HAE-003-001632 Seat No. _____

B. Sc. (Sem. VI) (CBCS) Examination

June / July – 2017

MB-602 : Molecular Biology & Genetic Engineering

(New Course)

Faculty Code : 003
Subject Code : 001632

Time : $2\frac{1}{2}$ Hours] [Total Marks : **70**

Instructions : (1) There are two sections and both are compulsory.
(2) Figures on right side indicates marks
(3) Draw the figure wherever necessary.
(4) Write answers of all the questions in main answer sheet

SECTION - I

1 Objective questions (Each carry one mark) **20**

(1) Define split gene.

(2) What is interallelic complementation?

(3) Define replisoffie.

(4) Write the contribution of Thomas Hunt Morgan.

(5) What is the role of pribnow sequence in transcription?

(6) Tryptophan act as _____ to control its own biosynthesis.

(7) What is codon family?

(8) Define conjugative plasmids.

(9) What is transformasomes?

(10) What is Pac site?

(11) Write the examples of composite transposons.

(12) Define missense mutation.,

(13) What are mutational hot spots?

(14) Which is the most important protein for recombinational repair?

(15) Write the function of photolyase.

(16) Define concatemer.

(17) What is oligonucleotide-directed mutagenesis?

(18) What is shuttle vector?

(19) Define chaperonins.

(20) Enlist the name of restriction endonucleases use for rDNA technology.

SECTION - II

2 (a) Answer specifically (any 3 out of 6) **6**

(1) Define Alternative splicing.

(2) Explain codominance.

(3) What is transcriptase?

(4) Define competence.

(5) What is frameshift mutation ?

(6) What are cosmids?

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

(1) Discuss replication fork.

(2) Explain gene structure and architecture.

(3) Write post transcriptional modification of RNA.

(4) Describe generalized transduction.

(5) Explain the mechanism of mismatch repair.

(6) Describe limitations of bacteria in gene cloning.

(c) Short notes on (any 2 out of 5) **10**

(1) Justify the statement "Deoxyribonucleic acid is the universal hereditary material".

(2) Lactose operon.

(3) Discuss the process of conjugation in gram positive and gram negative bacteria

(4) Explain bio chemical basis of mutation.

(5) Applications of genetic engineering.

SECTION - III

3 (a) Answer specifically (any 3 out of 6) **6**

(1) Define monohybrid, dihybrid test cross

(2) Write the role of Rho factor in transcription process.

(3) Define Illegitimate recombination

(4) Structure of Tn3 transposon

(5) Define directed evolution

(6) What is recombinational repair?

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

(1) Cis-trans complementation test

(2) Enlist properties of the genetic code

(3) Discuss the involvement of release factor in translation.

(4) Describe Mutagenicity assay.

(5) Write the significance of natural transformation.

(6) Describe site-directed mutagenesis.

(c) Short notes on (any 2 out of 5) **10**

(1) Give an overview of gene cloning

(2) Induced mutagenesis

(3) Homologous recombination

(4) Molecular chaperons

(5) Arabinose operon.
