

Code No: 121AE

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD**B. Tech I Year Examinations, March/April - 2023****ENGINEERING CHEMISTRY****(Common to CE, EEE, ME, ECE, CSE, IT, MIE, PTM)****Time: 3 hours****Max. Marks: 75**

- Note:** i) Question paper consists of Part A, Part B.
ii) Part A is compulsory, which carries 25 marks. In Part A, Answer all questions.
iii) In Part B, Answer any one question from each unit. Each question carries 10 marks and may have a, b as sub questions.

PART - A**(25 Marks)**

- 1.a) Define molar conductance and its units. [2]
- b) Why moderate temperature is used during electroplating. [3]
- c) Define tacticity and functionality of a monomer. [2]
- d) Mention the characteristics of a good lubricant. [3]
- e) Write the structure for EDTA. [2]
- f) Distinguish between temporary and permanent hardness. [3]
- g) What is meant by ignition temperature? [2]
- h) Why should fuel for cars not evaporate too easily? [3]
- i) Name two set systems which form eutectic mixtures. [2]
- j) Name the type of adsorption with examples. [3]

PART - B**(50 Marks)**

2. a) Describe the construction of methanol-oxygen fuel cell with reactions. [5+5]
 - b) Explain the mechanism of electro chemical corrosion. [5+5]
- OR**
- 3.a) Derive Nernst equation for single electrode potential. Mention its applications. [5+5]
 - b) Write a brief note on sacrificial anodic impression. [5+5]
- 4.a) Explain in detail about injection molding method with a neat diagram. [5+5]
 - b) Explain the preparation and applications of Butyl rubber and Thiokol rubber. [5+5]
- OR**
- 5.a) With the help of neat diagram write about thick film lubrication method. [5+5]
 - b) Mention the applications of nanomaterials. [5+5]
- 6.a) Explain zeolite process for softening of water. [5+5]
 - b) Write about reverse osmosis and its significance. [5+5]
- OR**
- 7.a) Discuss in detail about scale and sludge formation in water boilers. How is it controlled? [5+5]
 - b) Write a brief notes on internal treatment of water. [5+5]

- 8.a) Describe the analysis of flue gas by orsat's apparatus.
b) Define calorific value. Distinguish between the gross and net calorific value. [5+5]

OR

- 9.a) Define knocking of a fuel. Discuss in detail how to improve the knocking characteristics of a fuel.
b) Explain the fixed –bed catalytic method to obtain gasoline. Give its mechanism. [5+5]

- 10.a) Draw a labelled diagram of water system and discuss the meta stable curve and principle of freeze drying.
b) Mention the classification of colloids with examples. [5+5]

OR

- 11.a) State Phase rule and discuss its applications to water system.
b) Distinguish between absorption and adsorption. [5+5]

---ooOoo---

downloaded from
StudentSuvidha.com