

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

MSc DEGREE EXAMINATION DECEMBER 2022
(First Semester)

Branch - APPLIED MICROBIOLOGY

MICROBIAL GENETICS, GENOMICS & PROTEOMICS

Time: Three Hours

Maximum: 50 Marks

SECTION-A (5 Marks)

Answer ALL questions

ALL questions carry EQUAL marks

(5 x 1 = 5)

- 1 Hemophilia is an example of ----- inheritance.
(i) Dominant (ii) Recessive
(iii) Allelic (iv) Sex-linked
- 2 In DNA mismatch repair ----- process distinguishes the parental and daughter strands.
(i) Phosphorylation (ii) Adenylation
(iii) Thymidilation (iv) Hemi-methylation
- 3 The key feature of Holliday model is the formation of ----- DNA.
(i) Duplex (ii) Hetero duplex
(iii) Homo duplex (iv) Nicks
- 4 The transposable element was first discovered in
(i) Garden pea (ii) Maize
(iii) Green gram (iv) Red gram
- 5 EMBL is an example of ----- database.
(i) Protein (ii) Structural
(iii) Functional (iv) Nucleic acid

SECTION - B (15 Marks)

Answer ALL Questions

ALL Questions Carry EQUAL Marks

(5 x 3 = 15)

- 6 a Illustrate in detail about the process of Genomic imprinting and add a note on its regulation.
OR
b Discuss in detail about the process of Incomplete dominance with suitable example.
- 7 a What is meant by site directed mutagenesis? Write its applications.
OR
b State the process of Nucleotide excision repair with its mechanism.
- 8 a Give a neat sketch about the process of conjugation with suitable diagram.
OR
b Elucidate the process of transfer of bacterial chromosome by Hfr cells.

Cont...

9 a What are Transposons? Explain its various classes and its function

OR

b Discuss the general characteristics and Mutants of Neurospora.

10 a Categorize the types of Nucleic acid databases with its applications.

OR

b What is meant by Transcriptomics? Explain its uses.

SECTION -C (30 Marks)

Answer ALL questions

ALL questions carry EQUAL Marks

(5 x 6 = 30)

11a Elucidate the process of Linkage map and Linkage analysis with suitable example.

OR

b Analyze the experiment of Mendel's law of Independent assortment and add a note on its deviations.

12 a Explain the process of Frame shift and point mutation with its mechanism.

OR

b How the DNA is getting damaged? Explain the causes of damage with suitable example.

13 a Illustrate in detail about the process of Generalized and specialized transduction with its applications.

OR

b Enumerate the process of recombination with reference to Holliday model with suitable diagram.

14 a Discuss in detail about the lifecycle and Genetic regulation of λ phage.

OR

b What is meant by Transposition? Explain its mechanism with suitable example.

15 a Evaluate the various applications of Genomics in the field of Agriculture, Medicine and forestry.

OR

b Explain the Construction the phylogenetic tree and add a note on its special types.

Z-Z-Z

END