2015

M.Sc. Part–II Examination

ZOOLOGY

PAPER—VIII (Group—A)

Full Marks : 50

Time : 2 Hours

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

Illustrate the answers wherever necessary.

Write the Answers to Questions of each Unit in separate Booklet.

Answer any *four* questions taking *two* from each unit.

Unit—I

[*Environmental Resource and Pollution*]

1. Schematically represent different types of environmental resources. Highlight different criteria for ensuring sustainability of environmental resources. Explain the hazards associated with the collection processing and transportation of environmental resources.

$4+4+4\frac{1}{2}$

2. Highlight significance of characteristics of troposphere and stratosphere in respect of environmental pollution. Briefly discuss on fate and behaviour of major air pollutants. Add a note on pollutants from biological origin.

$3+6+3\frac{1}{2}$

3. Define eutrophication. Mention the sources and properties of materials causing eutrophication. Differentiate cultural eutrophication from natural eutrophication. Schematically highlight different environmental consequences of eutrophication.

$2+3+3+4\frac{1}{2}$

4. Write short notes on (any *three*) : $4+4+4\frac{1}{2}$

(a) Point and Non-point Pollution ;

(b) Primary and Secondary sewage treatments ;

(c) Biomagnification ;

(d) Role of meterological parameters in the formation of acid rain ;

(e) Sources of oil pollution.

Unit—II

[*Ecotoxicology*]

5. (i) Define 'toxicants' and 'xenobionts'.

(ii) Classify xenobionts based on their physical and chemical properties with examples.

(iii) Write down the route of entry, source, mechanism of action and impact of :

(a) NO, (b) CO, and (iii) O_3.

$2+4\frac{1}{2}+6$

6. (i) Define LC_{50} and LD_{50} value.

(ii) Find out LC_{50} value from the data given below with suitable illustration & comment on your result :

Concentration of toxicants in *ml.*	Mortality No. after 24 hours	Mortality No. after 48 hours
0.2	1	2
0.4	3	5
0.6	6	8
0.8	11	13
1.0	15	17

Note 1 : (mm graph to be provided)

Note 2 : No. of test animal = 20

Duration of toxicity bioassay = 48 hrs.

(iii) Add a note on Safe level.

$3+7+2\frac{1}{2}$

7. (i) Mention the important criteria of heavy metal.

(ii) Discuss about safe level to human, source and impact of Arsenic pollution on population.

(iii) Add a note on biotransformation of chemicals.

$2+6+4\frac{1}{2}$

8. Write short notes on (any *three*) : $4+4+4\frac{1}{2}$

(i) Corrosive pollutants ;

(ii) Chelation therapy of heavy metal ;

(iii) Bioaccumulation in food chain ;

(iv) Carcinogenic xenobionts ;

(v) Metabolic pollutants ;

(vi) Lead toxicity on human.

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