

2016

(November)

ZOOLOGY

(Major)

Course : 501

(Genetics and Evolution)

Full Marks : 48

Pass Marks : 19 (Backlog) / 14 (2014 onwards)

Time : 2 hours

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

1. (a) Fill in the blanks : 1×5=5

(i) The _____ of a particular gene occupy the same position on homologous chromosome.

(ii) Some genes adhere together and would be transmitted as a single unit that phenomenon is called _____.

- (iii) The change of position of genes that changes the structure of chromosome is known as ____.
- (iv) Two geographically merged populations which maintain morphological distinctions are called ____ species.
- (v) In a population, the set of genetic information carried by all members which can interbreed, is called ____.
- (b) Differentiate between the following : $2 \times 4 = 8$
- (i) Dominant character and Recessive character
 - (ii) Chromosomal mutation and Gene mutation
 - (iii) Chemical origin and Biological origin of life
 - (iv) Allopatric speciation and Peripatric speciation

2. What is independent assortment? Describe the mechanism of independent assortment with an example.

1+6=7

Or

Define Mendel's law of dominance and explain it with an example that it is not always true.

2+5=7

3. What is cytoplasmic inheritance? What are the various characteristic features of cytoplasmic inheritance? $2+5=7$

Or

What is sex-linked inheritance? Describe the genic balance theory of sex determination. $2+5=7$

4. What is a fossil? Write a note on process of fossilization. $2+5=7$

Or

What is neo-Darwinism? Discuss the demerits of Darwin's theory of evolution. $3+4=7$

5. What is gene frequency? How is gene frequency changed? $2+5=7$

Or

Explain the divergent and convergent evolution. 7

6. Write short notes on the following (any two) : $3\frac{1}{2}\times 2=7$

- (a) Human chromosome
- (b) Genetic significance of mutation
- (c) Inborn error in metabolism
- (d) Fine structure of gene
