



FD-318

M.Sc. 1st Semester
Examination, Dec.-Jan., 2021-22

ZOOLOGY

Paper - I

Biosystematics, Taxonomy and Biodiversity

Time : Three Hours] [Maximum Marks : 80
[Minimum Pass Marks : 16

Note : Answer **all** questions in which Question No. 1
is compulsory. All questions carry equal marks.

1. Write notes on the following :

- (a) Chemotaxis
- (b) Species categories
- (c) Cuvetting
- (d) Zones of Biosphere Reserves

DRG_21_(3)

(Turn Over)

(2)

Unit-I

2. Define the phylogenetic tree and describe it under following headings :
- (a) Parts of phylogenetic tree
 - (b) Rooted and unrooted tree
 - (c) Bifurcating and multifurcating tree

OR

Explain the Biological concept of taxonomy.

Unit-II

3. Describe the biological classification theories.

OR

Write the general characters of the species and explain Morphological, Biological and Genetic species concept.

Unit-III

4. Describe the Zoological Nomenclature.

OR

Explain the taxonomic collection.

(3)

Unit-IV

5. Describe the methods for studying terrestrial and aerial biodiversity.

OR

What is Wetland Biodiversity ? Explain its significance.



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Paper - II

Structure and Function of Invertebrates

Time : Three Hours] [*Maximum Marks* : 80

Note : Answer **all** questions in which Question Number 1 is compulsory. All questions carry equal marks.

1. Write short notes on any **two** of the following :
 - (a) Difference between flagella and cilia
 - (b) Define osmoregulation and write its importance
 - (c) Respiratory pigment
 - (d) Mysis larva
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DRG_69_(3)

(Turn Over)

(2)

Unit-I

2. Give an account on protostomia and deuterostomia.

OR

Describe ciliary movement in protozoa.

Unit-II

3. Give an account of filter feeding in polychaeta.

OR

Explain respiratory organs in mollusca.

Unit-III

4. What is advance nervous system ? Explain with example of palaemon.

OR

Describe the excretory system of earthworm (*Pheretima posthuma*).

Unit-IV

5. Describe the general characters, structure and affinities of Rotifera.

OR

(3)

Write short notes on any **two** of the following :

- (a) Nauplius larva of prawn
 - (b) Cercaria larva of liver fluke
 - (c) Bipinneria larva of echinodermata
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Paper - III

Population Genetics and Evolution

Time : Three Hours] [*Maximum Marks* : 80

Note : Answer **all** questions in which Question Number 1 is compulsory. All questions carry equal marks.

1. Explain the following in brief :
- (a) Evidences of evolution from palaeontology
 - (b) Genetic drift
 - (c) Biological concept of species
 - (d) Macro evolution

DRG_124_(3)

(Turn Over)

(2)

Unit-I

2. Explain Synthetic theory of evolution.

OR

Describe briefly the evidences of evolution from embryology and physiology.

Unit-II

3. What is natural selection? Give its significance in the process of evolution.

OR

Give an account on molecular variation.

Unit-III

4. Give an account of evolution of Gene families.

OR

What are the genetic alterations and describe human diseases related to them.

Unit-IV

5. Describe evolution of horse.

OR

(3)

What are the 'Ethical' and 'Social' issues in human genetics ? Explain in brief.



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Paper - IV

Tools and Techniques in Biology

Time : Three Hours] [*Maximum Marks* : 80

Note : Answer **all** questions in which Question No. 1 is compulsory. All questions carry equal marks.

1. (a) Write the principle of ultracentrifugation.
- (b) Draw a well labelled diagram (Ray diagram) of light microscope.
- (c) What is PCR ?
- (d) What is cryopreservation ?

(2)

Unit-I

2. Describe the principle of chromatography with giving its uses and various types.

OR

Write the principle of colorimetry. Describe its role in Bioscience.

Unit-II

3. On what principle does electron microscope work ?

(a) Write about types of EM.

(b) How does fixation done for EM ?

OR

Describe the working principle and uses of phase contrast microscopy.

Unit-III

4. What is ELISA ? Write its application in Bioscience.

OR

How do you identify presence of proteins in any tissue? Describe with suitable stains.

(3)

Unit-IV

5. Write a note on DNA sequencing.

OR

How do you prepare a cladogram ?
