

Seat No. : \_\_\_\_\_

# MH-111

May-2022

B.Sc., Sem.-V

CC-301 : Microbiology

(Molecular Biology and Genetics of Prokaryotes)

Time : 2 Hours]

[Max. Marks : 50

- Instructions :**
- (1) All questions in **Section-I** carry equal marks.
  - (2) Attempt any **Three** questions in **Section-I**.
  - (3) **Section-II** is **COMPULSORY**.

## SECTION – I

1. (A) Note down the components of DNA and give a brief note on the structure of DNA. 7  
(B) Explain molecular mechanism of DNA replication in details. 7
2. (A) Define: Semi conservative mode of replication and explain the experiment to prove it. 7  
(B) Explain mechanism and importance of post replication modification. 7
3. (A) Explain Elongation during translation with specific emphasis on role of ribozyme and GTP. 7  
(B) Write a note on Rho factor independent termination of transcription. 7
4. (A) Explain negative inducible regulation in *Lac* operon 7  
(B) Explain in detail : Genetic code. 7
5. (A) Explain the experiment of Leaderberg and its importance. 7  
(B) Write a detailed note on SOS repair. 7
6. (A) Mention different classes of bacterial mutants and write about them in brief. 7  
(B) Write in brief about Photo reactivation repair. 7
7. (A) What is competence ? Discuss the mechanism of transformation in Gram negative bacteria. 7  
(B) Describe in detail the specialized transduction. 7

8. (A) Describe various types of plasmids and its significance in bacteria 7  
(B) Write a detailed note on transposable elements. 7

### SECTION – II

9. Answers the following in **1-2** lines : (any **8**) 8
- (1) What is Z form of DNA ?
  - (2) Define: Nucleoside.
  - (3) What is the contribution of Griffith in Molecular Biology ?
  - (4) What is density gradient centrifugation ?
  - (5) Define Polycistronic RNA.
  - (6) What is meant by polarity with reference to genetic code ?
  - (7) Mention energy expenditure in translation process.
  - (8) Explain translocation.
  - (9) Define : Thymidine dimer.
  - (10) What are transposable elements ?
  - (11) Which protein blocks cell division for 40 min during SOS response ?
  - (12) What is point mutation ?
  - (13) Define: Sexduction.
  - (14) Define: Transformasomes.
  - (15) Differentiate between horizontal and vertical gene transfer.
  - (16) How F plasmid is different from other plasmids ?
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