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**VIGNAN'S INSTITUTE OF MANAGEMENT AND TECHNOLOGY FOR WOMEN**

**(An Autonomous Institution)**

I-B.Tech.-I-Semester Regular Examinations, February-2025

**ENGINEERING CHEMISTRY**

**(Common to IT & CSE [DS])**

**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 Mention the salts causing temporary hardness? 1M
- 1.b What is colloidal conditioning? 1M
- 1.c What are secondary batteries give examples? 1M
- 1.d Write the cause of corrosion? 1M
- 1.e What is vulcanization ? 1M
- 1.f Name the monomer units in Nylon 6,6? 1M
- 1.g Write Dulong's formula 1M
- 1.h What is the composition of CNG? 1M
- 1.i Write the functions of lubricants? 1M
- 1.j Write the applications of polyacrylamides? 1M

**PART-B**

**(50Marks)**

- 2.a) Describe the demineralisation of water by ion exchange method with neat diagram 5M
- b) Explain the desalination of water by reverse osmosis 5M

OR

- 3.a) 100 ml of sample of water required 25ml of 0.01 M EDTA for the titration using Eriochrome Black-T indicator. Calculate total hardness of the water? 5M
- b) Explain break point chlorination? 5M
- 4.a) Describe the construction and working of lithium ion battery and mention the chemical reactions involved during charging and discharging? 5M
- b) What is the principle involved in the cathodic protection? how can you protect the buried pipe lines by impressed current method ? 5M

OR

- 5.a) Differentiate battery and fuel cell ? 5M  
b) Describe the construction and applications of Methanol Oxygen fuel cell ? 5M

- 6.a) How will you differences between thermoplastic and thermosetting polymers 5M  
b) Write the preparation properties and applications of Teflon and Butyl Rubber 5M

OR

- 7.a) Discuss the mechanism of addition polymerisation 5M  
b) What are biodegradable polymers? Write the applications of polylactic acid? 5M

- 8.a) What are different types of fuels? Write the characteristics of good fuel? 5M  
b) Explain different types of cracking? 5M

OR

- 9.a) Describe the fractional distillation of petroleum? 5M  
b) Write a short note on biodiesel with example? 5M

- 10.a) Write the chemical reactions involved and setting and hardening of portland cement? 5M  
b) Write the classification and applications of smart materials? 5M

OR

- 11.a) Explain the properties of lubricant? 5M  
b) Describe the mechanism of thick film lubricant and mention the lubrication used in it? 5M

\*\*\*VMTW\*\*\*