

**TDC Odd Semester Exam., 2020
held in July, 2021**

ZOOLOGY

(Pass)

(5th Semester)

Course No. : ZOOP-501

(Cell Biology, Genetics and Biochemistry)

Full Marks : 35

Pass Marks : 12

Time : 2 hours

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

Answer **five** questions, selecting **one**
from each Unit

UNIT—I

1. (a) State any two basic differences of animal cell from plant cell. 1+1=2
- (b) Name one cell organelle which is found in both prokaryotic and eukaryotic cells. 1
- (c) Describe the fluid mosaic model of plasma membrane with diagram. 4

2. (a) Why is mitochondrion called as the 'power-house' of the cell? 1
- (b) Describe, with diagram, the structure of mitochondrion and add its functions. 4+2=6

UNIT—II

3. (a) What is giant chromosome? 1
- (b) Describe the structure of lampbrush chromosome with a diagram. 5
- (c) Mention the functions of giant chromosomes. 1
4. (a) Name the different types of chromosomes depending upon the position of centromere. 2
- (b) Describe the double helical structure of DNA as proposed by Watson and Crick. 5

UNIT—III

5. (a) What do you mean by gene interaction? 1
- (b) Describe complementary gene interaction with suitable examples. 4
- (c) What is linkage? Cite one example where complete linkage is found. 1+1=2

(3)

6. (a) What is crossing over? Describe the mechanism of crossing over with suitable illustrations. 1+4=5
- (b) State the significance of crossing over. 2

UNIT—IV

7. (a) What is sex chromosome? Distinguish between autosome and sex chromosome. 1+2=3
- (b) Who propounded the genic balance theory of sex determination? 1
- (c) What is gene mutation? Why is gene mutation called point mutation? 1+2=3

8. Write short notes on any *two* of the following : 3½×2=7
- (a) Cytoplasmic inheritance
- (b) Human sex-linked disease—its characteristics
- (c) Addition mutation

UNIT—V

9. (a) What are amino acids? Give two examples of sulphur-containing amino acids. 1+1=2

(4)

- (b) What is neutral fat? Distinguish between saturated and unsaturated fatty acids. 1+2=3
- (c) Mention the importance of fat. 2
10. (a) Define carbohydrates. 1
- (b) Why are monosaccharides called reducing sugar? Give reason. 2
- (c) Give two examples of polysaccharides. 1
- (d) How are proteins classified on the basis of their chemical composition? 3
