June - 2014****PHYSICAL CHEMISTRY****(Chemical Engineering)****Time: 3 hours****Max. Marks: 80**

Answer any five questions
All questions carry equal marks

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- 1.a) What are conditions valid for Nernst distribution law.
- b) The solubility of a substance is twice as greater in Ethylacetate as in water compare the quantities extracted from 100ml of aqueous solution by:
 - i) 100ml of Ethylacetate in a single operation.
 - ii) Two successive operations of 50ml Ethylacetate in each.
- 2.a) Discuss the phase diagram of Sulphur.
- b) What is condensed system? Write the reduced phase rule equation.
- c) What are the applications of phase rule?
- 3.a) What is the Influence of Ionic strength on the rate of reaction.
- b) Differentiate order and Molecularity of the reaction.
- c) Explain absolute rate theory.
- 4.a) What are Emulsions and what is Emulsifying agent.
- b) Write the applications of Colloids.
- c) Give an account on gold numbers.
5. How are the following calculated using Kohlrausch's laws?
 - a) Equivalent conductance of an electrolyte at infinite dilution.
 - b) Solubility of a sparingly soluble salt.
- 6.a) Differentiate between reversible and irreversible cells.
- b) Why the anode of Galvanic cell is -ve and cathode is +ve ? Write the reactions occur at electrodes.
- 7.a) Discuss Homogeneous catalysis with suitable examples.
- b) Discuss the influence of concentration on enzyme catalysis.
- 8.a) What is Quantum yield ? How to determine Quantum Yield experimentally?
- b) Define the terms Fluorescence, Phosphorescence and Photosynthesis.
