

**5 SEM TDC ZOO M 1**

**2014**

**( November )**

**ZOOLOGY**

**( Major )**

**Course : 501**

**( Genetics and Evolution )**

**Full Marks : 48**

**Pass Marks : 19**

**Time : 2 hours**

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

1. (a) Fill in the blanks with appropriate words : 1×4=4
- (i) Relatively coiled interphase chromatin which is generally inactive in transcription is known as \_\_\_\_.
- (ii) The portion of DNA specifying a single-polypeptide chain is termed as \_\_\_\_.

(iii) The smallest distance of gene within which recombination can occur is called —.

(iv) The process of splitting a genetically homogeneous population into two or more populations that undergo genetic differentiation and eventual reproductive isolation is called —.

(b) Differentiate between the following :  $2 \times 4 = 8$

(i) Divergent evolution and Convergent evolution

(ii) Qualitative genetics and Quantitative genetics

(iii) Chromosomal mutation and Gene mutation

(iv) Sex-linked inheritance and Cytoplasmic inheritance

2. Enlist various methods of sex determination in animals. Describe the genic balance theory of sex determination.

$2+5=7$

Or

What is crossing-over? Describe how crossing-over can be used to measure the relative distances between linked loci.

$2+5=7$

3. What is mutation? Explain chromosomal mutation. State the genetic significance of mutation.

$1+4+2=7$

Or

Discuss the concept of gene with their fine structure. 7

4. Describe briefly about the phenomena which are responsible for deviation of independent assortment. 7

Or

Explain the following :  $3\frac{1}{2} \times 2 = 7$

(a) Genetic equilibrium in random mating population

(b) Inborn error in metabolism

5. What is variation? Describe the different types of variation.  $1+6=7$

Or

Explain the following :  $3\frac{1}{2} \times 2 = 7$

(a) Lamarckism

(b) Adaptive radiation

6. What is fossil? Describe the paleo-biological evidences of evolution.  $1+7=8$

Or

Describe the modern synthetic theory of evolution. 8

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