



**DCT-003-1181002**

Seat No. \_\_\_\_\_

**M. Sc. Zoology (Sem. I) (CBCS)**

**(W.E.F. 2016) Examination**

**August - 2022**

**ZOOL-102 : Molecular Biology, Genetics & Evolution**

**Faculty Code : 003**

**Subject Code : 1181002**

Time :  $2\frac{1}{2}$  Hours]

[Total Marks : 70

**Instruction** : Attempt any five.

- 1 Answer the following very briefly **2×7=14**
- (a) What is RNA?
  - (b) Define F1 generation
  - (c) Define C-value paradox
  - (d) What are linkage?
  - (e) Define alleles.
  - (f) What is natural selection?
  - (g) Define extra-chromosomal inheritance
- 2 Answer the following very briefly : **2×7=14**
- (a) What is chromosomal aberration?
  - (b) Define induced mutation
  - (c) Define spontaneous mutation
  - (d) Define alleles with examples
  - (e) Define speciation
  - (f) Define the term 'Genetics'
  - (g) What is DNA?
- 3 Answer of the following **7+7=14**
- (a) Write a note on the laws of Mendelian genetics.
  - (b) Write a note on the Hardy-Weinberg equilibrium.

- 4 Answer of the following : **7+7=14**  
(a) Write a note on the law of segregation in Mendelian genetics.  
(b) Write a note on the principal process of transcription.
- 5 Answer the following : **7+7=14**  
(a) Write a short note on the Chromosomal aberration.  
(b) Write a short note on the genetic code and its significance.
- 6 Answer the following : **7+7=14**  
(a) Discuss the Urey Miller's experiment in detail with diagram.  
(b) Write a short note on DNA damage and repair.
- 7 Answer the following : **7+7=14**  
(a) Write a short note on the Natural Selection.  
(b) Write a note on the molecular basis of spontaneous mutations.
- 8 Answer the following : **7+7=14**  
(a) Write a short note on the process of Translation.  
(b) Write a note on theories of organic evolution with examples.
- 9 Answer the following : **7+7=14**  
(a) Briefly describe the theory of C-value paradox.  
(b) Briefly describe the theory of extra-chromosomal inheritance.
- 10 Answer the following : **7+7=14**  
(a) Write a brief note on the genetics of speciation.  
(b) Write a brief note on the significance of the DNA methylation.
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