[This question paper contains 2 printed pages.]

Your Roll No.....

Sr. No. of Question Paper : 6462 **L**

Unique Paper Code : 3184001003

Name of the Paper : Toxic Substances and Human Health (GE)

Name of the Course : **B.Sc. (H) Biomedical Science (NEP-UGCF)**

Semester : II

Duration : 3 Hours Maximum Marks : 90

Instructions for Candidates

1. Write your Roll No. on the top immediately on receipt of this question paper.
2. Attempt **five** questions in all.
3. Question no. **1** is compulsory.
4. Attempt subparts of a question together.

Q1. (a) Explain the following (Any Five) (2x5=10)

(i) Half-life of Toxicant
(ii) Toxicokinetics
(iii) Idiosyncrasy
(iv) Dioxin
(v) Teratogen
(vi) Adverse Drug Reaction

(b) Differentiate between the following (Any Three) (3x3=9)

(i) Efficacy and Potency
(ii) Bioavailability and Bioaccumulation
(iii) Endotoxin and Exotoxin
(iv) PAHs and VOCs

(c) State True or False. Justify your answer. (Any Two) (2x2=4)

(i) Skin is the primary organ responsible for the excretion of most toxicants.
(ii) The median lethal dose refers to the dose at which 50 percent of the test animals die.
(iii) Styrene is a naturally occurring compound that poses no health risks when used in disposable utensils.

(d)Expand the following (Any Three) (1x3=3)

(i) ADI
(ii) ABC
(iii) PM
(iv) DDT

P.T.O.

Q2. Explain the mechanism of toxicity of (Any Four) (4x4=16)

(a) Sodium Hypochlorite
(b) Organophosphates
(c) Methanol
(d) Ethylene glycol
(e) Lindane

Q3. Write a short note on (Any four) (4x4=16)

(a) Dose-Response Relationship
(b) First Pass Metabolism
(c) Selective Toxicity
(d) Minamata disease
(e) Xenobiotic Transporters

Q4. (a) Describe the mechanisms by which drugs induce toxicity at both therapeutic and overdose levels, providing appropriate examples. (8)

(b) Discuss the adverse health impacts of artificial food additives such as sweeteners, preservatives, and coloring agents, including specific examples. (8)

Q5. (a) Discuss the classification of toxicants based on their sources, exposure routes, and effects on biological systems. (8)
(b) Explain the health risks of exposure to heavy metals like lead and cadmium in cosmetics and their potential effects on the human body. (8)

Q6. (a) How do the kidneys contribute to eliminating toxic substances from the body? Explain the impact of urine pH on the excretion of weak acids and bases. (8)
(b) Discuss the role of nitrogen oxides (NO_x) and sulfur dioxide (SO_2) in environmental pollution. How do these gases contribute to acid rain and what are their toxic effects on human health? (8)