R22 Regulation *Subject code:4H1AH*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

(Autonomous, Accredited by NAAC with 'A+' Grade)

B.Tech I Semester Supplementary Examinations, January 2026

ENGINEERING CHEMISTRY

(Common to CSE, CSE (AI&ML) & CSE(DS))

Maximum Marks: 60 Date: 07.01.2026 Duration: 3 hours

Note: 1.This question paper contains two parts A and B.
2. Part A is compulsory which carries 20 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)		Marks	CO	BTL
1.a	What is the magnetic property of N_2 molecule?	1M	1	L1
b	What is Doping?	1M	1	L1
c	Define Temporary hardness?	1M	2	L1
d	Define Sludge and Scale?	1M	2	L1
e	Define Corrosion.	1M	3	L1
f	List the applications of Li-ion battery.	1M	3	L1
g	Define calorific value of fuel?	1M	4	L1
h	What is cracking? Classify it?	1M	4	L1
i	Write the chemical reaction for the preparation of PVC?	1M	5	L1
j	Differentiate between thermoplastics and thermosetting plastics?	1M	5	L1

Part-B

Answer All the following questions. (5X10M=50Marks)		Marks	CO	BTL
2	Explain the molecular energy level diagram of O_2 molecule.	10M	1	L2
	OR			
3	Explain about band theory in solids?	10M	1	L2
4	Describe the ion-exchange process for the removal of hardness of water with a net diagram?	10M	2	L2
	OR			
5	Outline various steps involved in the treatment of potable water?	10M	2	L2
6	Write in details about i) Zinc air batteries and ii) Solid oxide cell.	10M	3	L2
	OR			
7	Explain the mechanism of Electrochemical (wet) corrosion.	10M	3	L2
8	Explain the preparation of Synthetic petrol by fischer –Tropsch Synthasis	10M	4	L2
	OR			
9	Explain proximate analysis of coal. Mention its significance?	10M	4	L2

10	Explain the preparation, properties and engineering applications of following. a) PVC b) Teflon.	10M	5	L2
	OR			
11	Write addition and condensation polymerization by taking one example for each.	10M	5	L2