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

B.Tech I Year II Semester Supplementary Examinations October-2020

ENGINEERING CHEMISTRY
(Common to CE, EEE, ME & AGE)

Time: 3 hours

Max. Marks: 60

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

UNIT-I

- 1 a Discuss about Impressed Current Cathodic protection. 6M
b Explain electroplating of Nickel. 6M

OR

- 2 a Explain the construction of Methanol-Oxygen fuel cell. 6M
b Explain in detail about Lithium ion batteries. 6M

UNIT-II

- 3 a Calculate temporary, permanent and total hardness of a sample of water containing $\text{Ca}(\text{HCO}_3)_2 = 40.5 \text{ mg/L}$; $\text{Mg}(\text{HCO}_3)_2 = 46.5 \text{ mg/L}$; $\text{MgSO}_4 = 27.6 \text{ mg/L}$; $\text{CaCl}_2 = 22.4 \text{ mg/L}$; $\text{CaSO}_4 = 32.1 \text{ mg/L}$. 7M
b Explain scale and Sludge formation in boilers. How are they removed? 5M

OR

- 4 a Why do we express hardness of water in terms of CaCO_3 equivalent? 4M
b Describe the Zeolite or permutit process for softening of water. What are the advantages and disadvantages of zeolite process? 8M

UNIT-III

- 5 a Explain the manufacture, advantages and disadvantages of power alcohol. 7M
b Define Octane Number and Knocking? 5M

OR

- 6 a Define Lubricants? Discuss the important functions of Lubricants. 5M
b What are the advantages and Disadvantages of Liquid fuels and Gaseous fuels? 7M

UNIT-IV

- 7 a Explain the mechanism of Free radical addition polymerization. 6M
b Classify addition polymerization and condensation polymerization. 6M

OR

- 8 a What is polymer? Discuss the Preparation, Properties and uses of Teflon. 6M
b Explain the procedures used in the processing of natural rubber. 6M

UNIT-V

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

OR

- 10 a Explain in detail about setting and hardening of Portland cement. 6M
b Explain thermal spalling, porosity of a refractory. 6M

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