



RY-003-001632

Seat No. _____

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

March - 2019

MB - 602 : Molecular Biology & Genetic Engineering

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.

1 Answer the following questions : 20

- (1) Define muton and recon.
- (2) State the law of independent assortment.
- (3) What is okazaki fragment?
- (4) Give the role of primase in DNA synthesis.
- (5) Who discovered Transposable genetic elements?
- (6) What is illegitimate recombination?
- (7) What is transfection?
- (8) Give full form of IPTG.
- (9) Tryptophan act as _____ to control its own biosynthesis.
- (10) What is codon family?
- (11) What are riboswitches?
- (12) Write true or false : DNA replication rate is slower than Transcription _____
- (13) What are mutational hotspots?

- (14) What is the significance of AMES test?
- (15) If second mutation occurs at the same position as the original mutation and restores wild type then it is _____
- (16) What is the role of 5 Bromo uracil in mutation?
- (17) What is plasmid curing?
- (18) What is shuttle vector? Give its example.
- (19) What is the role of protein disulphide isomerase in protein folding?
- (20) What is site directed mutagenesis?

2 (A) Answer the following : (Any Three) 6

- (1) Explain alternate splicing.
- (2) Discuss dihybrid cross.
- (3) Give types of gene regulation.
- (4) What is Holliday model?
- (5) What is phenotypic and phenomic lag?
- (6) What are molecular scissors in genetic manipulation?

(B) Answer the following : (Any Three) 9

- (1) Enlist various models of DNA replication and discuss rolling circle model.
- (2) What is difference between test cross and back cross?
- (3) Enlist various post transcriptional modification and discuss any one.
- (4) Briefly discuss abortive transduction.
- (5) Explain the mechanism of SOS repair.
- (6) Discuss limitations of bacteria in gene cloning.

- (C) Answer the following : (Any **Two**) **10**
- (1) Discuss in detail semiconservative nature of DNA replication.
 - (2) What is operon? Discuss the Trp Operon in detail.
 - (3) Write detail note on Transformation in Gram negative bacteria.
 - (4) Explain biochemical basis of mutation.
 - (5) Short note on Directed Evolution.
- 3** (A) Answer the following : (Any **Three**) **6**
- (1) What is the role of Rho factor in transcription process?
 - (2) What is glycosylation and farnesylation?
 - (3) What is spontaneous mutation?
 - (4) Draw diagram showing conjugation between F^- and F^+ cells
 - (5) What is expression system?
 - (6) State and explain law of co dominance.
- (B) Answer the following : (Any **Three**) **9**
- (1) Discuss cis trans complementation test.
 - (2) Write characteristics of Genetic code.
 - (3) Discuss site specific recombination.
 - (4) How recombinants are detected?
 - (5) What is mismatch repair mechanism of DNA repair?
- (C) Answer the following : (Any **Two**) **10**
- (1) Explain eukaryotic gene manipulation.
 - (2) Describe induced mutagenesis.
 - (3) What are Transposable genetic element? Write in detail about it.
 - (4) Write a note on Lac Operon.
 - (5) Justify the statement "Deoxyribonucleic acid is the hereditary material"