

5 SEM TDC ZOO M 1**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 _____.

(Turn Over)

(2)

(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)

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
