



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 2024

Engineering Chemistry

(EEE)

Maximum Marks: 70

Date: 01.07.2024 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=20Marks)

		CO	Blooms Tx
1	What is the bond order in 'O ₂ ' molecule?	1	Level 2
2	What is meant by Doping in case of Semiconductors?	1	Level 1
3	How can you remove temporary hardness?	2	Level 3
4	What is reverse osmosis?	2	Level 4
5	How do you differentiate a Cell from Battery?	3	Level 2
6	What is electro chemical series? Write any two applications?	3	Level 1
7	Define electrode potential.	4	Level 1
8	Define Octane number.	4	Level 3
9	What is the difference between Gross and net calorific value?	5	Level 3
10	Define proximate analysis?	5	Level 4

Part-B

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

11	(a) Explain the postulates of MOT theory. [5M] (b) Construct molecular orbital energy level diagram of F ₂ molecule. [5M]	1	Level 2 Level 3
OR			
12	(a) Explain the salient features of Crystal field theory? [5M] (b) Write a note on factors affecting the magnitude of crystal field splitting? [5M]	1	Level 1 Level 4
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] (b) Explain in detail about boiler corrosion. [5M]	2	Level 2

15	(a) Derive Nernst equation for the potential of a single electrode. [5M] (b) Explain glass membrane electrode. [5M]	3	Level3 Level2
OR			
16	Explain the construction and working of Lead -acid storage battery and write its applications? [10M]	3	Level2
17	(a) Write a note on cathodic protection. [5M] (b) Explain the factors effecting rate of corrosion. [5M]	4	Level4 Level3
OR			
18	(a) Explain dry corrosion mechanism. [5M] (b) Explain impressed current cathodic protection. [5M]	4	Level2 Level3
19	(a) Explain determination of Ultimate analysis of coal. [5M] (b) Explain which parameters are determined in proximate analysis. [5M]	5	Level4 Level3
OR			
20	(a) Describe the fractional distillation of Petroleum. [5M] (b) What is synthetic petrol? Discuss any one method to prepare synthetic petrol. [5M]	5	Level4 Level3