0201N1177

Candidate's Seat No:____

B.Sc. Sem.-3 Examination
CC 201
Biotechnology
January-2026

Time : 2.30 Hours] **[Max.Marks : 70**

Q 1: Describe Mendel's laws in detail with suitable examples. Explain co-dominance and incomplete dominance with examples. (14 Marks)

OR

Q 1(A): Describe Genetic linkage with a suitable example. (7 Marks)

Q 1(B): Explain test cross and describe its use in genetics with an example. (7 Marks)

Q 2: Write a detailed note on DNA replication and describe the role of various proteins in the process of prokaryotic DNA replication. (14 Marks)

OR

Q 2(A): Write a short note on Physical properties of DNA and factors affecting it. (7 Marks)

Q 2(B): Describe Messelson and Stahl experiment. (7 Marks)

Q 3: Describe the process of initiation of Translation in prokaryotes and explain the roles of the proteins involved in it. (14 Marks)

OR

Q 3(A): Describe the salient features of the Genetic code. (7 Marks)

Q 3(B): Explain Rho-dependent and independent termination of transcription. (7 Marks)

Q 4: Describe the different types of mutations and their effects in detail. (14 Marks)

OR

Q 4(A):Describe the process and importance of the Ames test. (7 Marks)

Q 4(B):Write a short note on Photoreactivation of DNA. (7 Marks)

Q 5: Attempt any seven questions (2 Mark each) (14 Marks)

1. What is epistasis?
2. What is homologous recombination?
3. What is the contribution of Thomas Hunt Morgan?
4. Rolling circle model of replication is used by plasmids (True/ False)
5. What is the function of enzyme gyrase?
6. What is lagging strand in DNA replication?
7. What is the importance of codon AUG?
8. Define Promoter
9. Explain the Transcription bubble in brief.
10. Give an example of a conditional mutant.
11. How does 5-BromoUracil cause mutation?
12. What is the effect of UV B light on DNA?