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**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)**

**B.Tech I Year I Semester (R16) Regular & Supplementary Examinations Dec 2017
ENGINEERING CHEMISTRY
(Common to ECE, CSIT & CSE)**

Time: 3 hours

Max. Marks: 60

(Answer all Five Units 5 X 12 = 60 Marks)

UNIT-I

- 1 a. Define rechargeable batteries. Give any two examples to rechargeable batteries. 2M
- b. Explain the cell reactions involved in the Lead-Acid battery while charging and discharging. 6M
- c. How would you construct H₂-O₂ fuel cell? Explain with neat diagram? 4M

OR

- 2 a. Define corrosion? Give an example to corrosion. 2M
- b. Discuss in the any four factors which influence the rate of corrosion based on the nature of metal. 8M
- c. Define galvanic (electrochemical) series. What is the importance of galvanic series? 2M

UNIT-II

- 3 Explain the detailed method for the estimation of temporary, permanent and total hardness by EDTA method. 12M

OR

- 4 a. Write an essay on boiler troubles. 8M
- b. Write a short note on calgon conditioning. 4M

UNIT-III

- 5 Describe the method employed for the refining of petroleum with diagram. 12M

OR

- 6 a. Explain extreme pressure lubrication mechanism 4M
- b. Write short notes on Producer gas and Water gas. 8M

UNIT-IV

- 7 a. What do you mean by condensation polymerisation? 2M
- b. Describe the preparation, properties and applications of bakelite. 10M

OR

- 8 a. Distinguish between thermo and thermosetting polymers. 4M
- b. Explain the mechanism, Synthesis and applications of polyaniline. 8M

UNIT-V

- 9 a. Explain a method for the manufacture of Portland Cement in detailed. 10M
- b. What is the role of gypsum in the Portland cement? 2M

OR

- 10 Write a short note on the following. 12M
- i) fullerenes ii) Semi-conductors iii) quantum dots

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