**Code No.BS107HS**

**METHODIST COLLEGE OF ENGINEERING & TECHNOLOGY (An Autonomous Institution)**

**B.E. (CIVIL/MECH) I-Semester Supplementary Examination, March-2023**

**Subject: ENGINEERING CHEMISTRY**

**Time: 3 hours Max.Marks:60**

**Note: Missing data, if any, maybe suitably assumed.**

**PART-A**

**Answer All the questions.**

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| **Q.No.** | **Questions** | **Marks** | **CO** | **BTL** |
| **1. a** | **Differentiate between Electrolytic and Galvanic cells.** | **2** | **CO1** | **L4** |
| **b** | **What are the advantages of Lithium-ion batteries?** | **2** | **CO1** | **L1** |
| **c** | **Explain pitting corrosion.**  | **2** | **CO2** | **L2** |
| **d** | **What is breakpoint of chlorination? Explain.** | **2** | **CO2** | **L1** |
| **e** | **What are biodegradable polymers? Give one example.** | **2** | **CO3** | **L1** |
| **f** | **Define Co-polymerization? Give an example?** | **2** | **CO3** | **L1** |
| **g** | **Define Octane number and give its significance.** | **2** | **CO4** | **L1** |
| **h** | **Explain carbon neutrality.** | **2** | **CO4** | **L2** |
| **i** | **Write about Porosity.** | **2** | **CO5** | **L6** |
| **j** | **What are refractories give examples.** | **2** | **CO5** | **L4** |

**PTO**

**PART-B**

**Answer Any Five questions**.

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| **Q.No.** |  |  **Questions** | **Marks** | **CO** | **BTL** |
| **2.** | **a** | **Explain the determination of pH of a solution by using Quinhydrone electrode.** | **4** | **CO1** | **L2** |
| **b** | **Standard electrode potential of Zn+2 is(-0.076V).Calculate the electrode potential of 2M Zn+2 solution at 300K.** | **4** | **CO1** | **L3** |
| **3.** | **a** | **Explain Electro chemical corrosion.** | **4** | **CO2** | **L1** |
| **b** | **Explain the method of removal of hardness of water by Ion-Exchange method .** | **4** | **CO2** | **L2** |
| **4.** | **a** | **Write the preparation, properties and applications of Bakelite.** | **4** | **CO3** | **L6** |
| **b** | **Write the mechanism of conduction in poly-acetylene.** | **4** | **CO3** | **L6** |
| **5.** | **a** | **Explain the catalytic cracking by moving bed method.** | **4** | **CO4** | **L2** |
| **b** | **Calculate GCV and NCV of a coal sample having chemical composition of C=80%, H=7%, S=3.5%, N=2.1%,O=3% and Ash=4.4%.** | **4** | **CO4** | **L3** |
| **6.** | **a** | **What are lubricants and write their properties.** | **4** | **CO5** | **L1** |
| **b** | **Explain the term (i) Thermal spalling (ii) Refractoriness.** | **4** | **CO5** | **L2** |
| **7.** | **a** | **Describe the construction and working of Hydrogen-Oxygen fuel cell** | **4** | **CO1** | **L1** |
| **b** | **Describe the method of softening of water by Reverse Osmosis.** | **4** | **CO2** | **L1** |
| **8.** | **a** | **Distinguish between thermoplastics and thermosetting resins.** | **4** | **CO3** | **L2** |
| **b** | **Describe the fractional distillation of petroleum with a well labeled diagram.** | **4** | **CO4** | **L1** |
| **9.** | **a** | **Write about Portland Cement and Puzzolana Cement.** | **4** | **CO5** | **L6** |
| **b** | **Explain the concept of Trans esterification.** | **4** | **CO4** | **L2** |

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