DCT-003-1141002 Seat No. _____

M. Sc. Botany (Sem. I) (CBCS)
(W.E.F. 2016) Examination

August - 2022

Molecular Biology, Genetics & Evolution : BOT-102

Faculty Code : 003
Subject Code : 1141002

Time : $2\frac{1}{2}$ Hours] [Total Marks : **70**

Instruction : Answer the following (any **five**).

1 Answer the fallowing : **7×2=14**

(a) Define leading and lagging strand.

(b) What is speciation?

(c) What is test cross? Write its significance.

(d) Write chargaff's rule.

(e) What is the role of p factor in Transcription termination?

(f) What is Shine-Dalgarno sequence?

(g) Give difference between homozygous and heterozygous.

2 Answer the following : **7×2=14**

(a) Write the functions of aminoacyl synthetase enzyme

(b) What is frameshift mutation? Give one example

(c) What is chromosomal aberration?

(d) Enlist various initiation factors required for bacterial protein synthesis.

(e) What are modified bases?

(f) Write the function of topoisomerase and helicase enzyme in DNA replication.

(g) What is theory of biogenesis?

3 Answer the following : **2×7=14**

(a) Give brief account of C- value paradox.

(b) Explain the structure of DNA double helix and its types.

4 Answer the following : **2×7=14**

(a) Explain the process of DNA replication.

(b) Write short note : DNA methylation.

5 Answer the following : **2×7=14**

(a) Describe the theories of organic evolution.

(b) Describe briefly natural selection.

6 Answer the following : **2×7=14**

(a) Write a note on RNA polymerase.

(b) Describe the different properties of genetic code.

7 Answer the following : **2×7=14**

(a) Write in detail the process of transcription.

(b) What is dihybrid cross? Explain with suitable example.

8 Write the short note of the following : **2×7=14**

(a) Types of mutation

(b) Polyploidy

9 Write the short note of the following : **2×7=14**

(a) Mutagen

(b) DNA repair

10 Briefly describe : **2×7=14**

(a) Translation process in prokaryotes.

(b) Construction of linkage map.
