R20 Regulation *Subject code:3B1AG*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B. Tech I Semester Supplementary Examinations, June 2026

ENGINEERING CHEMISTRY

(EEE)

Maximum Marks: 70 Date: 20.06.2026 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 (10X2M=20 Marks)		Marks	CO	BTL
1	What is the bond order in 'O_2'molecule?	2M	1	L1
2	Write any two differences between bonding and anti-bonding molecular orbitals?	2M	1	L1
3	How can you remove temporary hardness?	2M	2	L1
4	What is meant by hardness of water?	2M	2	L1
5	What is electrochemical series write any two applications?	2M	3	L1
6	Define single electrode potential and stanadard electrode potential?	2M	3	L1
7	Define electrode potential?	2M	4	L1
8	Define octane number?	2M	4	L1
9	What is knocking?	2M	5	L1
10	What is the cetane number of diesel fuel?	2M	5	L1

Part-B

Answer All the following questions. (5X10M=50Marks)		Marks	CO	BTL
11	Write about postulates of MOT and Construct the molecular orbital energy level diagram of F_2 molecules?	10M	1	L2
	OR			
12	Explain the effect of doping in semiconductors?	10M	1	L2
13	Describe the estimation of hardness of water by EDTA method?	10M	2	L2
	OR			
14	Outline various steps involved in the treatment of potable water?	10M	2	L2
15	a) Explain the construction and working of the calomel electrode? b) What is electro chemical series? Write its significance and applications?	5M 5M	3	L2
	OR			
16	a) What are Secondary Batteries? Explain their working with Suitable example? b) Explain are fuel cells? Mention their applications?	5M 5M	3	L2

17	a) Write a note on cathodic protection. b) Explain the factors effecting rate of corrosion.	5M 5M	4	L2
	OR			
18	a) What is semi-water gas? Provide its average chemical composition? b) What is the importance of ultimate analysis of coal?	5M 5M	4	L2
19	a) Explain determination of Nitrogen in Ultimate analysis of coal? b) Explain which parameters are determined in proximate analysis?	5M 5M	5	L2
	OR			
20	a) Describe the fractional distillation of Petroleum? b) What is synthetic petrol? Discuss any one method to prepare synthetic petrol.	5M 5M	5	L2