



**B.Tech I Semester Supplementary Examinations, June 2024**  
**Engineering Chemistry**  
(Common to CSE, CSE(AI&ML) & CSE(DS))

Maximum Marks: 60

Date:01.07.2024 Duration: 3 hours

- Note: 1. This question paper contains two parts A and B.  
2. Part A is compulsory which carries 10 marks. Answer all questions in Part A.  
3. Part B consists of 5 Units. Answer any one full question from each unit.  
4. Each question carries 10 marks and may have a, b, c, d as sub questions.

**Part-A**

All the following questions carry equal marks (10x1M=10 Marks)			CO No.	Bloom Tx
1.	a	What is the magnetic nature of N <sub>2</sub> molecule.	CO1	II
	b	List the significance of doping in semiconductor.	CO1	I
	c	Mention the indicator used in EDTA titration. What is the end point?	CO2	I
	d	Give the benefits of reverse osmosis.	CO2	I
	e	List the cause of pitting corrosion.	CO3	II
	f	What is the difference between a cell and a battery?	CO3	II
	g	Define cracking.	CO4	II
	h	Give the significance of a higher Cetane rating.	CO4	III
	i	What are the repeating units of nylon-6,6?	CO5	I
	j	Why is sulfur used in vulcanization?	CO5	III

**Part-B**

Answer All the following questions. (5X10M=50Marks)				
2		Draw the Molecular orbital diagram of O <sub>2</sub> and F <sub>2</sub> and explain the same. (10)	CO1	IV
OR				
3		A. With a neat sketch, explain the $\pi$ -molecular orbitals of butadiene. (5) B. Discuss the Energy Bands for solids. (5)	CO1	III
4		A. Explain the ion exchange process in softening of water. (7) B. What are sludges? How are they prevented? (3)	CO2	III
OR				
5		A. Detail out the essential requirements of drinking water? (5) B. List out the methods by which potable water can be disinfected? (5)	CO2	II
6		Describe the anode, cathode and overall cell reactions of Zinc-air battery. (10)	CO3	IV
OR				

7	Discuss the different types of corrosions and the factors affecting rate of corrosion. (10)	CO3	II
8	Give a detailed procedure for the determination of various components present in coal (proximate analysis). (10)	CO4	III
	OR		
9	Write about the uses, advantages and disadvantages of any two gaseous fuels. (10)	CO4	II
10	A. Discuss the classification of natural rubber and process of vulcanization of Rubber. (6) B. Write about the preparation, properties and applications of PVC. (4)	CO5	II
	OR		
11	A. Distinguish between addition and condensation polymerization. (5) B. Discuss the characteristics, properties and applications of Butyl rubber. (5)	CO5	III