# SHRI RAMSWAROOP MEMORIAL UNIVERSITY

## End Semester Examination (2021-22)-Odd Semester

| M. Sc. (Environmental Science) – I Year (I Sem) | |
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| **Course Name: Water Pollution Management** | **Code: MCE1009** |
| **Time: 02 Hours** | **Max Marks: 60** |

| **University Roll No.** | | | | | | | | | | | | | | | |
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| **(To be filled by the Student)** | | | | | | | | | | | | | | | |

**Note: Please read instructions carefully:**

a) *The question paper has 03 sections and it is compulsory to attempt all sections.*

b) *All questions of Section A are compulsory; questions in Section B and C contain choice.*

| **Section A: Very Short Answer type Questions**<br>**Attempt all the questions.** | | **BL** | **CLO** | **Marks (10)** |
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| 1. | Define 'solubility' and 'solubility product'. | BL1 | CLO1 | 02 |
| 2. | Discuss the importance of greenbelt development. | BL2 | CLO1 | 02 |
| 3. | Discuss algal bloom in not more than 30 words. | BL2 | CLO2 | 02 |
| 4. | Discuss the various filters used for water treatment. | BL2 | CLO3 | 02 |
| 5. | Discuss the two properties of water which makes it an excellent solvent. | BL2 | CLO2 | 02 |
| **Section B: Short Answer Type Questions**<br>**Attempt any 03 out of 05 questions.** | | **BL** | **CLO** | **Marks (30)** |
| 1. | Discuss most probable number (MPN) and highlight the bacteriological examination of wastewater. | BL2 | CLO1 | 10 |
| 2. | Calculate the pH of a solution containing $10^{-9}$ M $H_2SO_4$ and $10^{-9}$ M NaOH. | BL5 | CLO1 | 10 |
| 3. | Discuss the nitrate contamination of groundwater and common diseases caused by ingestion of the same. | BL2 | CLO2 | 10 |
| 4. | Explain the phenomenon of self-purification of streams. Also, enlist the factors affecting 'Dissolved Oxygen' content in water. | BL2 | CLO3 | 10 |
| 5. | Discuss the significance of 'Kyoto Protocol' and compare it with 'COP26'. | BL2 | CLO4 | 10 |
| **Section C: Long Answer Type Questions/Case Study**<br>**Attempt any 01 out of 03 questions.** | | **BL** | **CLO** | **Marks (20)** |
| 1. | Calculate the BOD of a sewage sample, is 10 mL of the sample was diluted to 300 mL. The dissolved oxygen concentration was found to be 0.0084 g/L initially and 4.9 ppm at the end of 3 days. | BL3 | CLO3 | 20 |
| 2. | Two particles are released in water at the same time. Particle A has a diameter dA of 0.6 mm. Particle B has diameter dB of 1.1 mm. What is the ratio of settling velocity of particle A to that of particle B? Assume equal densities. | BL3 | CLO4 | 20 |
| 3. | Calculate the concentration of Total Solids (TS), Total Volatile Solids (TVS) and Total Fixed Solids (TFS) in mg/L in a water | BL5 | CLO4 | 20 |

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| | sample using the given data:<br>Volume of sample = 50 ml<br>Weight of empty crucible = 2.045 g<br>Weight of crucible after oven = 2.170 g<br>Weight of crucible after muffle furnace = 2.080 g | | | |

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