

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

MSc DEGREE EXAMINATION MAY 2024
(First Semester)

Branch- APPLIED MICROBIOLOGY

MICROBIAL GENETICS, GENOMICS & PROTEOMICS

Time: Three Hours

Maximum: 75 Marks

SECTION-A (10 Marks)

Answer ALL questions

ALL questions carry EQUAL marks

(10 × 1 = 10)

Module No.	Question No.	Question	K Level	CO
1	1	_____ are alleles producing a similar effect under changed conditions. a) Genes b) Pseudoallele c) Multiple allele d) Chromosomes	K1	CO1
	2	The function of crossing over is a) Segregation of alleles b) Recombination of alleles c) Segregation of chromosomes d) Distribution of linked genes	K2	CO1
2	3	What mutation does 5-bromouracil cause? a) GC is replaced by TA b) CG is replaced by GC c) AT is replaced by GC d) AT is replaced by CG	K1	CO2
	4	The number of copies of chromosomes found in each nucleus in a given organism. a) Phenocopy b) Ploity c) SOS d) DNA	K2	CO2
3	5	Site-specific recombination in bacteriophage lambda is mediated by a) Tn5 and Xis b) Int and Tn10 c) Tn3 and Xis d) Int and Xis	K1	CO3
	6	Which of the following is a example for episome? a) Hfr b) F ⁻ c) T4 phage d) T2 phage	K2	CO3
4	7	How many Ty-1 transposon found in a yeast? a) 25 b) 10 c) 35 d) 39	K1	CO4
	8	The genetic elements that can move from one position to another in the genome. a) Genetic disorders b) Transposon c) Cloning genes d) Mutation	K2	CO4
5	9	A program to predict genes, exons, splice sites and other signals along a DNA sequence. a) GENEID b) TBLASTNX c) JIGSAW d) BLASTN	K1	CO5
	10	An organism resulting in variations in the phenotype during the life span of the organism. a) Genomics b) Proteomics c) Phenomics d) Trait	K2	CO5

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SECTION - B (35 Marks)

Answer ALL questions

ALL questions carry EQUAL Marks

(5 × 7 = 35)

Module No.	Question No.	Question	K Level	CO
1	11.a.	Explain the concept of codominance and incomplete dominance.	K4	CO1
	(OR)			
	11.b.	Give account on concept of gene.		
2	12.a.	What is spontaneous mutation? Explain how it naturally occurs.	K3	CO2
	(OR)			
	12.b.	Summarize the details of excision and base excision DNA repair process.		
3	13.a.	Explain the molecular mechanism of gene transfer by transduction.	K4	CO3
	(OR)			
	13.b.	List out the proteins involved in recombination and their functions.		
4	14.a.	Mention the characters and uses of yeast Ty-1 elements.	K3	CO4
	(OR)			
	14.b.	Explain about the gene mapping by using molecular markers.		
5	15.a.	Discuss about the tools used for Phylogenetic Analysis.	K5	CO5
	(OR)			
	15.b.	Explain about pharmacogenomics and their main focus on human welfare.		

SECTION -C (30 Marks)

Answer ANY THREE questions

ALL questions carry EQUAL Marks

(3 × 10 = 30)

Module No.	Question No.	Question	K Level	CO
1	16	Explain in detail the independent assortment and complementation test.	K4	CO1
2	17	What is mutagenesis? Explain the process of base analogue mutations.	K5	CO2
3	18	Describe in detail the gene transfer by generalised transduction.	K5	CO3
4	19	How does mitochondrial mutation usually occur in yeast, and what happens to the target site?	K4	CO4
5	20	Describe the importance of freely accessible public databases in the field of genomics and proteomics.	K4	CO5