

TDC (CBCS) Odd Semester Exam., 2021
held in March, 2022

ZOOLOGY

(5th Semester)

Course No. : ZOOHCC-502T

(Principles of Genetics)

Full Marks : 50

Pass Marks : 20

Time : 3 hours

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

SECTION—A

Answer any ten of the following questions : $2 \times 10 = 20$

1. What is meant by codominance? Cite one example.
2. What is testcross? Differentiate it from back-cross.
3. What are lethal alleles? Cite one example of lethal allelic trait in human.

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(Turn Over)

4. What is crossing-over?
5. What is interference in gene mapping?
6. State the chromosome theory of linkage.
7. What is frameshift mutation and what are its consequences?
8. Differentiate between Euploidy and Aneuploidy.
9. Differentiate between Trisomy and Tetrasomy. Name two trisomic chromosomal disorders.
10. What is Barr body?
11. What is heterogametes?
12. How is sex determined in man?
13. What is meant by polygenic inheritance?
14. What is transduction?
15. Differentiate between Episomes and Plasmids.

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(Continue)

SECTION—B

Answer any five of the following questions : $6 \times 5 = 30$

1. State Mendel's law of independent assortment. Explain the law with a suitable illustration. Explain what is pleiotropism. $1+3+2=6$
2. What is meant by sex-linked inheritance? Discuss characteristic pattern of sex-linked inheritance with suitable examples. Differentiate between sex-influenced and sex-limited genes. $1+4+1=6$
3. Discuss the phenomenon of linkage citing suitable examples. What is meant by linkage group? $4+2=6$
4. Write short notes on cytological basis of crossing over and linkage map. $3+3=6$
5. Define gene mutation. Discuss molecular basis of mutations in relation to UV light and chemical mutagens. What is tautomerisation? $1+4+1=6$
6. Write short notes on types of gene mutation and polyploidy. $3+3=6$

22. Describe genic balance mechanism of sex determination in animals. Add a note on environmentally controlled sex determining mechanism with suitable examples. $4+$
23. Discuss extra-nuclear maternal inheritance in eukaryotes with suitable examples. Add a note on extra-nuclear inheritance by mitochondria. $4+$
24. What are transposable genes and what are their characteristics? Briefly discuss transposons in human. $1+2+$
25. Write short notes on transformation and transduction as mechanisms of gene transfer. $3+$

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