DI-003-001632 Seat No. _____

B. Sc. (Sem. VI) (CBCS) (W.E.F. 2010) Examination

March - 2022

Molecular Biology & Genetic Engineering : MB-602

(Old Course)

Faculty Code : 003

Subject Code : 001632

Time : **3** Hours] [Total Marks : **70**

Instructions : (1) All questions are Compulsory.

(2) Figures on the right indicate total marks of the question.

(3) Draw neat Diagrams wherever necessary.

1 Answer specifically: **20**

(1) Define: Gene

(2) State Mendel's Law of segregation.

(3) What is Cistron?

(4) What is central dogma of life?

(5) Define: Transcription

(6) What is operon?

(7) Define: Translation\

(8) Name the enzyme required for RNA synthesis

(9) Define: Recombination

(10) What is Transformation?

(11) Define: Transduction

(12) What are Transposable elements?

(13) Define: Mutation

(14) What is meant by back mutation?

(15) What is the function of Ames test?

(16) What is Photo reactivation process?

(17) Define: Vector

(18) What is restriction Endonuleases?

(19) Define: Site directed Mutagenesis

(20) What are Molecular Chaperons?

2 (A) Answer any three. **6**

(1) Explain Mendel's Law of independent assortment.

(2) What are post translational modifications?

(3) What is homologous recombination?

(4) Enlist Physical mutagens

(5) What is plasmid?

(6) What is Natural Transformation?

(B) Answer any three. **9**

(1) Discuss the experiment that proves DNA as the Genetic material

(2) Discuss: Translation

(3) Discuss Generalized Transduction

(4) Explain fluctuation analysis

(5) What is Directed Evolution?

(6) Give an overview of induced mutagenesis

(C) Answer any two. **10**

(1) DNA replication and its models

(2) Lac operon

(3) Conjugation

(4) DNA repair mechanism

(5) Vectors used in Recombinant DNA Technology

3 (A) Answer any three. **6**

(1) Write briefly about Gene - Cistron relationship

(2) What is Genetic code?

(3) What is site specific recombination?

(4) Enlist chemical mutagens.

(5) What is cosmid?

(6) What is electroporation?

(B) Answer any three **9**

(1) Discuss brief history of genetic and molecular biology.

(2) Discuss: Post transcriptional modification

(3) Write a brief note on Transposable genetic materials

(4) Explain Phenotypic and Phenomic lag

(5) Write methods for the detection and screening of recombinant DNA.

(6) Explain Biochemical basis of mutation

(C) Answer any two. **10**

(1) Gene structure and architecture.

(2) Trp operon.

(3) Transformation.

(4) Types of mutation.

(5) Applications of Genetic Engineering
