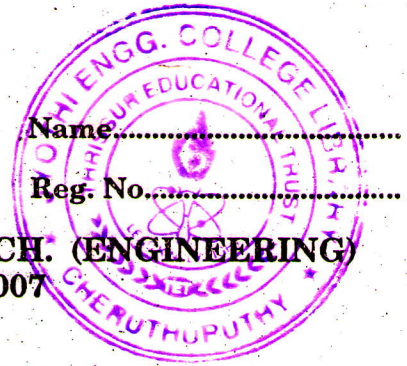


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Name.....

Reg. No.....

**COMBINED FIRST AND SECOND SEMESTER B.TECH. (ENGINEERING)
DEGREE EXAMINATION, JUNE 2007**

Chemistry (EN 04—104 A)

ENGINEERING CHEMISTRY (A)

(2004 admissions)

(For AI, CS, EE, EC, IT, IC, BM, BT, PT)

Time : Three Hours

Maximum : 100 Marks

Part A

Answer all the questions.

- I. (a) With the help of a neat diagram, describe the crystal structure of NaCl.
(b) Write a note on superconductors.
(c) List out the difference between LDPE and HDPE.
(d) What is meant by compounding of plastics ?
(e) What are the characteristics of a Fuel cell ?
(f) What is standard electrode potential ? Explain.
(g) Describe galvanizing process and mention its application.
(h) State the characteristics of a good point.

(8 × 5 = 40 marks)

Part B

- II. A (a) Explain the difference between cubic and hexagonal close packing. (8 marks)
(b) What are the important features of solids. Distinguish crystalline solids from amorphous solids.

(7 marks)

Or

- B (a) Based on molecular orbital approach describe in detail the band model of metallic bonding. On the basis of this model, how would you account for conductance, semiconductance and non-conductance of different material ?

(10 marks)

- (b) Derive Bragg's equation. (5 marks)

- III. A (a) Discuss the effect of structure of polymers on their physical properties in detail. (8 marks)

- (b) Explain boundary-film lubrication. (7 marks)

Or

Turn over

- B (a) How is viscosity-index calculated for an unknown oil ? (7 marks)
(b) Distinguish between the following with examples :
(i) Natural and synthetic rubber.
(ii) Addition and condensation polymerisation.

(8 marks)

- IV. A (a) Write the construction and working of a concentration cell. (8 marks)
(b) Explain the function of $H_2 - O_2$ fuel cell. (7 marks)

Or

- B (a) Give a detailed account of Pogendorf's compensation method. (8 marks)
(b) What is galvanic cell ? How does it differ from an electrochemical cell ? (7 marks)

- V. A (a) Describe briefly the important parameters involved in electroplating. Explain with example.

(8 marks)

- (b) Explain the preliminary treatment given to a metallic surface before coatings.

(7 marks)

Or

- B (a) Define BOD. How is it determined experimentally ? (8 marks)
(b) Write a note on Green House effect. (7 marks)

[4 × 15 = 60 marks]