R17 Regulation *Subject code: 1B2AB*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech I Year II Semester Supplementary Examinations, January 2024

Engineering Chemistry

(Common to CE & ME)

Maximum Marks: 70 Date: 23.01.2024 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 which carries 10M.
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**
1	Define Chlorination.	
2	How pitting corrosion can be controlled?	
3	Define the Standard Electrode Potential.	
4	Define electrochemical cells.	
5	Write the chemical reaction of Buna-S preparation.	
6	Write the applications of Conducting Polymers.	
7	Write the composition of natural gas and its uses.	
8	Explain the octane number.	
9	What is eutectic point?	
10	What are micelles? Give examples.	
	Part-B	
Answer All the following questions.		**5X 10M=50Marks**
11	a) Explain the principle, process, advantages and limitations of ion exchange method of softening of water. (5M) b) What are the specifications of potable water? Write the steps involved in the treatment of potable water. (5M)	
	OR	
12	a) Explain the Sludge and Scale. (5M) b) What is Caustic embrittlement? What are the causes and preventive methods of it? (5M)	
13	a) Explain briefly on Standard Hydrogen Electrode with diagram? (5M) b) Discuss the hydrogen-oxygen fuel cell and its advantages. (5M)	
	OR	
14	a) Draw the diagram and cell reaction of a dry cell? (5M) b) Write a cell reaction about 'Glass Electrode" with diagrammatically. (5M)	
15	a) Write Preparation & properties and application of Buna-S, Butyl and Thiokol rubber.	

	(5M) b) Define conducting polymer & Explain mechanism of trans-polyacetylene. (5M)
	OR
16	a) Explain the vulcanization of natural rubber. (5M) b) Write preparation & applications of PVC & Bakelite. (5M)
17	a) Explain the proximate analysis of coal. (5M) b) Explain the refining of petrol. (5M)
	OR
18	a) Explain Fisher-Tropsch method for preparation of synthetic petrol. (5M) b) What is calorific value of a fuel? Explain the different types of calorific values. (5M)
19	a) Define refractory. Explain about refractoriness, porosity and chemical inertness of refractory. (5M) b) What are the characteristics of a good lubricant? Give the mechanism of thin film lubrication. (5M)
	OR
20	a) What is the composition of Portland cement? Write the steps involved in setting and hardening of Portland cement. (5M) b) What are flash point and fire point of lubricant? Explain their significance. (5M)