JAX-003-019301 Seat No. _____

M. Sc. (Microbiology) (Sem. III) (CBCS) Examination

December – 2019

Micro - 313 : Genome Organization & Regulation of Gene Expression (Old Course)

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

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

i. What are histones ?

ii. Comment on progressive levels of DNA packing,

iii. What is euchromatin and heterochromatin ?

iv. What is alternative RNA splicing ?

v. State the post-translational modifications of proteins.

vi. What are high copy number plasmids ?

vii. What are F+, Hfr and F strains ?

viii. What is abortive transduction ?

ix. What is an IS sequence ?

x. What are viroids ?

2 Answer any two of the following : **14**

i. What is a nucleosome ? Write its importance in organization of genome.

ii. What are histones ? How are they different from other DNA-binding proteins ?

iii. Describe histone modifications and its effect on genome organization.

3 Answer the following : **14**

i. Compare the basic regulatory strategies in the prokaryotes and eukaryotes.

ii. Explain lac repressor's DNA binding action on the basis of its tertiary structure.

OR

3 Answer the following : **14**

i. Discuss attenuation control of gene expression.

ii. Discuss IacO and lacI mutants.

4 Answer any two of the following : **14**

i. Give an account of basic features of genetic exchange in prokaryotes.

ii. Describe molecular basis of relaxed and strictly controlled plasmids.

5 Write short notes on any Two of the following : **14**

i. Viral Replication

ii. Lambda Lysogeny

iii. DNA vs RNA Transposon

iv. Viroids.
