

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 × 1 = 10)

Module No.	Question No.	Question	K Level	CO
1	1	Who developed the first vaccine for smallpox? i) Edward Jenner ii) Louis Pasteur iii) Robert Koch iv) Joseph Lister	K1	CO1
	2	Which temperature is required for hot air oven sterilization? i) 60°C ii) 80°C iii) 160–170°C iv) 100°C	K2	CO1
2	3	Which of the following is a spiral bacterium? i) Bacillus ii) Vibrio iii) Spirillum iv) Coccus	K1	CO2
	4	Relate the sex pilus. i) Plasmid ii) Vector iii) Transposons iv) Conjugation tube	K2	CO2
3	5	What is the concentration of agar to obtain semisolid media? i) 2.0% ii) 0.5% iii) 10% iv) 3%	K1	CO3
	6	What is the main purpose of selective culture media? i) To support the growth of all microorganisms ii) To inhibit the growth of unwanted microorganisms iii) To differentiate between different types of microorganisms iv) To provide nutrients to all types of bacteria	K2	CO3
4	7	What is the name of the scientist who first classified microbes? i) Albert Einstein ii) Carolus Linnaeus iii) Charles Darwin iv) Marie Curie	K1	CO4
	8	Which of the following is an example of an antiviral drug? i) Aspirin ii) Acyclovir iii) Penicillin iv) Ibuprofen	K2	CO4
5	9	Choose the most common available form of sulfur to the plants? i) S ii) SO ₄ ²⁺ iii) SO ₂ iv) H ₂ S	K1	CO5
	10	Which part of the plant helps absorb nitrogen? i) Flowers ii) Roots iii) Leaves iv) Stems	K2	CO5

Cont...

SECTION - B (35 Marks)Answer **ALL** questions**ALL** questions carry **EQUAL** Marks (5 × 7 = 35)

ALL questions carry EQUAL Marks (5 × 7 = 35)

Module No.	Question No.	Question	K Level	CO
1	11.a.	Outline the types of staining techniques.	K2	CO1
	(OR)			
	11.b.	Explain the different types of physical sterilizing agents used in microbiology.		
2	12.a.	Illustrate the classification of fungi by applying criteria such as mode of reproduction, spore formation, and hyphal organization.	K3	CO2
	(OR)			
	12.b.	Explain the structure and functions of bacterial cytoplasmic membrane mechanism involved.		
3	13.a.	Develop the different types of culture media.	K3	CO3
	(OR)			
	13.b.	Utilize the following techniques isolate the microbes. 1. Streak plate 2. Spread plate 3. Pour plate.		
4	14.a.	List the importance of Bergey's Manual in bacterial taxonomy.	K4	CO4
	(OR)			
	14.b.	Apply the principles of antimicrobial action to explain how different classes of antibiotics inhibit bacterial growth.		
5	15.a.	Examine the theme on microbial degradation of petroleum hydrocarbons.	K4	CO5
	(OR)			
	15.b.	Why carbon cycle is important to humans?		

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	Examine the working principle of electron microscope and its types.	K4	CO1
2	17	Examine and analyze the classification of viruses based on morphology and genetic material.	K4	CO2
3	18	Distinguish the four phases of microbial growth.	K4	CO3
4	19	Discover the significance of bacterial multidrug resistance.	K4	CO4
5	20	Elaborate the role of microorganisms involved in nitrogen cycle.	K4	CO5