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PA-003-001632 Seat No. _____

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

March / April - 2020

MB - 602 : Microbiology

(Molecular Biology & Genetic Engineering)

(Old Course)

Faculty Code : 003

Subject Code : 001632

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

1 Objective type questions : **20**

(1) What is gene expression?

(2) Define transformasomes.

(3) What are terminations or nonsense codes?

(4) What is anticodon?

(5) Who discovered Transposable genetic elements?

(6) Differentiate between template strand or the antisense strand and coding strand or the sense strand.

(7) What are intron and exon?

(8) Define replisome.

(9) What is nested gene?

(10) Write the contribution of Thomas Hunt Morgan.

(11) Write the pribnow sequence located at –10 region.

(12) The flow of genetic material in microbial cells usually takes place from _____ through RNA to _____.

(13) What is transcription bulb?

(14) The genetic code is universal except for rare exceptions in _____.

(15) Write the function of photolyase.

(16) What is concatemer?

(17) What is Site-directed mutagenesis?

(18) What is shuttle vector?

(19) Define chaperonins.

(20) Synthesis of cDNA is carried out by enzymes _____.

2 (A) Answer in brief : (Any **Three**) **6**

(1) What is competence?

(2) Define Photoreactivation.

(3) Define cosmid.

(4) Define monohybrid & dihybrid cross.

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

(6) Illegitimate recombination.

(B) Answer in detail : (Any **Three**) **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) Describe Cis-trans complementation test.

(5) Discuss the genetic code with its properties.

(6) Describe translation process.

(C) Writes Notes on : (Any **Two**) **10**

(1) Explain Eukaryotic gene manipulation.

(2) Describe induced mutagenesis.

(3) Homologous recombination.

(4) Molecular chaperons.

(5) Tryptophan operon.

3 (A) Answer in brief : (Any **Three**) **6**

(1) Define alternative splicing.

(2) Define codominance.

(3) What is transcriptase?

(4) Structure of Tn3 transposon.

(5) Define directed evolution.

(6) Define: Pseudoreversion.

(B) Answer in detail : (Any **Three**) **9**

(1) Explain Fluctuation Analysis.

(2) Describe antigenic variation as a genetic mechanism.

(3) Describe site-directed mutagenesis.

(4) Explain specialized transduction.

(5) Explain the mechanism of SOS repair.

(6) Discuss limitations of bacteria in gene cloning.

(C) Writes Notes on : (Any **Two**) **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.
