

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

MSc DEGREE EXAMINATION DECEMBER 2024
(First Semester)

Branch – BOTANY

APPLIED MICROBIOLOGY

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	Which of the following is a modern approach used in bacterial taxonomy? (i) Morphological characterization (ii) Biochemical tests only (iii) Genetic sequencing (iv) Staining techniques	K1	CO1
	2	Which type of electrons does an SEM use to produce images? (i) Primary electrons (ii) Secondary electrons (iii) Neutrons (iv) X-rays	K2	CO1
2	3	What is the main purpose of bacterial staining? (i) To kill bacteria (ii) To identify the bacteria (iii) To provide nutrients for bacteria (iv) To destroy bacterial DNA	K1	CO2
	4	What pH range is ideal for the growth of most bacteria? (i) 1-3 (ii) 2-5 (iii) 6.5-7.5 (iv) 7.5 – 8.0	K2	CO2
3	5	What is sporulation in bacteria? (i) Formation of spores for survival (ii) Reproduction process (iii) Method of motility (iv) Nutrient absorption process	K1	CO3
	6	In photosynthetic bacteria, where does the light-dependent reaction take place? (i) Mitochondria (ii) Chloroplasts (iii) Thylakoid membranes or specialized cell membranes (iv) Cytoplasm	K2	CO3
4	7	What term describes a virus that infects bacteria? (i) Retrovirus (ii) Bacteriophage (iii) Oncovirus (iv) Mycovirus	K1	CO4
	8	What is a satellite virus? (i) A virus that infects bacteria (ii) A virus that can replicate independently (iii) A virus that depends on a helper virus for replication (iv) A virus that only infects plants	K2	CO4
5	9	Which type of microbial enzyme is commonly used to soften and smoothen cotton fabrics? (i) Cellulase (ii) Amylase (iii) Protease (iv) Lipase	K1	CO5
	10	Which of the following is a common benefit of probiotics in the digestive system? (i) They increase the absorption of vitamins (ii) They prevent the growth of harmful bacteria (iii) They directly digest all types of food (iv) They enhance the taste of food	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 Bergey's system of bacterial classification.	K2	CO1
		(OR)		
	11.b.	Explain the principle and working of Phase- contrast microscope.		
2	12.a.	Apply a few techniques to measure microbial growth.	K3	CO2
		(OR)		
	12.b.	List and discuss the key factors affecting microbial growth.		
3	13.a.	Analyze the stages of exospore formation in <i>Streptomyces</i> .	K4	CO3
		(OR)		
	13.b.	Analyze the role of photosynthetic bacteria in carbon cycle.		
4	14.a.	List out the structural properties of viruses.	K4	CO4
		(OR)		
	14.b.	Classify the viruses based on their structure.		
5	15.a.	Assess the role of prebiotics in health.	K5	CO5
		(OR)		
	15.b.	Explain the role of probiotics in health and disease.		

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	Compare the structure and function of Gram Positive and Gram Negative Bacterial cell walls.	K5	CO1
2	17	Analyze the chemostat and turbidostat systems in bacterial continuous culture.	K4	CO2
3	18	Analyze the stages of endospore formation in <i>Bacillus</i> species.	K4	CO3
4	19	List and discuss various assays for detecting plant viruses.	K4	CO4
5	20	Explain the role of microbial enzymes in textile and leather industry.	K5	CO5

Z-Z-Z

END