



# Tech. Degree I & II Semester (Combined) Examination, June 2008

IT/CS/EC/CE/ME/SE/EB/EI/EE/FT 103 ENGINEERING CHEMISTRY  
(2006 Scheme)

Time: 3 Hours

Maximum Marks: 100

## PART A (Answer all questions)

(8 x 5 = 40)

- I
- ✓a) Explain Born-Haber cycle with example.
  - ✓b) Explain in brief what is BET isotherm.
  - c) What is photovoltaic effect? Give details of solar cells.
  - ✓d) Explain the significance of Arrhenim equation.
  - ✓e) What is Troutons rule? Explain.
  - ✓f) What is meant by chemical potential? Give its importance in chemical reactions.
  - ✓g) Write notes on optical fibres.
  - h) Write notes on nanoceramics.

## PART B

(15 x 4 = 60)

- ✓II
- ✓a) Explain in details Point Defects. (10)
  - ✓b) Explain Band theory of solids. (5)
- OR**
- ✓III
- ✓a) Explain the different types of liquid crystals. (10)
  - ✓b) Write notes on Super Conductors. (5)
- IV
- a) Explain the Poggen Droff compensation method for determination of emf. (6)
  - b) What is Buffer solution? Explain its action with examples. (4)
  - c) Explain Cathodic protection method in metallic corrosion. (5)
- OR**
- ✓V
- ✓a) Give the important factors controlling corrosion. (8)
  - ✓b) What is a sec-cell? Explain the working of lead-acid storage cell. (7)
- ✓VI
- ✓a) Derive the Kirchoff's equation. (6)
  - ✓b) Explain Nernst heat theorem. (4)
  - ✓c) Thermodynamics of Biochemical reactions. (5)
- OR**
- ✓VII
- a) Derive the Gibbs-Helmholtz equation. (5)
  - b) State the three different rules of thermodynamics. (6)
  - c) Show and explain the relation between temperature, pressure and free energy. (4)
- ✓VIII
- a) What is polymer processing? Explain in details the different methods. (10)
  - b) Explain the mechanism of lubrication. (5)
- OR**
- IX
- a) Write down in detail the preparation, properties and application of any three industrial polymers. (10)
  - ⑥!! b) What are the different types of lubricants? Give the details. (5)