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**PRESIDENCY UNIVERSITY
BENGALURU**

SET B

**SCHOOL OF ENGINEERING
END TERM EXAMINATION - JAN 2024**

Semester : Semester I - 2023

Course Code : CHE1017

Course Name : Applied Chemistry

Program : B.Tech.

Date : 13-JAN-2024

Time : 9:30AM - 12:30 PM

Max Marks : 100

Weightage : 50%

Instructions:

- (i) Read all questions carefully and answer accordingly.
 - (ii) Question paper consists of 3 parts.
 - (iii) Scientific and non-programmable calculator are permitted.
 - (iv) Do not write any information on the question paper other than Roll Number.
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PART A

ANSWER ALL THE QUESTIONS

4 X 5M = 20M

1. Define oxidation and reduction reactions in terms of electron transfer
(CO3,CO2,CO1,CO4) [Knowledge]
2. List the effects of corrosion
(CO2,CO1,CO3,CO4) [Knowledge]
3. Define the process of corrosion with an example
(CO4,CO3,CO2,CO1) [Knowledge]
4. Mention the advantages of polymers over conventional engineering materials
(CO4,CO1,CO2,CO3) [Knowledge]

PART B

ANSWER ALL THE QUESTIONS

5 X 10M = 50M

5. Discuss the synthesis properties and applications of Nylon-6,6
(CO1,CO2,CO3,CO4) [Comprehension]
6. Discuss the salient features of Electrochemical theory of corrosion
(CO1,CO2,CO3,CO4) [Comprehension]
7. Give the differences between a conventional battery and a fuel cell
(CO2,CO1,CO4,CO3) [Comprehension]

8. What is brackish water? Describe the process of removal of salts from brackish water by reverse osmosis method.
(CO1,CO4,CO3,CO2) [Comprehension]
9. Describe differential metal corrosion with suitable examples and preventive measures
(CO1,CO2,CO3,CO4) [Comprehension]

PART C

ANSWER ALL THE QUESTIONS

2 X 15M = 30M

10. (a) Explain Differential Aeration Corrosion with examples and preventive measures
(b) Discuss the corrosion control by anodic coating with suitable examples
(CO1,CO2,CO3,CO4) [Application]
11. Calculate the Total hardness, Temporary Hardness and Permanent Hardness of a water sample containing: $\text{Ca}(\text{HCO}_3)_2=10.2$ ppm, $\text{Mg}(\text{HCO}_3)_2=5.3$ ppm, $\text{CaCl}_2 = 21.2$ ppm $\text{CaSO}_4=12.5$ ppm, $\text{MgSO}_4=5.5$ ppm, $\text{MgCl}_2=15.6$ ppm. Express the hardness in degree French and degree Clarke
(Atomic Weights: Ca:40, Mg: 24, H: 1, C: 12, O:16, S: 32, Cl: 35.5, N: 14)
(CO4,CO3,CO2,CO1) [Application]