

Total number of printed pages-7

3 (Sem-6) ZOO M 2

2020

## ZOOLOGY

( Major )

Paper : 6·2

**( Evolution and Adaptation )**

Full Marks : 60

Time : Three hours

**The figures in the margin indicate  
full marks for the questions.**

1. Multiple choice questions :  $1 \times 7 = 7$

(a) Homology does not refer to

(i) divergent evolution

(ii) common descent

(iii) convergent evolution

(iv) adaptive radiation

Contd.

(b) Peripatus is connecting link between

- (i) Annelida and Mollusca
- (ii) Annelida and Helminth
- (iii) Annelida and Arthropoda
- (iv) All of the above

(c) The modern synthetic theory of evolution is based on

- (i) genetic and chromosomal mutation
- (ii) genetic recombination and natural selection
- (iii) reproductive isolation
- (iv) All of the above

(d) Diversity in the beaks of finches adapted to different feeding habit on Galapagos islands as observed by Darwin, provides evidence for

- (i) interspecific variation
- (ii) intraspecific competition
- (iii) origin of species by natural selection
- (iv) intraspecific variation

(e) The non-directional force that alters Hardy-Weinberg equilibrium is

- (i) gene flow
- (ii) mutation
- (iii) genetic drift
- (iv) gene recombination

(f) Adaptation is a type of

- (i) speciation
- (ii) adaptive radiation
- (iii) convergent evolution
- (iv) divergent evolution

(g) Match and select the correct set :

**Set-I**

**Set-II**

- |               |                                   |
|---------------|-----------------------------------|
| A. Mesozoic   | 1. First land vertebrates         |
| B. Devonian   | 2. Proliferation of reptiles      |
| C. Palaeocene | 3. Raise of modern mammals        |
| D. Permian    | 4. Radiation of primitive mammals |
|               | 5. 160 million years              |

- (i) A = 5, B = 4, C = 3, D = 2
- (ii) A = 5, B = 1, C = 4, D = 2
- (iii) A = 5, B = 1, C = 2, D = 5
- (iv) A = 5, B = 1, C = 4, D = 3

2. Write short notes on the following :  $2 \times 4 = 8$

- (a) Recapitulation theory
- (b) Lateral line system in fish
- (c) Mimicry and protective colouration
- (d) Characteristics feature of Mesozoic era

3. Answer the following in brief :  $5 \times 3 = 15$

**(any three)**

- (a) What are the 'zoogeographical barriers'? How do these barriers affect the distribution of animals?
- (b) Describe significance of Ramapithecus and Siwalika Hills with reference to human evolution.
- (c) Write on the role of mimicry in evolution.
- (d) Write evolutionary history in the origin of birds.

- (e) Write on bottleneck effect and founder effect of genetic drift.
4. (a) Give an account of Darwin's theory of evolution. Discuss the theory in the light of modern researches. 5+5=10

**Or**

- (b) Describe the Stanley Miller's experiment and explain how it proves the biochemical origin of life. 5+5=10
5. (a) Write an essay on the evidences in support of the theory of evolution as illustrated by embryology and comparative anatomy. 5+5=10

**Or**

- (b) What is species? Explain the mechanism of speciation through isolation. 2+8=10

6. (a) Give an account of ancestry of horse incorporating the paleontological history of the modern horse. 5+5=10

**Or**

- (b) Give an account of geological periods and indicate the groups of animals characteristic of those periods. 10