

**MSc DEGREE EXAMINATION MAY 2026**  
(Second Semester)

Branch - ENVIRONMENTAL SCIENCE

**ENVIRONMENTAL TOXICOLOGY AND HEALTH**

Time: Three Hours

Maximum: 75 Marks

**SECTION-A (10 Marks)**

Answer ALL questions

ALL questions carry EQUAL marks (10 × 1 = 10)

| Question No | Question                                                                                                                                                                                                                                                                                                                                                | K Level | CO  |
|-------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|-----|
| 1           | Inside the human body cyanide attached to cytochrome-C oxidase as it has a high affinity for<br>a) Fe <sup>3+</sup> ions                      b) Na <sup>+</sup> ions<br>c) Ca <sup>2+</sup> ions                      d) Mg <sup>+</sup> ions                                                                                                          | K2      | CO1 |
| 2           | Which of the following is not an example of a drug undergoing acetylation reaction?<br>a) Hydrazine                      b) Salicylic acids<br>c) Sulphonamides                      d) Histamines                                                                                                                                                      | K2      | CO1 |
| 3           | Which of the following statements about LC <sub>50</sub> is correct?<br>a) It represents the lethal dose for 50% of a population<br>b) It measures the dose that causes 50% mortality in a population<br>c) It is used exclusively for acute exposure assessments<br>d) It is expressed in terms of concentration in the environment                    | K1      | CO2 |
| 4           | What is a 'synergistic effect' in the context of toxicology?<br>a) An effect of toxins on the central nervous system<br>b) A combined effect of toxins that is less than the sum of their individual effects<br>c) A combined effect of toxins that is greater than the sum of their individual effects<br>d) An effect of toxins on aquatic ecosystems | K1      | CO2 |
| 5           | Which of the following is not a synthetic pyrethroid?<br>a) Cypermethrin                      b) Acetamiprid<br>c) Deltamethrin                      d) Etofenprox                                                                                                                                                                                      | K2      | CO3 |
| 6           | Which of the following is not a Persistent Organic Pollutant?<br>a) Polychlorinated biphenyls                      b) Mirex<br>c) Chlordane                      d) Phenols                                                                                                                                                                             | K2      | CO3 |
| 7           | Which of the following chemical is not used in personal care products?<br>a) Sodium lauryl sulfate                      b) Phenoxyethanol<br>c) Bithionol                      d) Hyaluronic acid                                                                                                                                                       | K2      | CO4 |
| 8           | Which of the following heavy metal as a potent source of contamination in phosphatic fertilizers?<br>a) Cadmium                      b) Lead<br>c) Mercury                      d) Arsenic                                                                                                                                                              | K1      | CO4 |
| 9           | What happens to the concentration of DDT in each trophic level?<br>a) Becomes zero                      b) Decrease<br>c) Increase                      d) Remains unchanged                                                                                                                                                                            | K1      | CO5 |
| 10          | What is the name of the occupational illness caused by exposure to sugarcane dust?<br>a) Bagassosis                      b) Anthracosis<br>c) Byssinosis                      d) Siderosis                                                                                                                                                              | K1      | CO5 |

Cont...

**SECTION – B (35 Marks)**

Answer ALL Questions

ALL Questions carry EQUAL marks

(5 x 7 = 35)

| Question No | Question                                                                                               | K Level | CO  |
|-------------|--------------------------------------------------------------------------------------------------------|---------|-----|
| 11          | a Differentiate between mutagens and carcinogens with examples.                                        | K5      | CO1 |
|             | OR                                                                                                     |         |     |
|             | b 'Environmental toxicology is crucial for environmental management' – Justify with suitable examples. |         |     |
| 12          | a Demonstrate the synergistic and antagonistic effects of chemicals with examples.                     | K3      | CO2 |
|             | OR                                                                                                     |         |     |
|             | b How therapeutic index calculated? Add note on the significance of this index for patient safety.     |         |     |
| 13          | a Explain the mechanism of action in carbamate pesticides with example.                                | K5      | CO3 |
|             | OR                                                                                                     |         |     |
|             | b Critically assess the impact of plasticizers on environment and human health.                        |         |     |
| 14          | a Explain the Se contamination scenario in India.                                                      | K4      | CO4 |
|             | OR                                                                                                     |         |     |
|             | b Illustrate the impacts of triclosan on human health.                                                 |         |     |
| 15          | a Correlate the transport of particulate matter with human health in metrocities.                      | K4      | CO5 |
|             | OR                                                                                                     |         |     |
|             | b Diagnose the possible symptoms and clinical manifestations of siderosis.                             |         |     |

**SECTION – C (30 Marks)**

Answer any THREE Questions

ALL Questions carry EQUAL marks

(3 x 10 = 30)

| Question No | Question                                                                                                          | K Level | CO  |
|-------------|-------------------------------------------------------------------------------------------------------------------|---------|-----|
| 16          | Distinguish the hepatotoxicity and nephrotoxicity with their primary functions and mechanism of injury in detail. | K4      | CO1 |
| 17          | Evaluate the significance of model organisms in ecotoxicology studies with examples.                              | K5      | CO2 |
| 18          | Summarize the environmental persistence and bioaccumulation of dioxins and furans with examples.                  | K5      | CO3 |
| 19          | Classify the different types of emerging contaminants with examples.                                              | K4      | CO4 |
| 20          | Explore the mechanism of bioaccumulation and biomagnification with suitable examples.                             | K3      | CO5 |

Z-Z-Z END