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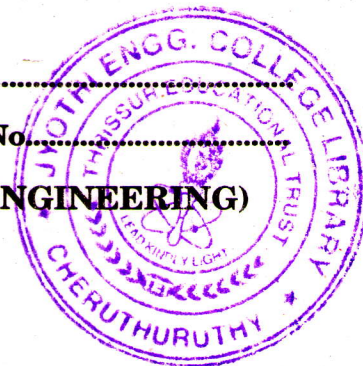
Name.....

Reg. No.....

**COMBINED FIRST AND SECOND SEMESTER B.TECH. (ENGINEERING)
DEGREE EXAMINATION, JUNE 2005**

EN2K 104 A. ENGINEERING CHEMISTRY (A)

(Common to AI, CS, EE, EC, IT, IC)



Time : Three Hours

Maximum : 100 Marks

1. (a) Write about the forces binding the constituent units in ionic solids and their properties.
(b) What are the applications of liquid crystals ?
(c) Define the term Standard electrode potential. How can it be measured ?
(d) What is a reference electrode ? Give examples.
(e) Give the differences between Metallic and Non-metallic coatings.
(f) How is corrosion caused ? What are the conditions of dry corrosion ?
(g) What are synthetic lubricants ? Give some important lubricants.
(h) Define the different ways by which the molecular weight of a polymer is expressed ? What is index of polydispersity ?

(8 × 5 = 40 marks)

2. (a) Explain the conduction process in intrinsic and extrinsic semiconductors.

Or

- (b) Discuss on the different crystal imperfections in solids.

(15 marks)

3. (a) (i) The potential of a hydrogen gas electrode in a solution of an acid of unknown strength is 0.29 V at 298 K as measured against a normal hydrogen electrode, calculate the pH of the acid solution.

(7 marks)

- (ii) Give the characteristics of a fuel cell.

(7½ marks)

Or

- (b) With a neat sketch, explain the determination of e.m.f. using a potentiometer. What is a standard cell ? Give an example.

(15 marks)

4. (a) Give a detailed account of the cementation process.

Or

- (b) What is a smog ? How is it formed ? Give the different types of smog and the remedial measures.

(15 marks)

Turn over

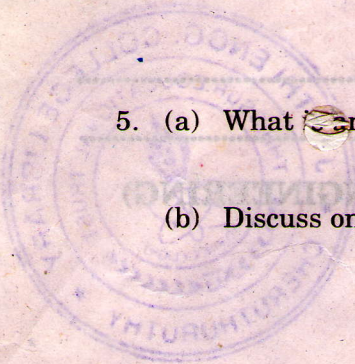
5. (a) What is an elastomer? Give the mechanism of vulcanisation and its advantages.

Or

(b) Discuss on the different mechanisms of lubrication.

(15 marks)

[4 x 15 = 60 marks]



Maximum : 100 Marks

Write about the forces holding the constituent units in ionic solids and their properties.
What are the applications of liquid crystals?
Define the term standard electrode potential. How can it be measured?
What is a reference electrode? Give examples.
Give the differences between Metallic and Non-metallic coatings.
How is corrosion caused? What are the conditions of dry corrosion?
What are synthetic lubricants? Give some important lubricants.
Define the different ways by which the molecular weight of a polymer is expressed? What is index of polydispersity?
Explain the conduction process in intrinsic and extrinsic semiconductors.

Discuss on the different crystal imperfections in solids.
(15 marks)
(i) The potential of a hydrogen gas electrode in a solution of an acid of unknown strength is 0.29 V at 298 K as measured against a normal hydrogen electrode, calculate the pH of the acid solution.
(7 marks)
(ii) Give the characteristics of a fuel cell.
(7 marks)
Or
(i) With a neat sketch explain the deaeration of O_2 using a potentiometer. What is a standard cell? Give an example.
(15 marks)
(ii) Give a detailed account of the extraction process.
Or
(i) What is an emulsion? How is it formed? Give the different types of emulsions and the remedial measures.
(15 marks)

Turn over