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(NEP—2020)

(1st Semester)

ZOOLOGY (MAJOR)

(Systematics and Fundamental Concepts)

Full Marks : 75

Time : 3 hours

The figures in the margin indicate full marks for the questions

(SECTION : A—OBJECTIVE)

(Marks : 10)

Tick (✓) the correct answer in the brackets provided :

1×10=10

1. The taxonomic unit phylum in the classification of animals is equivalent to which hierarchical level in plants?

- (a) Class ()
- (b) Order ()
- (c) Division ()
- (d) Family ()

2. Organizing taxonomic information in logical classification is called

- (a) phenetic ()
- (b) systematics ()
- (c) phylogenetic ()
- (d) homogenetic ()

3. The philosopher who first classified organisms was
 - (a) Aristotle ()
 - (b) Whittaker ()
 - (c) Carl Woese ()
 - (d) Linnaeus ()
4. The key to speciation of populations is
 - (a) reproductive health ()
 - (b) reproductive isolation ()
 - (c) population growth ()
 - (d) extinction ()
5. A new species emerges from the geographical range of its ancestor as per which theory of speciation?
 - (a) Sympatric speciation ()
 - (b) Parapatric speciation ()
 - (c) Allopatric speciation ()
 - (d) Heteropatric speciation ()
6. The external node in the phylogenetic tree, which represents the tips of the tree is also known as
 - (a) initial node ()
 - (b) terminal node ()
 - (c) synaptic node ()
 - (d) permeable node ()
7. While constructing phylogenetic trees, researchers identify which of the features that are shared by some species but not by others?
 - (a) Heterologous ()
 - (b) Different ()
 - (c) Homologous ()
 - (d) Heterozygous ()
8. Who was the first scientist to challenge the theory of spontaneous generation?
 - (a) Francesco Redi ()
 - (b) John Needham ()
 - (c) Louis Pasteur ()
 - (d) Lazzaro Spallanzani ()

9. Theory of pangenesis was given by

- (a) Hugo de Vries ()
- (b) Charles Darwin ()
- (c) Lamarck ()
- (d) Bateson ()

10. According to recapitulation theory

- (a) every animal begins as an egg ()
- (b) damaged body parts are formed new ()
- (c) offspring are like parents ()
- (d) ontogeny repeats phylogeny ()

(SECTION : B—SHORT ANSWERS)

(Marks : 15)

Write short notes on *five* of the following, taking at least *one* from each unit :

3×5=15

UNIT—I

- 1. Binomial nomenclature
- 2. Principles of priority

UNIT—II

- 3. Species concept
- 4. Phylogenetic species concept

UNIT—III

- 5. Phylogenetic tree
- 6. Cladogram

UNIT—IV

- 7. Pangenesis
- 8. Recapitulation theory

(SECTION : C—DESCRIPTIVE)

(Marks : 50)

Answer *five* of the following questions, taking at least *one* from each unit : $10 \times 5 = 50$

UNIT—I

1. What do you mean by Linnaean classification? Explain taxonomic hierarchy in detail. 4+6=10
2. Give a detailed account of concept of kingdom. 10

UNIT—II

3. Discuss the discovery of Archaea and the development of domain system. 10
4. What is species? Discuss the major species concepts. 2+8=10

UNIT—III

5. Write the different types of speciation giving suitable examples. 10
6. Describe the principle and applications of RNA in molecular phylogeny. 10

UNIT—IV

7. Describe the theory of spontaneous generation and how the experiment of Louis Pasteur challenged the theory of spontaneous generation. 10
8. "Ontogeny recapitulates Phylogeny." Explain the statement. 10

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