

R22

Code No: 181AJ

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B. Tech I Year I Semester Examinations, March/April - 2023

ENGINEERING CHEMISTRY

(Common to EEE, CSE, IT, CSIT, CE(SE), CSE(CS), CSE(DS), CSD)

Time: 3 Hours

Max. Marks: 60

Note: This question paper contains two parts A and B.i) **Part - A** for 10 marks, ii) **Part - B** for 50 marks.

- Part-A is a compulsory question which consists of ten sub-questions from all units carrying equal marks.
- Part-B consists of **ten questions** (numbered from 2 to 11) **carrying 10 marks each**. From each unit, there are two questions and the student should answer one of them. Hence, the student should answer five questions from Part-B.

PART- A**(10 Marks)**

- 1.a) What are the methods used for disinfection of water. [1]
- b) What is importance of ion exchange method of water treatment? [1]
- c) Define cathodic protection. [1]
- d) What are the applications of fuel cells? [1]
- e) Give applications of terelene. [1]
- f) Give examples for thermosetting polymers. [1]
- g) What is the composition of LPG? [1]
- h) Define HCV. [1]
- i) Give applications of shape memory materials. [1]
- j) Define lubricant. [1]

PART-B**(50 Marks)**

- 2.a) Define portable water, give its specifications.
 - b) Explain determination of F^- ion by ion- selective electrode method. [5+5]
- OR**
- 3.a) Differentiate internal and external treatment of water.
 - b) Explain reverse osmosis method and its importance. [5+5]
4. What are the basic requirements for commercial batteries, explain construction, working principle and applications of Zn-air batteries. [10]
- OR**
- 5.a) What are the causes and effects of corrosion?
 - b) Explain Galvanic and pitting corrosion. [5+5]
- 6.a) Explain steps involved in free radical polymerization mechanism with suitable example.
 - b) Give brief note on Bakelite. [5+5]

OR

- 7.a) Give brief note on Fibre reinforced plastics and its applications.
b) Explain properties and applications of synthetic rubbers. [5+5]

8. Compare proximate and ultimate analysis of fuel and give its significance. [10]

OR

- 9.a) Describe Fischer-Tropsch's process.
b) Give brief note on Trans esterification. [5+5]

10. Explain various smart materials and their importance. [10]

OR

- 11.a) Explain mechanism of lubrication.
b) Explain any three important properties of lubricants. [5+5]

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Used papers 2023