

Reg. No .....

Name .....

22P331

**M. Sc. DEGREE END SEMESTER EXAMINATION : OCTOBER 2022**  
**SEMESTER 3 : ENVIRONMENTAL SCIENCE**  
**COURSE : 21P3EVST09 : ENVIRONMENTAL POLLUTION AND TOXICOLOGY**  
*(For Regular - 2021 Admission)*

Duration : Three Hours

Max. Weights: 30

**PART A**

**Answer any 8 questions**

**Weight: 1**

1. Define the term Background Radiation. (U)
  2. Comment on regenerative and non-regenerative adsorption system. (U, CO 3)
  3. Describe any two properties of sound waves. (U)
  4. Comment on "soil nutrient as an index for soil quality". (U, CO 3)
  5. Comment on ion-exchange in waste water treatment. (U, CO 1, CO 3)
  6. List out various sampling techniques and device used for collecting suspended particulate pollutants. (U, CO 3)
  7. Comment on Industrialization. (U, CO 1, CO 2)
  8. Explain the 3'R's of solid waste management strategy. (A, CO 3)
  9. Comment on water pollution. (R, CO 1, CO 2)
  10. Mention some of the most common environmental mutagens and their sources. (U, CO 1, CO 5)
- (1 x 8 = 8)**

**PART B**

**Answer any 6 questions**

**Weights: 2**

11. Discuss the effect of air pollutants on vegetation. (R, CO 3)
  12. What do you mean by a dose-response relationship? Explain with relevant example. (A, CO 1, CO 5)
  13. Discuss environmental problems associated with the incineration of MSW. (A, CO 3)
  14. What are the advantages and disadvantages of USAB reactors? (U, CO 1, CO 3)
  15. Comment on the adverse effects of thermal pollution on the aquatic life with examples. (R, CO 3, CO 4)
  16. Discuss on the sources of soil pollution in highlands of Kerala with specific case study. (A, CO 3)
  17. What is bioindicator of pollution? Explain with examples. (U, CO 1, CO 5)
  18. How can we safeguard ourselves from radiation originating from tailings? (U)
- (2 x 6 = 12)**

**PART C**  
**Answer any 2 questions**

**Weights: 5**

- |     |   |                                  |
|-----|---|----------------------------------|
| 19. | Give notes on incineration, pyrolysis, plasma pyrolysis; sanitary landfills and open dumping yards. | (A, CO 3)                        |
| 20. | Give a detailed account of the factors influencing toxicity with relevant examples.                 | (R, CO 1, CO 5)                  |
| 21. | Write an essay on Primary and secondary treatment of waste water.                                   | (A, CO 1, CO 3)                  |
| 22. | Elaborate control of air pollution.   | (A, CO 3)<br><b>(5 x 2 = 10)</b> |

OBE: Questions to Course Outcome Mapping

CO	Course Outcome Description	CL	Questions	Total Wt.
CO 1	Identify the sources of pollution.	U	5, 7, 9, 10, 12, 14, 17, 20, 21	20
CO 2	Understand the concepts involved in pollution control technologies.	U	7, 9	2
CO 3	Evaluate methods of regulating, controlling and attenuating pollution.	U	2, 4, 5, 6, 8, 11, 13, 14, 15, 16, 19, 21, 22	30
CO 4	Develop knowledge of the environmental toxicants and their effects.	U	15	2
CO 5	Illustrate methods of purification of sewage water and recycling / reuse of solid waste. .	An	10, 12, 17, 20	10

Cognitive Level (CL): Cr - CREATE; E - EVALUATE; An - ANALYZE; A - APPLY; U - UNDERSTAND; R - REMEMBER;