**CAMBRIDGE INSTITUTE OF TECHNOLOGY**

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**Department of Basic Sciences**

**QUESTION BANK for First Internal Assessment –Odd Semester 2023-24**

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| **Sub. Name**: Applied Chemistry for Computer Science & Engineering stream | S**ub. Code**:BCHES102 | **Semester**: I |

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| 1. Define metallic corrosion? Describe the electrochemical theory of corrosion taking iron as an example. |
| 1. Discuss the following types of Corrosion:   **a.** Differential Metal Corrosion **b.** Differential aeration Corrosion |
| 1. What is cathodic protection? Describe galvanizing and mention its applications. |
| 1. What is cathodic protection? Describe anodizing of Aluminium and mention its applications. |
| 1. What is cathodic protection? Explain sacrificial anode method and its advantages and disadvantages. |
| 1. What is CPR? A thick brass sheet of area 400 inch 2 is exposed to moist air. After 2 years of period, it was found to experience a weight loss 375 g due to corrosion. If the density of brass is 8.73 g/cm3. Calculate CPR in mpy and mmpy. |
| 1. What are concentration cell? Explain the construction and working of concentration cell. |
| 1. What are reference electrodes? Explain the construction, working and application of Calomel electrode. |
| 1. What are ion selective electrodes? Explain the construction and working of ion selective electrode and how it can be used for the determination of pH of a solution. |
| 1. Explain potentiometric estimation of Iron. |
| 1. Explain the Conductometric estimation of weak acid using a strong base. |
| 1. Define number average and weight average molecular weight. A polydisperse sample of polystyrene is prepared by mixing three monodisperse samples in the following proportions. 1g of 10000 molecular weight, 2g of 50000 molecular weight and 2g of 100000 molecular weight. Determine number average and weight average molecular weight. Find the index of polydispersity. |
| 1. Explain the synthesis, conduction mechanism and applications of Polyacetylene. |
| 1. Explain the preparation, properties, and commercial applications of graphene oxide. |
| 1. Explain the preparation, properties, and commercial applications of Kevlar. |
| 1. In a sample of a polymer, 20% molecules have molecular mass 15000 g/mol, 35% molecules have molecular mass 25000 g/mol, and remaining molecules have molecular mass 20000 g /mol, calculate the number average and weight average molecular mass of the polymer, Calculate PDI and comment on it. |
| 1. Emf of the cell Ag/AgNO3(0.001M) // AgNO3(xM) /Ag is 0.0659 V at 298K. Write the cell representation, cell reactions and calculate the value of x. |