



JBF-BT-03 Seat No. _____

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

December – 2019

BT - 103 : Molecular Biology

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

[Total Marks : 70

Instruction : All questions are compulsory and carry equal marks.

- 1 Answer any seven : (2 Marks each) 14
- a. What is the significance of genome packaging?
 - b. What are histone proteins?
 - c. How were the introns discovered?
 - d. What is the significance of regulation in living systems?
 - e. What is the basic difference between a eukaryotic and prokaryotic gene?
 - f. What is the significance of sigma factors in RNA Polymerase?
 - g. Comment on the amino acids activation in protein synthesis.
 - h. What is the redundancy of the genetic code?
 - i. Comment on the silent mutations?
 - j. What is chromatin?
- 2 Answer any two of the following : 7×2=14
- a. Discuss genome organization in eukaryotes.
 - b. Describe genomic organization in eubacteria and compare it with that in archaea.
 - c. Discuss and explain C-value paradox in detail.
- 3 Write detailed comments on : (7 marks each) 14
- a. Discuss prokaryotic and eukaryotic DNA replication in a comparative manner.
 - b. Discuss multigene families.

OR

- 3** Answer the following : (7 marks each) **14**
- a. Discuss DNA repair with respect to its mechanisms and significance.
 - b. Discuss various mutations and their consequences in lac operon.
- 4** Write detailed comments on : (7 marks each) **14**
- a. Repressible operon
 - b. Allosteric regulations in different operons.
- 5** Write comments on any two of the followings : **14**
(7 marks each)
- a. Post translation modification of proteins
 - b. cAMP and its role in the operon regulation
 - c. DNA Polymerase in Prokaryotes
 - d. Modifications of mRNA.
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