

Code No: 132AG**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD****B.Tech I Year II Semester Examinations, August - 2018****ENGINEERING CHEMISTRY****(Common to CE, ME, MCT, MMT, AE, MIE, PTM, CEE, MSNT)****Time: 3 hours****Max. Marks: 75****Note:** This question paper contains two parts A and B.

Part A is compulsory which carries 25 marks. Answer all questions in Part A.

Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART- A**(25 Marks)**

- 1.a) "Zeolites are used as softeners". Give the reason. [2]
- b) How scale is removed from boiler? [3]
- c) How galvanic series differ from electrochemical series? [2]
- d) Write anode and cathode reactions of Methanol-oxygen fuel cell. [3]
- e) What is copolymerization? [2]
- f) Define plastics. How are they be classified? [3]
- g) Give the composition of CNG. [2]
- h) What is the significance of proximate analysis? [3]
- i) Furnish applications of composite materials. [2]
- j) Classify the lubricants and give examples. [3]

PART-B**(50 Marks)**

- 2.a) Explain Zeolite process of softening water.
 - b) What is reverse osmosis? Describe and write the advantages of reverse osmosis. [5+5]
- OR**
- 3.a) Write a note on Boiler corrosion.
 - b) Explain EDTA complexometric method of determining temporary and permanent hardness of water. [5+5]
- 4.a) Explain construction and working principle of Quinhydrone electrode.
 - b) What is electrochemical series? Give any two applications. [5+5]
- OR**
- 5.a) Explain electrochemical cell with example.
 - b) Explain charging and discharging process of Lead acid storage cell with a neat diagram. [5+5]
- 6.a) What are biodegradable polymers? Write the preparation, properties and applications of polylactic acid.
 - b) Differentiate between addition and condensed polymers. [5+5]
- OR**
- 7.a) Why vulcanized rubber is superior to non vulcanized rubber?
 - b) Write preparation, properties and applications of Nylon-6, 6 and Dacron. [5+5]

- 8.a) Give an account of the analysis of coal by Proximate analysis.
b) Explain Fischer-Tropsch's process for synthesis of petrol. [5+5]
- OR**
- 9.a) Write an account on the Fractional distillation of petroleum.
b) What do you understand by knocking, octane and cetane rating? [5+5]
- 10.a) Write a note on cloud and pour point.
b) How composite materials are classified? What are their advantages? [5+5]
- OR**
- 11.a) Write a short note on porosity of refractory materials.
b) Explain the reactions involved in setting and hardening of Portland cement. [5+5]

--ooOoo--