R20 Regulation *Subject code:3B2AM*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech II Semester Supplementary Examinations, July 2025

APPLIED CHEMISTRY

(ECE)

Maximum Marks: 70 Date: 11.07.2025 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 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 MOT theory. b) Construct molecular orbital energy level diagram of F2 molecule.	5M 5M	1	L2
	OR			
12	a) Explain in detail about N, P type semiconductors. b) Explain the crystal field splitting in tetrahedral metal complexes.	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) What is meant by desalination of water? Explain reverse osmosis? b) What are scales and sludges? Write their disadvantages in Boilers?	5M 5M	2	L2
15	a) Explain the construction and working of the Glass electrode and how can we determine the pH Of unknown solution by using glass electrode. b) Derive Nernst equation?	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 Amperometric 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