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PRESIDENCY UNIVERSITY BENGALURU

**SET-B**

SCHOOL OF ENGINEERING

**MAKE-UP EXAMINATION – JULY 2024**

**Semester :** Semester I & II

**Course Code :** CHE1017

**Course Name :**  - Applied Chemistry

**Program :**  B. Tech

**Date :** 09 JULY 2024

**Time :** 1:30 PM - 4:30 PM

# Max Marks : 100

**Weightage:** 50%

# Instructions:

1. *Read all questions carefully and answer accordingly.*
2. *Question paper consists of 3 parts.*
3. *Scientific and non-programmable calculator are permitted.*
4. *Do not write any information on the question paper other than Roll Number.*

**PART A**

**ANSWER ANY 10 QUESTIONS 10Q X 2M=20M**

1. What is corrosion? Provide an example?
2. Define elastomers and give an example.
3. Write down the difference between hard water and soft water.
4. Write the synthesis of Buna S.
5. Mention a few applications of silicone rubber.
6. Define electroless plating process.
7. Define Electrochemical Corrosion with example.
8. List out common boiler troubles?

(CO1,CO2,CO3,CO4) [Knowledge] (CO1,CO2,CO3,CO4) [Knowledge] (CO1,CO2,CO3,CO4) [Knowledge] (CO4,CO3,CO2,CO1) [Knowledge] (CO4,CO3,CO1,CO2) [Knowledge] (CO1,CO2,CO3,CO4) [Knowledge] (CO4,CO3,CO1,CO2) [Knowledge] (CO2,CO4,CO1,CO3) [Knowledge]

1. Which of the following salts does not cause hardness? a) NaCl, b) KHCO3 c) MgSO4 d) O2.

(CO2,CO1,CO4,CO3) [Knowledge]

1. Write about the different doping methods used in conducting polymers.

(CO4,CO3,CO2,CO1) [Knowledge]

1. Identify the primary and secondary batteries from the following options: a) Zn-Ag, b) Pb Acid, c) LiMnO2, and d) Laptop Battery.

(CO1,CO2,CO3,CO4) [Knowledge]

1. What is standard electrode potential, and what is its unit?

(CO2,CO3,CO4,CO1) [Knowledge]

**PART B**

**ANSWER ANY 8 QUESTIONS 8Q X 5M=40M**

1. List the various sources of water and detail the impurities found in wastewater.

(CO3,CO4,CO2,CO1) [Comprehension]

1. What is battery? Discuss the components of battery.

(CO2,CO1,CO3,CO4) [Comprehension]

1. Discuss the limitations of natural rubber and the advantages of synthetic rubber.

(CO3,CO4,CO2,CO1) [Comprehension]

1. Differentiate between electroplating and eletrolessplating.
2. Discuss the Synthesis and Applications of Nylon 6,6.

(CO1,CO4,CO3,CO2) [Comprehension] (CO1,CO4,CO2,CO3) [Comprehension]

1. Describe the process of water desalination using reverse osmosis.

(CO1,CO2,CO4,CO3) [Comprehension]

1. Define Protective Coating and elaborate on Anodic coating, providing an example.

(CO2,CO1,CO3,CO4) [Comprehension]

1. What are the differences between a fuel cell and a battery?

(CO3,CO4,CO2,CO1) [Comprehension]

1. Differentiate between addition and condensation polymerization processes.

(CO3,CO4,CO2,CO1) [Comprehension]

1. Identify the anode and cathode for a Fe-Cu cell, and provide the cell reactions along with its cell representation.

(CO2,CO4,CO3,CO1) [Comprehension]

**PART C**

**ANSWER ANY 4 QUESTIONS 4Q X 10M=40M**

1. What is differential aeration corrosion? Discuss the types of aeration corrosion: waterline corrosion and pitting corrosion.

(CO4,CO3,CO2,CO1) [Application]

1. Write about the construction, electrode reactions, cell output, and applications of the Zn-C dry cell.

(CO2,CO3,CO4,CO1) [Application]

1. Explain the synthesis of Bakelite. Discuss its properties and applications.

(CO4,CO3,CO2,CO1) [Application]

1. Describe the construction, chemical reactions occurring at the anode and cathode of a hydrogen- oxygen fuel cell, and its applications.

(CO4,CO3,CO2,CO1) [Application]

1. Calculate the Total hardness, Temporary Hardness and Permanent hardness of a water sample containing the following: Mg(HCO3)2 : 16 ppm; MgSO4 : 19.4 ppm; MgCl2 : 19.8 ppm; CaSO4 :10.5 ppm; CaCl2: 12.3 ppm. Express the water Hardness in mg/L, degree French and degree Clarke. (Atomic Weights: Ca:40, Mg: 24, H: 1, C: 12, O:16, S: 32, Cl: 35.5).

(CO2,CO3,CO1,CO4) [Application]

1. What is electroplating? Explain the electroplating of chromium in detail.

(CO2,CO1,CO4,CO3) [Application]