



R22 Regulation

Subject code:4B2AD

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech II Semester Supplementary Examinations, January 2026

APPLIED CHEMISTRY

(Common to CE & EEE)

Maximum Marks: 60

Date: 27.01.2026

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	Why do you express hardness of water in CaCO ₃ equivalence?	1M	1	L2
b	What is breakpoint chlorination?	1M	1	L1
c	Write the differences between battery and a fuel cell.	1M	2	L3
d	What are the effects of corrosion?	1M	2	L1
e	Explain vulcanization of natural rubber.	1M	3	L2
f	What are biodegradable polymers and give example.	1M	3	L1
g	Define LCV.	1M	5	L1
h	Discuss the preparation of Biodiesel.	1M	5	L2
i	Write the composition of Portland cement.	1M	4	L1
j	What are the types of lubrication mechanisms?	1M	4	L1

Part-B

Answer All the following questions. (5X10M=50Marks)		Marks	CO	BTL
2	a) Discuss the various steps involved in the treatment of potable water.	6M	1	L3
	b) Calculate temporary and permanent hardness of water sample which contains the following salts. Ca(HCO ₃) ₂ = 16.2 ppm, Mg (HCO ₃) ₂ = 14.6 ppm, MgCl ₂ = 9.5 ppm, MgSO ₄ = 6.0 ppm.	4M	1	L3
OR				
3	a) Explain in detail about scale and sludge and their prevention methods.	5M	1	L2
	b) Describe the reverse osmosis method and its importance.	5M	1	L3
4	a) Describe the construction, working and applications of Lithium-ion battery.	5M	2	L3
	b) Define battery. Discuss the basic requirements for commercial batteries.	5M	2	L2
OR				
5	a) Describe the factors effecting rate of corrosion.	8M	2	L2
	b) Explain Galvanic corrosion.	2M	2	L2

6	a) Write the differences between thermoplastic and thermosetting polymers.	5M	3	L3
	b) Write the properties, preparation & applications of PVC.	5M	3	L2
OR				
7	a) Discuss the characteristics and classification of conduction polymers.	5M	3	L3
	b) Discuss the preparation, properties and applications of Butyl rubber.	5M	3	L2
8	Describe the proximate analysis of coal and its significance.	10M	4	L2
OR				
9	Explain Fischer-Tropsch's process for synthetic petrol.	10M	4	L3
10	a) Explain the setting hardening of cement with relevant chemical reactions involved in it.	6M	5	L2
	b) Explain the classification of lubricants with examples	4M		L2
OR				
11	a) Discuss the important properties of lubricants for their evaluation.	6M	5	L2
	b) Write the characteristics of good refractory.	4M		L1