C 31701 (Pages : 2) 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-firm 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) Additional 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 Pogendroff'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]