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| **University of Kerala** | | |
| Discipline: CHEMISTRY |  | Time: 1 Hour 30 Minutes (90 Mins.) |
| Course Code: UK1DSCCHE103 |  | Total Marks: 42 |
| Course Title: FOUNDATIONS OF INORGANIC & POLYMER CHEMISTRY |  |  |
| Type of Course: DSC |  |  |
| Semester: 1 |  |  |
| Academic Level: 100-199 |  |  |
| Total Credit: 4, Theory: 3 Credit |  |  |

**Part A.**

**6 Marks. Time: 6 Minutes**

**Objective Type. 1 Mark Each. Answer All Questions**

**(Cognitive Level: Remember/Understand)**

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| **Qn.**  **No.** | **Question** | **Cognitive**  **Level** | **Course Outcome (CO)** |
| 1. | What are the three main subatomic particles of an atom? | Remember | CO-1,2 |
| 2. | What is air pollution? | Remember | CO-3 |
| 3. | Give an example for natural polymer. | Understand | CO-4 |
| 4. | What is the significance of significant digits in reporting analytical data? | Understand | CO-5,6 |
| 5. | How molality of a solution is calculated? | Understand | CO-5,6 |
| 6. | What are homopolymers? | Understand | CO-4 |

**Part B.**

**8 Marks. Time: 24 Minutes**

**Short Answer. 2 Marks Each. Answer All Questions**

**(Cognitive Level: Understand/Apply)**

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| **Qn.**  **No.** | **Question** | **Cognitive Level** | **Course Outcome (CO)** |
| 7. | What is the Rydberg equation used for? | Understand | CO-1,2 |
| 8. | What are the primary pollutants responsible for air pollution from industrial sources? | Understand | CO-3 |
| 9. | How would you classify polyvinyl chloride (PVC) based on its structure and properties? | Apply | CO-4 |
| 10. | How would you minimize systematic errors during the preparation of a standard solution? | Apply | CO-5,6 |

**Part C.**

**28 Marks. Time: 60 Minutes**

**Long Answer. 7 marks each.**

**Answer all 4 Questions, choosing among options within each question.**

**(Cognitive Level: Understand/Apply/Analyze)**

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| **Qn. No.** | **Question** | **Cognitive Level** | **Course Outcome (CO)** |
| 11. | a. Explain the difference between precision and accuracy in analytical chemistry, and why both are important in reporting data.  OR  b. Describe the types of errors encountered in analytical measurements and the methods to minimize them. | Understand | CO-5,6 |
| 12. | a. Apply the principles of reverse osmosis in the treatment of industrial wastewater.  OR  b. Discuss the methods used to control the emission of particulate pollutants from industrial sources. | Apply | CO-3 |
| 13. | a. Classify polymers based on their source and provide examples of their industrial applications.  OR  b. Explain how crosslinked and network polymers differ in structure, and relate this to their physical properties and applications. | Apply | CO-4 |
| 14. | a. Analyze the significance of Bohr's model of the atom in the context of the hydrogen spectrum.  OR  b. Explain the significance of quantum numbers in determining the arrangement of electrons. | Analyze | CO-1,2 |