

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

# MB-131

March-2019

B.Sc., Sem.-V

## 301 : Microbiology (Molecular Genetics of Prokaryotes)

Time : 2:30 Hours]

[Max. Marks : 70

- Instructions :**
- (1) Figure on right side indicate marks.
  - (2) Draw figure wherever necessary.
  - (3) Write legibly.

1. (A) Discuss Watson and Crick's model of DNA with its chemistry. **14**

**OR**

- (i) Write a note on structure and function of Gene. **7**
- (ii) Discuss mechanism of DNA replication. **7**

(B) Answer very briefly : (Any **four**) **4**

- (1) Write conclusion of Griffith's experiment.
- (2) Give equation for DNA replication.
- (3) Name isotopes used by Messelson & Stahl and Hershey & Chase.
- (4) What is the role of 'ori' in DNA replication ?
- (5) What is the speed of DNA replication ?
- (6) What are Catenanes ?

2. (A) Describe translation of m RNA. **14**

**OR**

- (i) Write a note on Genetic code. **7**
- (ii) Discuss regulation of Lac operon. **7**

(B) Answer very briefly : (Any **four**) **4**

- (1) Draw trp operon and label it.
- (2) Give differentiation between prokaryotic and eukaryotic RNA polymerase.
- (3) Give function of Initiation factors.
- (4) Give two exceptions to genetic codon.
- (5) What is 5' capping ?
- (6) What is polycistronic m RNA ?

3. (A) Discuss DNA repair. 14
- OR**
- (i) Discuss Chemical mutagens. 7
- (ii) Describe types of mutations on the basis of gene expression. 7
- (B) Answer very briefly : (Any **three**) 3
- (1) What is the function of sfi A protein ?
- (2) Name enzymes and proteins involved in mismatch base repair.
- (3) What are conditionally lethal mutants ?
- (4) What are prototrophs ?
- (5) What is suppression mutation ?
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4. (A) Discuss conjugation. 14
- OR**
- (i) Describe Transformation. 7
- (ii) Write a note on Plasmids. 7
- (B) Answer very briefly : (Any **Three**) 3
- (1) What is reciprocal recombination ?
- (2) What is merzygote ?
- (3) Name the Auxotrophs used by J Lederberg
- (4) What is the aim of U-tube experiment ?
- (5) What is HFT lysate ?
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