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PRESIDENCY UNIVERSITY

BENGALURU

SCHOOL OF ENGINEERING

SUMMER TERM END TERM EXAMINATION - AUGUST 2024

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| **Semester: SUMMER TERM** | **Date: 7-AUG-2014** |
| **Course Code : CHE1017** | **Time: 1:00 PM – 4:00 PM** |
| **Course Name : Applied Chemistry** | **Max Marks: 100** |
| **Program : B. Tech** | **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.*

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| **PART A** | | | |
| **ANSWER ANY 10 QUESTIONS 10 × 2 M = 20 M** | | | |
| 1. | Classify the given polymers as either natural or synthetic: a) PVC, b) Polythene, c) Resin, d) Cellulose. | (CO 1) | [Knowledge] |
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| 2 | Define corrosion and give an example. | (CO 3) | [Knowledge] |
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| 3 | Define wet corrosion. | (CO 3) | [Knowledge] |
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| 4 | Define natural polymer with an example. | (CO 1) | [Knowledge] |
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| 5 | Define conducting polymer. Give an example. | (CO 1) | [Knowledge] |
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| 6 | Define oxidation with an example. | (CO 2) | [Knowledge] |
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| 7 | Write two secondary factors that affect the rate of corrosion. | (CO 3) | [Knowledge] |
| 8 | What are the primary applications of batteries? | (CO 2) | [Knowledge] |
| 9 | Discuss the types of Electrochemical cells. | (CO 2) | [Knowledge] |
| 10 | Classify sources of Water with example. | (CO 4) | [Knowledge] |
| 11 | Define degree Clarke and write the relationship with ppm. | (CO 4) | [Knowledge] |
| 12 | What are brackish water and desalination process? | (CO 4) | [Knowledge] |

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| **PART B** | | | | | | |
| **ANSWER ANY 8 QUESTIONS 8 × 5 M = 40 M** | | | | | | |
| 13 | For Zn-Cu cell, identify its anode, cathode, and write cell reactions along with cell representation. | | | (CO 2) | [Comprehension] | |
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| 14 | Define hardness of water. Differentiate between temporary hardness and permanent hardness of water sample. | | | (CO 4) | [Comprehension] | |
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| 15 | What are the differences between a fuel cell and battery? | | | (CO 2) | [Comprehension] | |
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| 16 | Describe differential metal corrosion with suitable examples. | | | (CO 3) | [Comprehension] | |
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| 17 | Differentiate between electroplating and eletrolessplating. | | | (CO 3) | [Comprehension] | |
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| 18 | Discuss some limitations of Natural Rubber and advantages of synthetic rubber. | | | (CO 1) | [Comprehension] | |
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| 19 | | List out the effects of corrosion. | (CO 3) | | | [Comprehension] |
| 20 | | Describe the process of desalination of water by reverse osmosis. | (CO 4) | | | [Comprehension] |
| 21 | | Give the specifications of drinking water. | (CO 4) | | | [Comprehension] |
| 22 | | Discuss Synthesis and Applications of Nylon 6,6. | (CO 1) | | | [Comprehension] |

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| **PART C** | | | | | | |
| **ANSWER ANY 4 QUESTIONS 4 × 10 M = 40 M** | | | | | | |
| 23 | Write the construction, electrode reaction and application of Zn-C dry cell? | | | (CO 2) | | [Application] |
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| 24 | Discuss the synthesis, properties and application of Phenol Formaldehyde Resin (Bakelite). | | | (CO 1) | | [Application] |
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| 25 | Describe the construction, chemical reactions occurring at the anode and cathode of a hydrogen-oxygen fuel cell and Its application. | | | (CO 2) | | [Application] |
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| 26 | | Calculate the Temporary, Permanent hardness and Total hardness of a water sample containing the following: Mg(HCO3)2 : 16 ppm; MgSO4 : 19.4 ppm; MgCl2 : 19.8 ppm; Ca(HCO3)2 :10.5 ppm; CaSO4: 12.3 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). | (CO 4) | | [Application] | |
| 27 | | What are Boiler troubles? Discuss Scale and Sludge formation, Priming and foaming formation. How to prevent these troubles? | (CO 4) | | [Application] | |
| 28 | | Discuss in detail electrochemical theory of corrosion taking rusting of Iron as example | (CO 3) | | [Application] | |