R25 Regulation *Subject code:5BS1AB*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech I Semester Supplementary Examinations, June 2026

ENGINEERING CHEMISTRY

(Common to CE, EEE, ECE, CSE(DS) & IT)

Maximum Marks: 60 Date:23.06.2026 Duration: 3 hours

Note: **1.This question paper contains two parts A and B.**
2. Part A is compulsory which carries 10 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 (5X2M=10Marks)		Marks	CO	BTL
1.a	What are the methods used for disinfection of water	2M	1	1
b	Define Standard electrode potential.	2M	2	1
c	List differences between primary and secondary batteries.	2M	3	1
d	Define polymerization.	2M	4	1
e	Write any two properties of lubricants?	2M	5	1

Part-B

Answer All the following questions. (5X10M=50Marks)		Marks	CO	BTL
2	a) What are the essential requirements of potable water? Explain the various steps involved in the supply of water in a municipality or for domestic use. b) 0.05g of $CaCO_3$ was dissolved in dil. HCl and diluted to 1000 mL. 50 mL of this solution requires 48 mL of EDTA solution for titration. 50 mL of hard water sample requires 15 mL of EDTA solution for titration. 50 ml of same water sample after boiling, filtering, requires 10 mL of EDTA solution. Calculate the different kinds of hardness of water in ppm.	7M 3M	1	2
	OR			
3	a) Give a detailed account on Sales & sludges. b) Explain in detail of Calgon conditioning, Phosphate conditioning and Colloidal conditioning.	4M 6M	1	2
4	a) Explain Galvanic and pitting corrosion. b) Write the Construction, working and determination of pH of unknown solution using calomel electrode.	5M 5M	2	2
	OR			
5	a) Write about Galvanic cell and its cell representation. b) Explain Corrosion control methods and give in detail.	5M 5M	2	2

6	a) Explain construction, working principle and applications of Zn-air batteries. b) Explain the construction and working of a Lithium-ion battery with reactions taking place during charging and discharging	5M 5M	3	2
	OR			
7	a) Differentiate between a battery and a fuel cell b) Define Cracking and explain the moving bed catalytic cracking in brief.	3M 7M	3	5
8	a) Explain steps involved in free radical polymerization mechanism with suitable example. b) Write the preparation, properties and applications of PVC.	5M 5M	4	2
	OR			
9	a) Write the differences between Thermoplastics and Thermosetting plastics. b) State the mechanism of conduction in trans-poly-acetylene with some applications.	5M 5M	4	5
10	a) Define Biosensor and explain about Amperometric Glucose monitor sensor b) Differentiate between Piezoelectric and quartz materials with engineering applications.	5M 5M	5	1
	OR			
11	Explain the setting and hardening of cement with relevant chemical reactions involved in it	10M	5	2