VIGNAN'S INSTITUTE OF MANAGEMENT AND TECHNOLOGY FOR WOMEN
(An Autonomous Institution)
I-B.Tech.–I-Semester Regular Examinations, February-2025
ENGINEERING CHEMISTRY
(CSE)

Time: 3 Hours   **Max. Marks: 60**

(Answer All Questions)

Note: Question paper consists of Part-A & Part-B.
- **Part-A** for 10M, ii) **Part-B** for 50marks
- **Part A** is compulsory, consists of 10 sub questions from all units carrying equal marks.
- **Part-B** consists of **10 questions** (numbered from 2 to 11) carrying **10marks** each. From each unit there are 2 questions and the students should answer one of them. Hence the student should answer **5 questions** from **Part-B**.

PART-A   (10Marks)

1.a	Differentiate hard and soft water.	1M
1.b	Write an equation for Calgon conditioning of water.	1M
1.c	Differentiate primary and secondary battery.	1M
1.d	What is galvanic corrosion?	1M
1.e	Define Homopolymers and Co-Polymers.	1M
1.f	Differentiate Natural rubbers from Elastomers.	1M
1.g	Define Calorific value of a fuel.	1M
1.h	Define Knocking	1M
1.i	Define setting and hardening of cement.	1M
1.j	Define lubricant. Write the classification.	1M

PART-B   (50Marks)

2.a)	What is potable water? Explain the various steps involved in the treatment of potable water	5M
b)	Explain the estimation of hardness of water by EDTA complex metric method.	5M

OR

3.a)	Discuss Reverse Osmosis method for the desalination of brackish water with the help of a neat diagram.	5M
b)	Explain causes, effects and prevention of Caustic embrittlement.	5M

4.a)	Explain the construction, working and applications of Methanol Oxygen fuel cell.	5M
b)	Write applications of solar cells.	5M

<div align="center">OR</div>

5.a) Explain Cathodic Protection.   5M

b) Explain Galvanic, Pitting & water-line corrosion.   5M

6.a) Explain the mechanism of the Free radical chain polymerization with   5M
suitable examples.

b) Discuss the preparation, properties and applications of Teflon and   5M
Bakelite

<div align="center">OR</div>

7.a) Describe the preparation, properties and uses of Buna-Sand Thiokol   5M
rubber.

b) Explain Vulcanisation of natural rubber   5M

8.a) Explain Ultimate analysis of coal and its significance.   5M

b) Explain moving bed catalytic cracking.   5M

<div align="center">OR</div>

9.a) Explain synthesis of petrol by Fischer-Tropsch's process.   5M

b) What is knocking, and how do octane and cetane ratings help   5M
prevent knocking in gasoline and diesel engines, respectively

10.a) Explain the types of smart materials and write their applications.   5M

b) Explain the determination of flash and fire point of a lubricant.   5M

<div align="center">OR</div>

11.a) What are thermoresponsive materials, and how do polyacrylamide   5M
and polyvinyl amides exhibit thermoresponsive behavior?

b) What is lubrication? Explain the mechanism of thick film   5M
lubrication.

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