

M.Sc. (Botany) Semester - 1 (CBCS) Examination**Nov/Dec - 2022 [OLD COURSE]****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 role of DNA polymerase.
2. What is inversion chromosomal abbreviation?
3. What are the benefits of the speciation?
4. What was the outcome of the Millers experiment?
5. How many types of post translation modification?
6. Discuss the contribution of Charles Darwin.
7. Which are the initiation codons in translation of prokaryote and eukaryote organisms?
8. Describe the genetic mapping in brief.
9. Enlist the types of DNA replication.
10. What is allolactose? Define its function.

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

1. Write note on Hardy-Weinberg genetic equilibrium.
2. What is origin of life? explain the Miller's experiment in detail.
3. Explain the basic principle of mendalian genetics.

Q.3 Answer the following 14

1. Write a note on c-value paradox. [5]
2. Explain the structural differences between prokaryotic and eukaryotic DNA. [5]
3. What is function of methylation in DNA? Explain the DNA methylation in detail. [4]

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

1. explain genetic linkage.
2. Discuss bidirectional DNA replication and mention the function of enzymes.

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

1. Describe the translation process in prokaryotic.
2. Write a note on genetic code.
3. Explain translation in detail.

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

1. Write a note on gene structure.
2. Write note on allege gene its function in eukaryotic organisms.

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

1. Explain DNA repair mechanisms.
2. Describe molecular basis of spontaneous mutation.
3. Explain the chromosomal aberration and its importance in molecular biology.
4. Discuss induce mutation in detail.
