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**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR**  
 (AUTONOMOUS)  
**B.Tech I Year II Semester Supplementary Examinations Dec 2019**  
**ENGINEERING CHEMISTRY**  
**(CE, EEE, ME & AGE)**

Time: 3 hours

Max. Marks: 60

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

**UNIT-I**

- 1 a Write a note on sacrificial anodic protection? 6M  
 b Discuss Hydrogen- Oxygen fuel cell. 6M

**OR**

- 2 a Discuss about Impressed Current Cathodic protection. 6M  
 b Discuss in detail about chemical corrosion. 6M

**UNIT-II**

- 3 a What are the disadvantages of hard water? 5M  
 b 0.5 g of CaCO<sub>3</sub> was dissolved in dil.HCl and diluted to 1000 ml. 50 ml of this solution required 48 ml of EDTA solution for titration. 50 ml of hard water sample required 15 ml of EDTA solution for titration. 50 ml of same water sample on boiling, filtering etc. required 10 ml of EDTA solution. Calculate the different kinds of hardness in ppm. 7M

**OR**

- 4 a What is the principle of EDTA method? Describe the estimation of hardness by EDTA method. 9M  
 b What are the units to express hardness of water? 3M

**UNIT-III**

- 5 a Explain Bergius process for the manufacture of synthetic petrol. 7M  
 b What are the characteristics of a good fuel? 5M

**OR**

- 6 a Write a note on synthetic petrol by Fischer-Tropsch process. 7M  
 b Write short notes on: A) Producer gas B) Water gas. 5M

**UNIT-IV**

- 7 a Explain the mechanism of Cationic addition polymerization. 6M  
 b Distinguish between Thermoplastics and thermosetting plastics? 6M

**OR**

- 8 a What is polymer? Discuss the Preparation, Properties and uses of Teflon. 6M  
 b Define the functions of various ingredients used in the compounding of rubber. 6M

**UNIT-V**

- 9 a Explain in detail about setting and hardening of Portland cement? 6M  
 b What are Refractories? What are the characteristics of a good refractory? 6M

**OR**

- 10 a Discuss about Super conductors and their applications. 6M  
 b Give an account of Chemical composition of Portland Cement. 6M

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