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JBE-003-1141002 Seat No. _____

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

December - 2019

BOT - 102 : Molecular Biology, Genetics & Evolution

Faculty Code : 003

Subject Code : 1141002

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

1 Answer the following : (Any **Seven**) **7×2=14**

(a) Why DNA replication is called semi-conservative?

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

(c) What is the difference between core and holo RNA polymerase?

(d) What is spontaneous generation theory?

(e) Write chargaff's rule.

(f) Write name of enzyme involved in methylation and its function.

(g) What is the function of Shine-Dalgarno sequence located on mRNA?

(h) What is frameshift mutation? Give its example.

(i) What is allopolyploidy?

(j) What is the importance of modified bases present in tRNA?

2 Answer the following : (Any **Two**) **2×7=14**

(a) Briefly explain natural selection.

(b) What is independent assortment law? Explain with suitable example.

(c) Write note on speciation.

3 Answer the following : **2×7=14**

(a) Explain the process of DNA replication.

(b) Briefly describe construction of linkage map.

OR

3 Answer the following : **2×7=14**

(a) Write note on DNA methylation.

(b) Briefly describe C-value paradox.

4 Answer the following : **2×7=14**

(a) Explain the different properties of genetic code.

(b) Briefly describe transcription process in prokaryotic cell.

5 Write the short notes on any **two** of the following : **2×7=14**

(a) Chromosomal aberration

(b) Mutagenic agents

(c) Polyploidy

(d) DNA repair mechanism.