Seat No. _____

HAL-003-1015011

B. Sc. (Sem. V) (W.E.F. 2016) Examination

June - 2023

MB-503 : Molecular Biology & Genetic Engineering (2018)

Faculty Code : 003
Subject Code : 1015011

Time : $2\frac{1}{2}$ / Total Marks : **70**

Instructions :

(1) Numbers written on right indicate marks.

(2) All qustions are compulsory.

1 (a) Objective type questions : **20**

(1) Law of inheritance given by _____

(2) What is the innovation of Hargobind Khurana ?

(3) What is the function of helicase ?

(4) What is cistron ?

(5) What is post transcriptional modifications ?

(6) Define genetic code.

(7) Define operon.

(8) What are regulatory gene ?

(9) Define recombination.

(10) What is competence ?

(11) Define abortive transduction.

(12) What is jumping gene ?

(13) What is mutagenesis ?

(14) Ames test is used for _____

(15) Define frameshift mutation.

(16) What is photo reactivation repair ?

(17) What is genetic engineering ?

(18) Define vector.

(19) Full form of BACs and YACs.

(20) Define molecular chaperon.

2 (a) Answer in brief : (any 3 out of 6) **6**

(1) Mendel's law of dominance.
(2) Enlist different regulatory genes.
(3) Role of natural transformation in gene transfer.
(4) What is mutation rate ?
(5) Explin phenotyhpic lag.
(6) How genetic manipulation can done in plant cell ?

(b) Answer in detail : (any 3 out of 6) **9**

(1) DNA replication mechanism.
(2) Regulation of lactose utilization - Lac Operon.
(3) Post transcriptional control.
(4) Mechanism of DNA transfer in Gram positive.
(5) Induced mutation by physical mutagen.
(6) Colony hybridization.

(c) Write a note on : (any 2 out of 5) **10**

(1) DNA is the universal genetic material.
(2) Post transcription control.
(3) Homologus recombination.
(4) Explain any two DNA repair mechanism.
(5) Site directed mutagenesis.

3 (a) Answer in brief : (any 3 out of 6) **6**

(1) Functions of gyrase and DNA Polymerase-III enzyme.
(2) Principles of gene regulation.
(3) What is site specific recombination ?
(4) Enlist physical, chemical and biological mutagen.
(5) Application of genetic engineering.
(6) How DNA can inserted into vector ?

(b) Answer in detail : (any 3 out of 6) **9**

(1) Gene cistron relationship in prokaryotes.
(2) Transcriptional regulation
(3) Artificial induced competence.
(4) Electroporation.
(5) Spontaneous mutation.
(6) Cosmid

(c) Answer in detail : (any 2 our of 5) **10**

(1) History and development in molecular biology.
(2) The trp operon
(3) Methods of gene transfer.
(4) Biochemical basis of mutation.
(5) Isolation of DNA.
