

**PRAGATI ENGINEERING COLLEGE: SURAMPALEM**  
(AUTONOMOUS)  
**I B.Tech I Semester Supplementary Examinations, July – 2024**

**ENGINEERING CHEMISTRY**  
(Common to CE and ME)

Time: 3 hours

Max. Marks: 70

Answer ONE Question from each Unit  
All Questions Carry Equal Marks

Q. No.		Questions	BTL	CO	Marks
UNIT – I					
1.	a)	Enlist the various disadvantages of hard water for domestic use.	K3	CO1	7M
	b)	Discuss the softening of hard water by ion exchange method.	K2	CO1	7M
OR					
2.	a)	List the specifications for drinking water based on guidelines from international organizations	K2	CO1	7M
	b)	Apply reverse osmosis process in desalination of brackish water with neat sketch.	K3	CO1	7M
UNIT – II					
3.	a)	Analyze the electrochemical series and evaluate its applications in various industries.	K3	CO2	7M
	b)	Demonstrate the principle and applications of photovoltaic cell.	K4	CO2	7M
OR					
4.	a)	State Nernst equation. Write its limitations.	K1	CO2	7M
	b)	Describe the construction and working H <sub>2</sub> -O <sub>2</sub> fuel cell.	K2	CO2	7M
UNIT – III					
5.	a)	Discuss the factors that influence on rate of corrosion.	K3	CO3	7M
	b)	Summarize the constituents of paint and their functions.	K2	CO3	7M
OR					
6.	a)	What is cathodic protection? With suitable examples, explain by control of corrosion by sacrificial anode method.	K2	CO3	7M
	b)	Distinguish between electroplating and electroless plating.	K3	CO3	7M
UNIT – IV					
7.	a)	Differentiate between Thermoplastics and Thermosetting plastics.	K2	CO4	7M
	b)	Outline the preparation, properties and applications of Bakelite.	K3	CO4	7M
OR					
8.	a)	Describe the process of manufacture of cement by wet process.	K1	CO4	7M
	b)	What is vulcanization of rubber? Give its applications.	K2	CO4	7M
UNIT – V					
9.	a)	Illustrate the synthesis of nanomaterials by sol-gel method.	K3	CO5	7M
	b)	List the applications of smart materials.	K1	CO5	7M
OR					
10.	a)	Outline the preparation, properties and application of fullerenes.	K2	CO5	7M
	b)	Categorized the applications of nano materials in various fields.	K1	CO5	7M