DBL-003-2015011 Seat No. _____

Third Year B. Sc. (Sem. V) (W.E.F. 2019) Examination

June - 2022

Microbiology : 503

(Molecular Biology & Genetic Engineering)

(New Course)

Faculty Code : 003

Subject Code : 2015011

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

Instructions : (1) Right side figures indicate mark of the questions.
(2) Draw the figure wherever necessary.
(3) Write answers of all the questions in main answer sheet.
(4) Attempt any five questions.

1 (a) Answer the following : **4**
(1) Define Genetics.
(2) Define Allele.
(3) What is monohybrid cross ?
(4) Write contribution of Meselson and Stahl.

(b) Answer in brief : **2**
Cis Trans Test.

(c) Answer in detail : **3**
Models of DNA Replication.

(d) Write a note on : **5**
DNA as the universal genetic material.

2 (a) Answer the following : **4**
(1) Define : Intron
(2) Define : Pleiotropy.
(3) What is Dihybrid cross ?
(4) Write contribution of Hershey and Chase.

(b) Answer in brief : **2**
Law of independent Assortment

(c) Answer in detail : 3
What is splicing ? Explain Alternative splicing.

(d) Write a note on : 5
DNA Replication.

3 (a) Answer the following : 4
(1) Define : Shine dalgarno sequence.
(2) What is Central Dogma of life ?
(3) What is start Codon ?
(4) What is the contribution of Jacob and Monad ?

(b) Answer in brief : 2
Explain Stop codons.

(c) Answer in detail : 3
Post transcriptional modifications.

(d) Write a note on : 5
Lactose operon

4 (a) Answer the following : 4
(1) Define : Operon
(2) What is spliceosome ?
(3) What is attenuation ?
(4) What is the structure of tRNA ?

(b) Answer in brief : 2
What is Genetic code ? Explain in brief.

(c) Answer in detail : 3
Post translational modification

(d) Write a note on : 5
Transcription

5 (a) Answer the following : 4
(1) Define Transposon.
(2) What is Electroporatin ?
(3) What is Competence ?
(4) What is HFr ?

(b) Answer in brief : 2
Define Hoologous Recombination and enlist steps of it.

(c) Answer in detail : 3
Discuss Specialized Transduction.

(d) Write a note on : 5
Conjugation

6 (a) Answer the following : 4

(1) Define Illegitimate Recombination.

(2) What is the contribution of Barbara McClintock ?

(3) What is Synapsis ?

(4) Define : Transduction.

(b) Answer in brief : 2

Site specific recombination.

(c) Answer in detail : 3

Discuss in detail Transposon.

(d) Write a note on : 5

Transformation

7 (a) Answer the following : 4

(1) Define : Muton

(2) What is the effect of UV rays on bacterial cell ?

(3) What is phenotypic lag ?

(4) What is Photo reactivation repair ?

(b) Answer in brief : 2

Transition and Transversion

(c) Answer in detail : 3

SOS Repair

(d) Write a note on : 5

Mutation at Chromosome and Gene level

8 (a) Answer the following : 4

(1) Define : Reversion

(2) What is mutation rate ?

(3) Enlist phenotypic effect of mutation.

(4) What is Ames test ?

(b) Answer in brief : 2

Frame shift Mutation

(c) Answer in detail : 3

Mismatch and Excision Repair

(d) Write a note on : 5

Induced Mutation

9 (a) Answer the following : **4**

(1) Define : Cosmid

(2) Define : Colony hybridization.

(3) Define : Restriction enzymes.

(4) Define : Genetic engineering.

(b) Answer in brief : **2**

What is BACs and YACs ?

(c) Answer in detail : **3**

Molecular Chaperons

(d) Write a note on : **5**

Gene Manipulation in Prokaryotes

10 (a) Answer the following : **4**

(1) What is GroEL ?

(2) Define : Phagmid.

(3) How to isolate DNA from prokayotes ?

(4) What is Ti Plasmid ?

(b) Answer in brief : **2**

How to detect recombinant molecule ?

(c) Answer in detail : **3**

Site directed Mutagenesis.

(d) Write a note on : **5**

Vectors for rDNA Technology.
