**Code No.BS206HS**

**METHODIST COLLEGE OF ENGINEERING & TECHNOLOGY**

**(An Autonomous Institution)**

**B.E. (EEE/ECE) I-Semester (Supplementary) Examination, September-2023**

**Subject: 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** | What are the monomers of Buna-S and Nylon6,6 Polymers | **2** | **3** | **1** |
| **b** | What are the characteristics of good fuel | **2** | **4** | **1** |
| **c** | What is clean technology give one example | **2** | **5** | **3** |
| **d** | Differentiate between metallic and electrolytic conductors | **2** | **1** | **2** |
| **e** | Calculate the single electrode potential of Zn+2 (0.01M)|Znat 250C  given Eº Zn+2 | Zn = - 0.76 V. | **2** | **1** | **5** |
| **f** | Define cetane number. | **2** | **2** | **4** |
| **g** | What are conducting polymers? Why do they conduct electricity? | **2** | **3** | **1** |
| **h** | Give classification of chemical fuels with examples | **2** | **4** | **1** |
| **i** | What is the pitting corrosion. Explain? | **2** | **2** | **1** |
| **j** | What is Bakelite ? Write any 2 applications of Bakelite | **2** | **3** | **1,2** |

**PTO**

**PART-B**

**Answer Any Five questions**.

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| **Q.No.** |  | **Questions** | **Marks** | **CO** | **BTL** |
| **2.** | **a** | Derive Nernst equation and give its applications. | **8** | **1** | **2** |
| **b** | Calculate the EMF for the cell : Zn │ Zn +2 ││ Ag + │ Ag given EOZn+2 │Zn = - 0.762 V  and EO Ag + │ Ag = 0.8 V |  | **1** | **5** |
| **3.** | **a** | Describe ion exchange process of softening of water. | **8** | **2** | **2** |
| **b** | A sample of water contains the following impurities :Mg(HCO3)2=29.2 mg/l, Ca(HCO3)2 =32.4,CaCl2=22.2 mg/l, MgSO4=120 mg/l and NaCl =40 mg/L. Calculate temporary hardness and permanent hardness in ppm. |  | **2** | **5** |
| **4.** | **a** | Explain Addition, Condensation polymerization reactions with examples | **8** | **3** | **1** |
| **b** | Differentiate between thermoplastics and thermosetting resins. |  | **3** | **1** |
| **5.** | **a** | Explain moving bed catalytic cracking of heavy oil. | **8** | **4** | **2** |
| **b** | What is meant by knocking? How to improve anti knocking of fuel. |  | **4** | **1** |
| **6.** | **a** | What is the requirement of Green Chemistry in today’s scientific world? Illustrate with examples. | **8** | **5** | **4** |
| **b** | Write a note on Trans-esterification in Biodiesel formation**.** |  | **5** | **2** |
| **7.** | **a** | Describe the working of Glass – electrode With the help of neat-labeled diagram | **8** | **1** | **1** |
| **b** | Explain Dry corrosion. |  | **1** | **1** |
| **8.** | **a** | What is pitting corrosion? Explain? | **8** | **2** | **1** |
| **b** | Explain the rusting of iron metal with the help of electrochemical theory of corrosion |  | **2** | **3** |
| **9.** | **a** | Write preparation, properties and uses of polylactic acid | **8** | **3** | **2** |
| **b** | Describe proximate analysis of coal |  | **4** | **2** |

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