This question paper contains **6** printed pages]

Roll No. | | | | | | | | | | |

S. No. of Question Paper : **8058**

Unique Paper Code : **2233010016**

Name of the Paper : **DSE-Toxicology**

Name of the Course : **B.Sc. (H) Zoology-UGCF**

Semester : **VI**

Duration : **3 Hours** Maximum Marks : **90**

(Write your Roll No. on the top immediately on receipt of this question paper.)

Answer *five* questions in all.

Question No. **1** is compulsory.

1. (*a*) Define the following terms : 5×1.5=7.5

(1) Bioaccumulation

(2) Radiation sickness

(3) Retention factor

(4) Dysmorphogenesis

(5) Risk Management

P.T.O.

(*b*) Differentiate between the following : 5×1.5=7.5

(1) LC_{50} and LD_{50}

(2) Bio-pesticides and synthetic pesticides

(3) Toxin and Toxicant

(4) Threshold Limit and Permissible Limit

(5) GLC and TLC

(*c*) Multiple choice questions : 1×5=5

(1) Exposure to which of the following environmental toxins has been linked to an increased risk of birth defects ?

(*a*) Pesticides

(*b*) Heavy metals

(*c*) Air pollution

(*d*) All of the above

(2) Which of the following is a method used to determine the dose of a substance ?

(*a*) Toxicokinetic modeling

(*b*) Growth Kinetics

(*c*) Enzyme Assay

(*d*) All of the above

(3) Which is an acute event of toxicity ?

(*a*) Lung inflammation after two days of inhalation of metal dust.

(*b*) Liver toxicity after three daily doses of 325 mg of paracetamol for one week only.

(*c*) Liver toxicity of three doses of 500 mg of paracetamol for one day only.

(*d*) A toxic event occurring suddenly without an unknown cause.

(*e*) A & C

(4) What is a reference does (RfD) ?

(*a*) Dose of a standard chemical to test the toxic doses of other chemicals.

(*b*) An estimate of exposure to an agent for a long period without any appreciable risk to life.

(*c*) Dose of an agent during a previous exposure to estimate the risks of a latest exposure to the same agent.

(*d*) All of the above

(*e*) None of the above

(5) Where in the body do toxicants/chemicals get stored ?

(*a*) Plasma proteins

(*b*) Body fat

(*c*) Liver and kidneys

(*d*) Bones

(*e*) All of the above

(*d*) Fill in the blanks : 1×5=5

(1) Toxins affecting the nervous system are known as ..... .

(2) ..... are chemicals added to food to improve shelf life, but may become toxic if consumed in excess.

(3) The study of the absorption, distribution, metabolism and excretion of toxic substances is known as ..... .

(4) ..... is the repeated exposure occurring for a period of more than three months.

(5) ..... is concerned directly with Toxicity testing, which provides information for safety evaluation and regulatory requirements.

(*e*) State whether the statement is true or false : 1×5=5

(1) The liver is the primary site for detoxification in the body.

(2) A poison is any substance that causes harm when introduced into the body in any amount.

(3) TERI provides policy analysis and advice to governments and other organizations on issues related to energy, environment and sustainable development.

(4) Egg shell thinning is caused by the exposure of Birds' nests on agriculture field by pesticides DDT and DDE.

(5) Kidney plays an essential role in elimination of metabolized toxicants through urine.

2. (*a*) Briefly describe mechanisms of hepatotoxicity : 7

(*b*) What are endocrine disruptors ? Describe some predominant mechanisms of endocrine disruption. 8

3. Explain enzyme mediated biotransformation of toxins in the body. 15

4. (*a*) What are the guidelines of European Union Norms. 7

(*b*) Explain the role of EPA and CPCB. 8

5. (*a*) What is Tolerance ? Explain *two* major mechanisms responsible for tolerance of Toxic agents. 8

(*b*) Explain the process of toxicant delivery. 7

6. (*a*) Discuss the role of teratogenic agents in dysmorphogenesis and provide examples of known teratogenic agents. 9

(*b*) Explain the concept of critical window of exposure. 6

P.T.O.

7. Write short notes on any *three* of the following : 3×5=15

(1) HPLC

(2) Risk evaluation of toxins

(3) Objective of Risk assessment

(4) Heavy metals in carcinogenicity