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M.Sc. 3rd Semester (CBCS Scheme)

Examination, December-2022

CHEMISTRY

Paper - 17CHE2301

Environmental Chemistry - II

Time allowed : 3 hours]

[Maximum marks : 80

Note: Attempt five questions in all, selecting at least one question from each section. Question no. 1 is compulsory. All questions carry equal marks.

1. (a) How arsenic affects our body? 2
- (b) What is the cause and symptoms of itai-itai disease? 2
- (c) What is biomagnification? Give an example. 2
- (d) Which type of pollution problems are associated with the paper and pulp industry? 2
- (e) How metallurgy is harmful to the environment? 2
- (f) Why ionic liquids are considered superior to commonly used organic solvents? 2
- (g) What are the main sources of persistent organic pollutants? 2
- (h) What are microwaves? 2

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Section - A

2. (a) Describe the role of various micro and macronutrients in the soil in plant growth. 10
- (b) Discuss the various factors responsible for soil pollution. 6
3. Describe the biochemical effects of:
  - (i) Cyanide 8
  - (b) Mercury 8
4. Explain the analytical method of measuring the following elements in water: 8, 8
  - (i) Cadmium
  - (ii) Arsenic

Section - B

5. Describe the type of effluents, adverse effects and control measures in: 8, 8
  - (i) Polymer industry
  - (ii) Sugar Industry
6. Describe the type of effluents, adverse effects and control measures in cement industry. 16

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7. Describe the pollution problems and health hazards associated with nuclear power generation. How it can be controlled? 16

**Section - C**

8. Describe the structure, use and harmful effects of: 16
- (i) Heptachlor
  - (ii) Chlordane
9. Explain the basic principles of green chemistry. 16
10. Describe : 6, 10
- (i) Importance of grinding technique
  - (ii) Ultrasound-assisted organic synthesis