

M.Sc. (Micro) Semester - 1 (CBCS) Examination**Nov/Dec-2023 (SYLLABUS YEAR JUNE-2016)****MOLECULAR BIOLOGY , GENETICS AND EVOLUTION(CORE)****Time: 2:30 Hours****Marks: 70****Instructions:**

1. All questions are compulsory.
2. Figures to the right indicate marks.

Q.1 Answer the following (any seven out of ten, each of **two marks)****14**

- (1) Define various stages of translation.
- (2) Explain Okazaki fragment.
- (3) Explain the concept of linkage.
- (4) What is speciation?
- (5) Explain the importance of methylation.
- (6) Define allele gene.
- (7) Explain c value paradox in brief.
- (8) Define extra chromosomal inheritance with an example.
- (9) What is the function of Rho factor?
- (10) Describe the types of DNA.

Q.2 Answer the following (any two out of three, each of **seven marks)****14**

- (1) Explain the basic principle of Mendelian genetics.
- (2) Write note on genetics of speciation.
- (3) Explain the Miller's experiment.

Q.3 Answer the following**14**

- (1) Explain the DNA methylation in detail. [5]
- (2) Explain the structure of nucleic acids in prokaryotic and eukaryotic. [5]
- (3) Describe the DNA constancy. [4]

OR**Q.3 Answer the following (each of **seven** marks)****14**

- (1) Explain chromosomal mapping.
- (2) Explain the DNA replication in detail.

Q.4 (A) Answer the following (any two out of three, each of **five marks)****10**

- (1) Describe the initiation and elongation stages of transcription.
- (2) Write a note on gene structure.
- (3) Explain the translation in prokaryote.

Q.4 (B) Answer the following (any One out of two)**04**

- (1) Write a note on termination of transcription.
- (2) Explain genetic code in detail.

Q.5 Answer the following (any two out of four, each of **seven marks)****14**

- (1) Explain the principle and laws of chromosomal inheritance.
- (2) Discuss chromosomal aberration in detail.
- (3) Explain DNA damage and repair mechanisms in details.
- (4) Explain molecular basis of spontaneous mutation.
