



**RP-003-1015011**

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

**Third Year B. Sc. (Sem. V) (CBCS) (W.I.F. 2016)  
Examination**

**February - 2019**

**MB - 503 : Microbiology**

*(Molecular Biology and Genetic Engineering (2018))*

*(New Course)*

**Faculty Code : 003**

**Subject Code : 1015011**

Time :  $2\frac{1}{2}$  Hours]

[Total Marks : 70

- 1 (A) Answer the following : 4
- (1) Who is considered as father of Genetics?
  - (2) Define: Allele
  - (3) What is the role of Helicase in Replication ?
  - (4) Mitochondrial DNA Replication starts at \_\_\_\_\_.
- (B) Answer in brief : (Any **One** out of two) 2
- (1) What is monohybrid and dihybrid cross?
  - (2) State key features of DNA Polymerase.
- (C) Answer in detail : (Any **One** out of two) 3
- (1) What is the law of independent assortment ?
  - (2) Explain Meselson- Stahl experiment.
- (D) Write notes on : (Any **One** out of two) 5
- (1) DNA Replication in E coli (with diagram)
  - (2) Mendelian Genetics

- 2 (A) Answer the following : 4
- (1) Define: Reading frame
  - (2) What is Repression?
  - (3) The Attenuation was first time proposed by \_\_\_\_\_.
  - (4) Define: Molecular chaperones
- (B) Answer in brief : (Any **One** out of two) 2
- (1) Explain structure of tRNA.
  - (2) Which are the three parts of Translation ?
- (C) Answer in detail : (Any **One** out of two) 3
- (1) Discuss Termination stage of Translation
  - (2) Give types and Principles of Gene Regulation.
- (D) Write notes on : (Any **One** out of two) 5
- (1) Transcription
  - (2) The Lactose Operon
- 3 (A) Answer the following : 4
- (1) What is Replicative Recombination?
  - (2) Give examples of Phyla of bacteria where Transformation takes place.
  - (3) What is Lysogeny and Lysogens ?
  - (4) Define: Insertion Sequences
- (B) Answer in brief : (Any **One** out of two) 2
- (1) State various types of Recombination
  - (2) F Conjugation

- (C) Answer in detail : (Any **One** out of two) **3**
- (1) Induced Competency
  - (2) Specialized Transduction
- (D) Write notes on : (Any **One** out of two) **5**
- (1) Hfr Conjugation
  - (2) Transformation as a method of Gene Transfer
- 4 (A) Answer the following : **4**
- (1) Define: Mutation
  - (2) Enlist Physical Mutagens.
  - (3) What is the rate of Mutation ?
  - (4) Name error prone repair mechanism.
- (B) Answer in brief : (Any **One** out of two) **2**
- (1) Give the two ways in which mutations can occur.
  - (2) What is DNA repair mechanism ?
- (C) Answer in detail : (Any **One** out of two) **3**
- (1) What is alkylating agent? How it causes Mutation ?
  - (2) Explain Light Dependent Repair Mechanism.
- (D) Write notes on : (Any **One** out of two) **5**
- (1) Induced Mutations
  - (2) Recombinational Repair

- 5 (A) Answer the following : 4
- (1) Define: Plasmid
  - (2) Which are the benefits of practical application of Genetic Engineering ?
  - (3) What is the use of Taq Polymerase ?
  - (4) What is Homo Polymer tailing ?
- (B) Answer in brief : (Any **One** out of two) 2
- (1) Enlist the enzymes used in DNA tailoring.
  - (2) What is Biolistics ?
- (C) Answer in detail : (Any **One** out of two) 3
- (1) Discuss Cosmid with appropriate diagram.
  - (2) Give differences between Type I and Type II Restriction Endonuclease.
- (D) Write notes on : (Any **One** out of two) 5
- (1) Isolation of DNA
  - (2) Detection of Recombinant molecules
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