

**I B. Tech II Semester Supplementary Examinations, Jan/Feb-2024****ENGINEERING CHEMISTRY**

(Common to CE, ME, Agri E)

Time: 3 hours

Max. Marks: 70

*Answer any FIVE Questions One Question from Each Unit  
All Questions Carry Equal Marks*

**UNIT-I**

1. a) Discuss Emulsion polymerization method. [7M]  
b) Discuss on the plastic materials used in electronic gadgets. [7M]

**(OR)**

2. a) Write the preparation and applications of Thiokol and polyurethanes. [7M]  
b) Discuss biodegradable polymers. [7M]

**UNIT-II**

3. a) Write the construction and principle of Li-Ion battery and Zn air cell. [7M]  
b) Discuss the fuel cells with neat diagram (phosphoric acid and molten carbonate) [7M]

**(OR)**

4. a) Write a short on galvanic corrosion and stress corrosion. [7M]  
b) Explain the electro less plating. [7M]

**UNIT-III**

5. a) Discuss Sol-gel method for the preparation of Nano material. [7M]  
b) Discuss TGA and DTA. [7M]

**(OR)**

6. a) Define lubricants and write the applications of it. [7M]  
b) Write the hardening and deterioration of cement. [7M]

**UNIT-IV**

7. a) Calculate the gross and net calorific value of coal having following composition. [7M]  
C=80%, H=7%, o=3%, S=3.5%, N=2.1% and ash=4.4%.  
b) Write the proximate analysis of coal sample for the significance of coal. [7M]

**(OR)**

8. a) Discuss Octane and Cetane number. [7M]  
b) Write a note on synthetic petrol and Fisher Tropsch method. [7M]

**UNIT-V**

9. a) Write a short on caustic embrittlement and scale formation. [7M]  
b) Discuss on treatment of industrial waste water. [7M]

**(OR)**

- 10 a) Write a note on breakpoint chlorination and chlorination. [7M]  
b) Give a brief account on Ion Exchange Process. [7M]

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