

C 57516

(Pages : 2)

Name.....

Reg. No.....

**COMBINED FIRST AND SECOND SEMESTER B.TECH. (ENGINEERING)
DEGREE EXAMINATION, JUNE 2009**

Engineering Chemistry

EN 04 104 (B)—ENGINEERING CHEMISTRY (B)

(2004 admissions)

[CE, ME, PE, AM]

Time : Three Hours

Maximum : 100 Marks

Part A

Answer all questions.

- I. 1 "The properties of Portland cement depend upon the relative proportions of its constitutional compounds"—Justify this statement.
- 2 Give the composition, properties and uses of borosilicate glass.
- 3 Why is plasticizer used during moulding of plastics ?
- 4 Why are antioxidants added to hydrocarbon oils ?
- 5 What is reduced phase rule ?
- 6 Give the properties and uses of commercial alloys.
- 7 Write short note on depletion of ozone layer.
- 8 A pure metal rod half-immersed vertically in water starts corroding at the bottom. Give reason.
- (8 × 5 = 40 marks)

Part B

- II. (a) (i) Explain hardening and setting of cement, using chemical equations. What is the role of gypsum in cement ?
- (8 marks)
- (ii) Name some ores of uranium. Explain the extraction of uranium from its ore. (7 marks)
- Or*
- (b) (i) What are the disadvantages of scale formation ? Explain, in brief, the various methods adopted for prevention of scale.
- (7 marks)
- (ii) Distinguish between concrete and reinforced concrete. Mention their specific uses.
- (8 marks)
- III. (a) (i) Write note on preparation, properties and uses of Bakelite and epoxy resins. (8 marks)
- (ii) How do viscosity and viscosity index influence the selection of lubricants for a particular purposes ?
- (7 marks)

Or

Turn over

- (b) (i) Explain the mechanism of hydrodynamic and extreme-pressure lubrication. (8 marks)
- (ii) Weight average molecular weight is higher than number-average molecular weight of a polymer. Explain. (7 marks)

- IV. (a) (i) Write short note on Pb-Ag phase diagram. (7 marks)
- (ii) Discuss the properties and uses of Nickel-copper alloys. (8 marks)

Or

- (b) (i) With a neat diagram, explain salient features involved in H_2O system. (8 marks)
- (ii) Draw a phase diagram for a binary alloy system with simple eutectic and explain on the basis of phase rule. (7 marks)

- V. (a) (i) Differentiate chemical and electrochemical corrosion with suitable examples. (8 marks)
- (ii) What is ozone depletion ? Explain the causes and consequences of ozone depletion. (7 marks)

Or

- (b) (i) Write a note on soil pollution. (7 marks)
- (ii) How are metals protected against corrosion by modifying the environment ? (8 marks)
- [4 × 15 = 60 marks]