



R20 Regulation

Subject code: 3B2AM

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech II Semester Supplementary Examinations, June 2024

Applied Chemistry

(ECE)

Maximum Marks: 70

Date:26.06.2024 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)

QUESTIONS		CO	Blooms Tx
1	Calculate the Magnetic momentum for $[\text{Ni}(\text{CO})_4]$?	1	Level 2
2	Write the differences between bonding and anti-bonding molecular orbitals?	1	Level 1
3	What is Calgon conditioning?	2	Level 3
4	What is reverse osmosis?	2	Level 4
5	How do you differentiate a Cell from Battery?	3	Level 2
6	Define half wave potential.	3	Level 1
7	Define Migration current.	4	Level 1
8	Define Limiting current.	4	Level 3
9	What is the finger print region in IR?	5	Level 3
10	Write any two applications of UV spectroscopy?	5	Level 4

Part-B

Answer All the following questions. (5X10M=50Marks)

11	(a) Explain the postulates of Molecular Orbital theory? (5M)	1	Level 2
	(b) Write the Energy level diagrams of O_2 and HF ? (5M)		Level 3
OR			
12	Explain the salient features of Crystal field theory and Write about crystal splitting in octahedral complexes? (10M)	1	Level 1
13	What is the principle of EDTA titration? How the permanent hardness of water is determined using EDTA method. (10M)	2	Level 3
OR			
14	(a) Explain the treatment of potable water. (5M)	2	Level 2
	(b) Explain in detail about boiler corrosion. (5M)		
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? (5M)	3	Level 3
	(b) Derive Nernst equation? (5M)		Level 2

	OR		
16	(a) What are Secondary Batteries? Explain their working with Suitable example? (5M) (b) Explain are fuel cells? Mention their applications? (5M)	3	Level 3 Level 2
17	(a) Explain the instrumentation of Amperometry? (5M) (b) Explain working principle of Cyclic Voltammetry? (5M)	4	Level 4 Level 3
	OR		
18	Write a Note on i) Diffusion current ii) Half wave potential iii) Residual current iv) Square wave polarography (10M)	4	Level 2
19	(a) Explain the principle involved in UV- Spectroscopy. (5M) (b) Write the applications of NMR (MRI)? (5M)	5	Level 4 Level 3
	OR		
20	(a) Explain the types of Molecular vibrations in IR spectroscopy? (5M) (b) Write the applications of IR spectroscopy? (5M)	5	Level 4 Level 3