

**PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)
BSc DEGREE EXAMINATION MAY 2026
(Second Semester)
Branch - BIOTECHNOLOGY
FUNDAMENTALS OF MICROBIOLOGY**

Time: Three Hours

Maximum: 75 Marks

SECTION-A (10 Marks)

Answer ALL questions

ALL questions carry **EQUAL** marks

$$(10 \times 1 = 10)$$

Module No.	Question No.	Question	K Level	CO
1	1	Who is known as the father of microbiology? (i) Pasteur (ii) Robert Koch (iii) Lister (iv) Antonie van Leeuwenhoek	K1	CO1
	2	Acid-fast staining is used to identify (i) Fungi (ii) Mycobacteria (iii) Viruses (iv) Algae	K2	CO1
2	3	Bergey's Manual is used for (i) Virus classification (ii) Bacterial identification (iii) Fungal growth (iv) Antibiotic production	K1	CO2
	4	Actinobacteria are (i) Gram-negative (ii) Gram-positive (iii) Viruses (iv) Protozoa	K2	CO2
3	5	Which method uses high-pressure steam? (i) Dry heat (ii) Filtration (iii) Autoclaving (iv) Radiation	K1	CO3
	6	Selective media is used to (i) Grow all microbes (ii) Preserve microbes (iii) Kill microbes (iv) Inhibit unwanted microbes	K2	CO3
4	7	The lag phase is (i) Rapid growth phase (ii) Death phase (iii) Decline phase (iv) No cell division phase	K1	CO4
	8	Tube dilution method is used to (i) Sterilize media (ii) Count bacteria (iii) Identify fungi (iv) Evaluate antimicrobial activity	K2	CO4
5	9	Nitrogen fixation converts (i) $\text{NO}_3 \rightarrow \text{NH}_3$ (ii) $\text{N}_2 \rightarrow \text{NH}_3$ (iii) $\text{NH}_3 \rightarrow \text{NO}_2$ (iv) $\text{NO}_2 \rightarrow \text{NO}_3$	K1	CO5
	10	Find the use of the biofertilizer (i) Eradicate pathogens (ii) Increasing soil fertility (iii) Preserving samples (iv) Reducing oxygen	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.	Identify various types of microscopy used in microbiology.	K1	CO1
		(OR)		
	11.b.	Recall the different staining techniques with example.		
2	12.a.	Interpret the classification schemes of bacteria.	K2	CO2
		(OR)		
	12.b.	Describe fungal classification and identification features.		
3	13.a.	Explain moist heat sterilization and pasteurization.	K3	CO3
		(OR)		
	13.b.	Outline the different types of culture media.		
4	14.a.	Develop the microbial growth curve with phases.	K3	CO4
		(OR)		
	14.b.	Identify the mechanisms of action of antimicrobial agents.		
5	15.a.	Analyse the nitrogen cycle and role of microbes in it.	K4	CO5
		(OR)		
	15.b.	Evaluate the application of microbes in pest control.		

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	Relate the structure of bacteria and the cellular components.	K1	CO1
2	17	Summarize the preservation and maintenance of microbes.	K2	CO2
3	18	Write about the utilization of chemicals in sterilization.	K3	CO3
4	19	Discuss the factors affecting microbial growth.	K4	CO4
5	20	Examine carbon cycle with relevance to the degradation of cell wall components.	K4	CO5

Z-Z-Z

END