

Code No:131AG

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY, HYDERABAD**B .Tech I Year I Semester Examinations, December - 2018****ENGINEERING CHEMISTRY****(Common to EEE, ECE, CSE, EIE, IT)****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) Why hardness is expressed in terms of calcium carbonate equivalent? [2]
- b) Which salts are responsible for temporary and permanent hardness of water? [3]
- c) Why do electrochemical cells stop working after some time? [2]
- d) Write a short note on calomel electrode. [3]
- e) What is the functionality of a monomer? [2]
- f) What are the applications of Bakelite? [3]
- g) What are primary and secondary fuels? [2]
- h) What is CNG? Why it is preferred over LPG? [3]
- i) How is thermal conductivity of a refractory related to its porosity? [2]
- j) What are the characteristics of good refractories? [3]

PART - B**(50 Marks)**

- 2.a) Discuss the ion exchange process of softening hard water.
 - b) What is Caustic embrittlement? [8+2]
- OR**
- 3.a) What is potable water? What are the steps taken to obtain pure drinking water?
 - b) Write the names of three sludge forming and three scale forming compounds. [7+3]
- 4.a) Describe the construction of lead - acid battery with the reactions occurring during discharge.
 - b) Write short note on glass electrode. [6+4]
- OR**
- 5.a) Distinguish between galvanic cell and a concentration cell.
 - b) Write a short note on factors influencing e.m.f of batteries. [6+4]
- 6.a) Explain addition and condensation polymerisation with suitable examples.
 - b) Write a short note on vulcanization process. [7+3]
- OR**
- 7.a) What is chain polymerization and explain the steps involved?
 - b) Classify conducting polymers with suitable example. [6+4]

- 8.a) Explain refining of petroleum.
b) Why a good fuel must have low ash content? [7+3]
- OR**
- 9.a) Explain ultimate analysis of coal.
b) Define calorific value of fuel. [8+2]
- 10.a) Explain manufacture of cement in detail.
b) Write any two types of refractories and their uses. [8+2]
- OR**
- 11.a) Discuss four essential properties of a good refractory material.
b) Write the classification of lubricants with example. [6+4]

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