* J B E - 0 0 3 - 1 1 9 1 0 0 2 *

JBE-003-1191002 Seat No. _____

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

December - 2019

Micro - 102 : Molecular Biology, Genetics And Evolution

Faculty Code : 003

Subject Code : 1191002

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

1 Answer briefly Any **Seven** of the following : **14**

(2 Marks each)

(a) What is Genetic drift?

(b) What is the function of Shine-Dalgarno sequence?

(c) What is the importance of DNA methylation?

(d) What is spontaneous mutation?

(e) What is codon usage bias?

(f) What is Polyploidy?

(g) What is Speciation?

(h) Define Coacervates.

(i) What is Wobble Hypothesis and who proposed it?

(j) What is gene splicing?

2 Answer any **two** of the following : (7 Marks each) **14**

(a) Explain dihybrid cross with suitable example.

(b) Natural selection is the key mechanism of evolution - Explain in detail.

(c) Discuss structural differences in Prokaryotic and Eukaryotic DNA.

3 Answer the following : (7 Marks each) **14**

(a) Discuss steps of DNA replication in Prokaryotes with suitable diagram.

(b) Discuss transcription process in Prokaryotic cell.

OR

3 Answer the following : (7 Marks each) **14**

(a) Discuss in detail theory of organic evolution .

(b) What is linkage and genetic mapping? Explain in detail.

4 Answer the following questions : (7 Marks each) **14**

(a) Give a detailed account on molecular basis of induced mutation.

(b) Discuss extra chromosomal inheritance with suitable examples.

5 Answer Any **Two** of the following questions : **14**
(7 Marks each)

(a) Explain the mechanism of DNA repair.

(b) Describe the DNA constancy and C-Value Paradox.

(c) Discuss in detail Genetic code.

(d) Write a short note on the translation process.
