

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

MSc DEGREE EXAMINATION DECEMBER 2023
(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	Mendel discovered factors which remain its identity in a hybrid, these factors are _____ a) Genes b) Alleles c) DNA d) Chromosomes	K1	CO1
	2	Which of the following is an example of incomplete dominance? a) AB blood group b) <i>Mirabilis jalapa</i> c) Shape of crown in poultry d) Mouse coat colour	K2	CO1
2	3	Transition type of gene mutation is caused When? 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 DNA polymerase involved in base excision repair is a) DNA polymerase α b) DNA polymerase β c) DNA polymerase σ d) DNA polymerase γ	K2	CO2
3	5	Insertional inactivation used for a) Selection of Recombinants b) select pest resistant crops c) Enhancing of food values d) reduce post harvest loses	K1	CO3
	6	This virus is used for transduction. a) Lambda phage b) T7 phage c) T4 phage d) T2 phage	K2	CO3
4	7	Which of the following is a non-composite transposon? a) Tn5 b) Tn10 c) Tn3 d) Tn9	K1	CO4
	8	What is the primary use of YACs in biotechnology research? a) Studying genetic disorders b) Creating transgenic organisms c) Cloning genes d) Developing new medical treatments	K2	CO4
5	9	Which of the following is not a variant of BLAST? a) BLASTX b) TBLASTNX c) BLASTP d) BLASTN	K1	CO5
	10	The term Bioinformatics was coined by _____. a) J.D Watson b) Pauline Hogeweg c) Margaret Dayhoff d) Frederic Sanger	K2	CO5

Cont...

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 Linkage and Crossing Over.	K4	CO1
	(OR)			
	11.b.	Give account on Multiple Alleles and its inheritance.		
2	12.a.	What is lethal mutation? Explain with suitable example.	K3	CO2
	(OR)			
	12.b.	Summarize the details of recombinant DNA repair process.		
3	13.a.	Explain the molecular mechanism of gene transfer by conjugation.	K4	CO3
	(OR)			
	13.b.	How does recombination in viruses differ from that in bacteria?		
4	14.a.	Mention the classes of bacterial transposons and their transposition regulations.	K3	CO4
	(OR)			
	14.b.	Explain about the gene mapping by using somatic cell hybrids.		
5	15.a.	Write a short note on Protein Functional Analysis Tools.	K5	CO5
	(OR)			
	15.b.	Describe the importance of transcriptomics and proteomics.		

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 genetic imprinting, penetrance and expressivity.	K4	CO1
2	17	What is the Ames test and how is it carried out? What assumption concerning mutagenicity and carcinogenicity is it based upon?	K5	CO2
3	18	Distinguish between F, Hfr, and F-strains of E. coli with respect to their physical nature and role in conjugation.	K5	CO3
4	19	How does transposition usually occur in bacteria, 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

Z-Z-Z

END