R22 Regulation *Subject code:4B2AD*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech II Semester Supplementary Examinations, June 2026

APPLIED CHEMISTRY

(Common to CE & EEE)

Maximum Marks: 60 Date: 24.06.2026 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 meant by Hardness of water?	1M	1	L2
b	Write the Calgon formula.	1M	1	L1
c	Define Battery.	1M	2	L1
d	What is meant by rusting of iron?	1M	2	L1
e	Explain vulcanization of natural rubber.	1M	3	L2
f	What is degree of polymerization of a polymer?	1M	3	L1
g	What is knocking?	1M	4	L1
h	What are characteristics of a good fuel?	1M	4	L2
i	Define Lubricants with suitable example?	1M	5	L1
j	Write the Compositions of Cement?	1M	5	L1

Part-B

Answer All the following questions. (5X10M=50Marks)		Marks	CO	BTL
2	a) Explain the ion exchange process in the softening of water. b) Write a note on Reverse Osmosis.	6M 4M	1	L3 L3
	OR			
3	a) Explain the reasons for scale and sludge formation and write their disadvantages in boilers? b) Write about phosphate conditioning and Calgon conditioning.	5M 5M	1	L2 L3
4	a) Explain about Methanol-O_2 fuel cells. b) Write the application of Li-ion Battery.	5M 5M	2	L3 L2
	OR			
5	a) Give brief account on Dry corrosion. b) Describe about pitting corrosion.	7M 3M	2	L2 L2
6	Give preparation, properties, and engineering applications of PVC and Bakelite.	10M	3	L3

	OR			
7	Explain the mechanism of conduction in conducting polymers with respect to trans polyacetylene.	10M	3	L3 L2
8	a) What is cracking? How is gasoline obtained by moving bed catalytic cracking? b) Write a short note each on CNG and LPG.	6M 4M	4	L2
	OR			
9	a) How is coal analyzed by proximate analysis? Give its significance. b) Calculate the LCV of fuel having 4% of hydrogen, whose gross calorific value is 8.828 K cal/kg.	7M 3M	4	L2 L2
10	Write the steps involved in production of Cement with Neat Diagram?	10M	5	L2
	OR			
11	Explain the mechanism of Fluid Lubrication.	10M	5	L2