

--	--	--	--	--	--	--	--	--	--



DMI-ST. EUGENE UNIVERSITY

ZAMBIA

DEGREE EXAMINATION – DECEMBER 2024

Semester: II

800CH204 CHEMISTRY II

Time: 3:00 Hours

Max. Marks: 100

Answer any FIVE Questions (5 x 20 = 100 Marks)

- Discuss the differences in atomic arrangement, mechanical properties, and thermal behavior between amorphous and crystalline solids, with examples of each type. **(10 Marks)**
 - Analyze the types of defects (point defects, dislocations, grain boundaries) and how they affect mechanical, electrical, and thermal properties of materials. **(10 Marks)**
- Describe the Working Principle of an Electrochemical Cell using a well labelled diagram and Illustrate the difference between anode and cathode reactions. **(10 Marks)**
 - With neat diagrams, discuss the differences between types of electrochemical cells. **(10 Marks)**
- Explain how temperature affects the rate of a chemical reaction. Include in your answer how kinetic molecular theory and activation energy play a role in this process. **(10 Marks)**
 - Define the role of a catalyst in chemical reactions. How do catalysts affect the activation energy of a reaction, and why are they important in both biological and industrial processes? **(10 Marks)**
- Discuss the classification of amines into primary, secondary, and tertiary based on their structure. **(10 Marks)**
 - Explain the basicity of amines. **(5 Marks)**
 - Describe two ways of preparing amines. **(5 Marks)**

5. a) Explain the methods of polymerization. **(10 Marks)**
b) Discuss the formation of Nylon and Polyester. **(10 Marks)**
6. a) Describe the different types of bonding (ionic, covalent, metallic, van der Waals, hydrogen bonding) and explain how each type influences the properties of solids. **(10 Marks)**
b) Discuss the structure of a crystal lattice, unit cells, and how they define the symmetry and properties of solids. Provide examples of different crystal systems. **(10 Marks)**
7. a) How Does Corrosion Occur and How Can It Be Prevented? **(10 Marks)**
b) Discuss key areas where corrosion plays a role in food science. **(10 Marks)**