Total number of printed pages–7

3 (Sem–6/CBCS) ZOO HC 2

2024

ZOOLOGY

(Honours Core)

Paper : ZOO–HC–6026

(Evolutionary Biology)

Full Marks : 60

Time : Three hours

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

1. Choose the correct option from the following questions : 1×7=7

   (i) Which of the following is considered to be the first step of biochemical origin of life according to Oparin-Haldane theory ?

   (a) Cognogeny

   (b) Chemogeny

   (c) Biogeny

   (d) Biology

Contd.

(ii) Which of the following is the modern horse ?

(a) Epihippus

(b) Eohippus

(c) Equus

(d) Merychippus

(iii) The change in number of chromosomes leading to genetic variation is known as

(a) Heteroploidy

(b) Hybridisation

(c) Aneuploidy

(d) Gene mutation

(iv) A population has 49% of homozygous recessive genotype 'aa'. The frequency of allele 'a' is

(a) 0%

(b) 20%

(c) 60%

(d) 70%

(v) A monkey migrates to a new place and mates with another monkey of same species in the new population. What type of genetic change is described in this example ?

(a) Genetic drift

(b) Gene flow

(c) Mutation

(d) Genome

(vi) The speciation in which groups from an ancestral population evolve into separate species due to geographical separation is known as

(a) Allopatric speciation

(b) Sympatric speciation

(c) Parapatric speciation

(d) Stasipatric speciation

(vii) Which of the following had cranial capacity of 1300–1600 cubic centimetre ?

(a) Neanderthal man

(b) Cro-Magnon man

(c) Java Ape man

(d) *Homo habilis*

2. Answer the following questions : 2×4=8

(i) What is 'molecular clock' ?

(ii) Distinguish between gene flow and genetic drift.

(iii) What do you mean by 'ring species' ?

(iv) What is a phylogenetic tree ?

3. Write short note on : ***(any three)*** 5×3=15

(i) Biogeny

(ii) Selection coefficient in population genetics

(iii) Adaptive radiation

(iv) Five major mass extinctions

(v) The experiments that proved evidences against Lamarckism

4. Answer ***any three*** of the following questions : 10×3=30

(i) Describe Darwin's theory of natural selection. Mention *four* basic objections to this theory. 8+2=10

(ii) What do you mean by evolution ? Describe the evolution of horse with respect to different geological periods. 1+9=10

(iii) What is chromosomal aberration ? Write the ways how it occurs in nature. Mention its significance in evolution. 1+7+2=10

(iv) (a) What is Hardy-Weinberg law ? Describe the evolutionary forces that upset Hardy-Weinberg equilibrium. 2+5=7

(b) In a population of 500 dogs, the allele for black colour (B) is dominant over the allele for white colour (b). There are 420 black and 80 white dogs. What is the number of dogs with the genotype 'Bb' ? 3

(v) (a) Write about Biological Species Concept. Mention the limitations of this concept. 3+2=5

(b) What is the role of isolating mechanisms in the formation of new species ? 5

(vi) Describe the evolution of man from *Dryopithecus* to *Homo sapiens*.
