

I B. TECH II SEMESTER REGULAR EXAMINATIONS, SEPTEMBER - 2021
ENGINEERING CHEMISTRY
(COMMON TO CE AND ME)

Time : 3 Hours**Max. Marks : 70**

Note : Answer ONE question from each unit (5 × 14 = 70 Marks)
~~~~~

UNIT-I

1. a) Define polymerization. Explain the process of emulsion polymerization. [7M]  
b) Discuss recycling of e-plastic waste. [7M]

(OR)

2. a) Explain p-type doping of any conducting polymer. [7M]  
b) Describe preparation and properties of (i) Buna S and (ii) Thiokol rubber. [7M]

UNIT-II

3. a) Explain construction and working of calomel electrode. [7M]  
b) Differentiate between cathodic coatings and anodic coatings with suitable examples. [7M]

(OR)

4. a) Mention the reactions taking place in dry cell and zinc air cell. [7M]  
b) Explain the principle and process of electroplating with chemical equations. [7M]

UNIT-III

5. a) Elaborate on preparation of carbon nanomaterials by laser ablation method. [7M]  
b) Classify refractory materials and mention suitable example for each category. [7M]

(OR)

6. a) Define a lubricant and explain mechanism of lubrication. [7M]  
b) Discuss chemistry involved in setting and hardening of cement. [7M]

UNIT-IV

7. a) Define calorific value of a fuel. Distinguish between HCV and LCV. Mention the mathematical relation between them. [7M]  
b) Making use of a diagram, explain analysis of flue gas by Orsat's apparatus. [7M]

(OR)

8. a) Discuss the determination of the following elements in a coal sample by [7M]  
ultimate analysis: i) Carbon, ii) Hydrogen, iii) Sulphur.
- b) Differentiate petrol knocking from diesel knocking. Give examples of [7M]  
anti-knocking agents for petrol engines and diesel engines.

UNIT-V

9. a) Explain the process of softening of water by ion exchange method with the [7M]  
help of chemical equations and schematic diagram.
- b) Define boiler corrosion and caustic embrittlement. Outline the reasons for the [7M]  
both.

(OR)

10. a) Define reverse osmosis. With the help of a diagram, explain the process of [7M]  
reverse osmosis. Mention its advantages.
- b) Differentiate between priming and foaming. Mention the reasons for these [7M]  
problems observed in boilers.

\* \* \* \* \*