647510 **MSCmolCm1020** **Seat No :_____**

M.Sc. (Micro) Semester - 1 (*CBCS*) Examination
Nov/Dec - 2022 [NEW 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. Explain the law of DNA constancy.
2. What is genetic equilibrium?
3. Define the importance of mendelian genetic in molecular biology?
4. Explain the Z form of DNA.
5. Explain the role of cAMP.
6. What is Okazaki? Explain in brief.
7. Explain the physical mutagen in brief.
8. Describe frameshift mutation.
9. What is maternal inheritance? explain in brief.
10. Define aneuploidy.

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

1. Write a note on genetics of speciation.
2. Explain the Miller's experiment and write the importance of the experiment.
3. Describe Hardy-Weinberg genetic equilibrium.

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. Write a note on DNA methylation. [4]

OR

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

1. Write a detailed note on genetic mapping.
2. Discuss DNA replication with labelled diagram.

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

1. Write a note on Lac operon in prokaryote.
2. Write a note on genetic code.
3. Explain post translational modifications.

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

1. Write a note on gene expression.
2. Explain concept of Gene.

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

1. Describe molecular basis of spontaneous mutation.
2. Write a short note on a Chromosomal aberration.
3. Discuss the extra-chromosomal inheritance in detail.
4. Explain SOS DNA repair mechanisms with suitable example.

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