MAN-003-001632 Seat No. _____

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

March / April - 2018

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) Figures on right side indicates marks.
(2) Draw the figure wherever necessary.
(3) Write answers of all the questions in main answer sheet.

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

(1) What are intron and exon?

(2) Define replisome.

(3) What is nested gene?

(4) Write the contribution of Thomas Hunt Morgan.

(5) Write the pribnow sequence located at-10 region _____

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

(7) What is codon family?

(8) Write true or false: Transcription rate is slower than DNA replication _____

(9) Define transformasomes.

(10) Write non sense codons.

(11) Give the examples of composite transposons.

(12) Who discovered Transposable genetic elements?

(13) What are mutational hot spots?

(14) Write the name of most important protein for recombinational repair _____

(15) Write the function of photolyase.

(16) What is concatemer?

(17) What is oligonucleotide-directed mutagenesis?

(18) What is shuttle vector and write its example.

(19) Define chaperonins.

(20) Synthesis of cDNA is carried out by enzyme _____

2 (A) Answer specifically : (any **3** out of 6) **6**

(1) Define alternative splicing

(2) Define codominance.

(3) What is transcriptase?

(4) What is competence?

(5) Define Photoreactivation, auxotroph

(6) Define cosmid.

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

(1) Describe the enzymes involved in the process of DNA replication.

(2) What is the difference between Test cross and Back cross?

(3) Describe the process of transcription.

(4) Explain specialized transduction.

(5) Explain the mechanism of SOS repair.

(6) Discuss limitations of bacteria in gene cloning.

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

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

(2) Explain regulation of lactose utilization.

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

(4) Explain biochemical basis of mutation.

(5) Applications of genetic engineering.

3 (A) Answer specifically : (any **3** out of 6) **6**

(1) Define monohybrid, dihybrid 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) Define: Pseudoreversion, AP sites.

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

(1) Describe Cis-trans complementation test.

(2) Discuss the genetic code with its properties.

(3) Describe microcycle of translation process.

(4) Explain Fluctuation Analysis.

(5) Describe antigenic variation as a genetic mechanism.

(6) Describe site-directed mutagenesis.

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

(1) Explain Eukaryotic gene manipulation.

(2) Describe induced mutagenesis.

(3) Homologous recombination.

(4) Molecular chaperons.

(5) Tryptophan operon.
