R18 Regulation *Subject code:2B2AC*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech II Semester Supplementary Examinations, June 2026

ENGINEERING CHEMISTRY

(Common to CE, EEE, ME & IT)

Maximum Marks: 70 Date: 19.06.2026 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 (10X2M=20 Marks)		Marks	CO	BTL
1	What is the bond order and magnetic property of 'CO' molecule?	2M	1	L1
2	Define break point chlorination.	2M	1	L1
3	Write the energy order of crystal field splitting in square planar complexes.	2M	2	L1
4	Calculate magnetic nature of oxygen molecule momentum	2M	2	L1
5	Write the overall reaction of lead – acid storage battery.	2M	3	L1
6	Explain why hard water does not produce lather with soap.	2M	3	L1
7	Define optical activity.	2M	4	L1
8	What are enantiomers? Explain with one example.	2M	4	L1
9	Write two applications of IR spectroscopy.	2M	5	L1
10	What are the reflection rules for UV – visible / electronic spectroscopy.	2M	5	L1

Part-B

Answer All the following questions. (5X10M=50Marks)		Marks	CO	BTL
11	Construct molecular orbital energy level diagram of O_2 molecule.	10M	1	L2
	OR			
12	a) Write molecular orbitals of Benzene. b) Discuss the crystal field splitting in octahedral complexes in detail.	5M 5M	1	L2
13	Explain the hardness of water and estimate the hardness of water by complexometric method.	10M	2	L2
	OR			
14	a) Explain ion exchange process. b) What is break point chlorination and mention its advantages?	5M 5M	2	L2
15	How to determine PH of unknown solution by using Quin hydrone electrode.	10M	3	L2
	OR			
16	a) Define Batteries and explain lead-acid storage cell.	5M	3	L2

	b) Explain factors effecting rate of corrosion?	5M		
17	Write the conformation isomerism of n – butane.	10M	4	L2
	OR			
18	Write the synthesis and pharmaceutical applications of Aspirin and Paracetamol.	10M	4	L2
19	a) Explain selection rules of electronic spectroscopy. b) Explain rotational and vibration spectroscopy and its selection rule.	5M 5M	5	L2
	OR			
20	a) Explain application of MRI. b) Write the applications of IR Spectroscopy.	5M 5M	5	L2