

R22

Code No: 182AH

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B. Tech I Year II Semester Examinations, February - 2025

ENGINEERING CHEMISTRY

(Common to CE, ME, ECE, EIE, AE, BT, MIE, PCE, CSE(AI&ML), CSE(IOT), AI&DS, AI&ML)

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 is de fluoridation? | [1] |
| b) | Define reverse osmosis. | [1] |
| c) | What is fuel cell? | [1] |
| d) | Which methods are used to control the corrosion? | [1] |
| e) | Define plastics. | [1] |
| f) | What are conducting polymer? | [1] |
| g) | Give some examples of gaseous fuels. | [1] |
| h) | What are the main uses of natural gas? | [1] |
| i) | What are the main components of cement? | [1] |
| j) | Give some examples of thermos response materials. | [1] |

PART - B

(50 Marks)

- | | | |
|-----------|--|-------|
| 2.a) | What does mean by hardness of water and how to estimate the hardness of water. | |
| b) | Explain sludge and scale formation in boiler troubles. | [5+5] |
| OR | | |
| 3.a) | What is meant by caustic embrittlement? Explain. | |
| b) | Distinguish between the internal and external treatment of water. | [5+5] |
| | | |
| 4.a) | Give a brief note on batteries with examples. | |
| b) | Explain the concept of mechanism of electrochemical corrosion. | [5+5] |
| OR | | |
| 5.a) | Define solar cell and give some applications in modern technology. | |
| b) | What are the basic requirements for commercial batteries? | [5+5] |
| | | |
| 6.a) | Give an account on Nylon 6,6 and Terylene. | |
| b) | Write the preparations of PVC and Bakelite. | [5+5] |

QA QA QA QA QA QA QA QA QA

OR

- 7.a) What is an elastomer and list some of its properties.
- b) Explain the characteristics of conducting polymers.

[5+5]

QA QA QA QA QA QA QA QA QA

- 8.a) Describe fuels and their classification.
- b) Give a brief note on biodiesel.

[5+5]

OR

- 9.a) Write a short note on:
 - (i) Coal
 - (ii) Petroleum
- b) Explain the Trans-esterification process.

[5+5]

QA QA QA QA QA QA QA QA QA

- 10.a) What is Poly L-Lactic Acid (PLLA), and how is it synthesized.
- b) Write the differences between thick film and thin film lubrication.

[5+5]

OR

- 11.a) Describe the structures of Polyacryl and Poly vinyl amides and its properties.
- b) Write the classification of lubricants with examples.

[5+5]

QA QA QA QA QA QA QA QA QA

QA QA QA QA QA QA QA QA QA

QA QA QA QA QA QA QA QA QA

QA QA QA QA QA QA QA QA QA

QA QA QA QA QA QA QA QA QA