

NAME \_\_\_\_\_

ROLLNO \_\_\_\_\_

**2006-ANNA UNIVERSITY**  
B.E/B.TECH II SEMESTER DEGREE EXAMINATION  
**CHEMISTRY-II**  
(EEE)

DECE-2006

TIME-3 HOUR  
MARKS-100

ANSWER ALL QUESTIONS.

**PART A - ( 10 \* 2 = 20 MARKS)**

- 1) Why aluminium is passive towards corrosion in oxidation environment?
- 2) What is pitting corrosion?
- 3) What are ABS polymers? Give their uses.
- 4) Mention the properties and uses of PVC.
- 5) What is a photosensitized reaction? Give one example.
- 6) What is a chemical actinometer?
- 7) What is a primary battery? Give an example.
- 8) Mention any two differences of a nuclear reaction and a chemical reaction.
- 9) Mention the ore and its composition used in the production of aluminium by Bawyer's process.
- 10) What is the principle in voltammetry?

**PART B - ( 5 \* 16 = 80 MARKS)**

- 11) Write a brief notes on (i) electrochemical machining (ii) Electro refining of copper. [16]
- 12) (a) (i) Define quantum yield. Explain the causes of high and low quantum yield with suitable examples.  
(ii) When a substance A was exposed to light, 0.002 mole of it reacted in 20 minutes and 4 seconds. In the same time A absorbed  $2.0 \times 10^6$  photons of light per second. Calculate the quantum yield of the reaction. [8+8]  
OR  
(b) (i) Define and explain the two basic laws of photochemical reactions.  
(ii) Explain briefly the term fluorescence, phosphorescence and chemiluminescence. [8+8]
- 13) (a) (i) Write the principles, structures and characteristics of optical fibre.  
(ii) Write a brief note on fibre reinforced plastics. [8+8]  
OR  
(b) (i) What are conducting polymers? Discuss their electronic behaviour on the basis of chemical structure.  
(ii) Discuss the preparation, properties and uses of bakelite. [8+8]
- 14) (a) (i) Discuss how the nature of the metal influence the rate of corrosion.  
(ii) Explain the process of electroplating with a suitable examples. Mention the uses of electroplating. [8+8]  
OR  
(b) (i) Explain the electrochemical theory of corrosion with suitable example.

(ii) Write a brief note on :

(1) cathodic protection by sacrificial anode

(2) Differential aeration corrosion.

[8+4+4]

15) (a) (i) What is a nuclear reactor? Describe the components of a light-water nuclear power plant with a suitable block diagram.

(ii) Write a note on Ni-Cd battery.

[8+8]

OR

(b) (i) Write a brief note on:

(1) Lead – acid storage cell

(2) Hydrogen – oxygen fuel cell.

(ii) Define mass defect and nuclear binding energy. How are they related.

[4+4+8]

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