R20 Regulation *Subject code:3B2AM*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B. Tech II Semester Supplementary Examinations, January 2026

APPLIED CHEMISTRY

(ECE)

Maximum Marks: 70 Date: 20.01.2026 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 magnetic nature of 'N_2'molecule?	2M	1	L1
2	What is meant by Doping in case of Semiconductors?	2M	1	L1
3	What is meant by Hardness of water?	2M	2	L1
4	What is reverse osmosis?	2M	2	L1
5	Write the overall reaction of lead – acid storage battery	2M	3	L1
6	What is electro chemical series?	2M	3	L1
7	Define Migration current?	2M	4	L1
8	Define Limiting current?	2M	4	L1
9	What is the finger print region in IR?	2M	5	L1
10	Write any two applications of UV spectroscopy?	2M	5	L1

Part-B

Answer All the following questions. (5X10M=50Marks)		Marks	CO	BTL
11	a) Explain the postulates of Molecular Orbital theory. b) Write the Energy level diagrams of O_2 and HF?	5M 5M	1	L2
	OR			
12	a) Explain the salient features of Crystal field theory. b) Write a note on factors affecting the magnitude of crystal field splitting?	5M 5M	1	L2
13	What is the principle of EDTA titration? How the permanent hardness of water is determined using EDTA method.	10M	2	L2
	OR			
14	a) Explain the treatment of potable water. b) Explain in detail about boiler corrosion.	5M 5M	2	L2
15	a) Derive Nernst equation for the potential of a single electrode. b) Explain glass membrane electrode.	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) Explain about the Principle and the types of Ampero metric titrations. b) Explain the construction and working of Dropping Mercury Electrode (DME).	5M 5M	4	L2
	OR			
18	a) Explain the principle and Instrumentation of Polarography. b) Explain the Principle & instrumentation of Voltametric titrations.	5M 5M	4	L2
19	a) Write a note on chemical shift? b) Explain the basic principle of NMR.	5M 5M	5	L2
	OR			
20	a) Explain the principle of rotational spectra of diatomic molecules. b) Write the application IR spectroscopy.	5M 5M	5	L2