# 0305N216

Candidate's Seat No : _____

**MSc Sem.-2 Examination**

**409**

**Toxicology**

**May-2025**

**Time : 2-30 Hours]** **[Max. Marks : 70**

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| Q1A | Define Environmental Toxicology. Discuss its importance in the context of modern environmental challenges. | 7 Marks |
| Q1B | Discuss the mechanisms and significance of biodegradation of toxicants. Mention the role of microbes in the process. | 7 Marks |
| | OR | |
| Q1A | Explain the different types of environmental contaminants. Include examples and their sources. | 7 Marks |
| Q1B | Outline various environmental assessment strategies used to evaluate pollution levels. Provide examples of tools or indicators. | 7 Marks |
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| Q2A | Explain the movement of toxicants in the environment. How do they travel through air, water, and soil? | 7 Marks |
| Q2B | Describe the different classes of hazardous substances and their effects on human health. | 7 Marks |
| | OR | |
| Q2A | Explain how pollutants are biochemically degraded inside the cell. Highlight key enzymes and pathways involved. | 7 Marks |
| Q2B | Analyse the impact of persistent organic pollutants (POPs) and their long-term effects on the ecosystem and human health. | 7 Marks |
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| Q3A | Classify different types of industrial hazards and explain their potential health effects with examples. | 7 Marks |
| Q3B | Discuss the biochemical mechanism and acute toxicity of cyanide. | 7 Marks |
| | OR | |
| Q3A | Describe the classification of occupational diseases based on causative agents and origin. | 7 Marks |
| Q3B | Explain how nitrogen oxides and sulphur dioxide impact respiratory and cardiovascular systems. | 7 Marks |
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| Q4A | Explain the "Hallmarks of Cancer" proposed by Hanahan and Weinberg. | 7 Marks |
| Q4B | Discuss the types of carcinogens—direct-acting and indirect-acting—with examples. Explain how their mechanism leads to DNA damage. | 7 Marks |
| | OR | |
| Q4A | Explain the impact of molecular structure on chemical carcinogenesis with reference to aflatoxin. | 7 Marks |
| Q4B | Discuss rodent bioassays and transgenic animal models used in testing for carcinogenicity. Discuss their advantages and limitations. | 7 Marks |
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| **Q5** | **Answer the following questions (Any Seven)** | **14 Marks** |
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| I | How does water pollution affect aquatic life? | 2 Marks |
| II | What is persistent organic pollutant (POP)? Give an example. | 2 Marks |

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| III | Define Eutrophication. | 2 Marks |
| IV | Give an example of a pollutant that undergoes biodegradation inside cells. | 2 Marks |
| V | What is the role of cytochrome P450 in pollutant metabolism? | 2 Marks |
| VI | What is the difference between acute and chronic exposure to toxicants? | 2 Marks |
| VII | What are pneumoconioses? Give one example. | 2 Marks |
| VIII | What is chelation therapy? Name one chelating agent. | 2 Marks |
| IX | How does carbon monoxide affect oxygen transport in the body? | 2 Marks |
| X | What is the Warburg effect in cancer metabolism? | 2 Marks |
| XI | What is a proto-oncogene? Give one example. | 2 Marks |
| XII | Define carcinogen. Name any two physical carcinogens. | 2 Marks |

**BEST OF LUCK**