

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)
BSc DEGREE EXAMINATION DECEMBER 2024
(Second Semester)

Branch - **BIOCHEMISTRY**
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	What type of light is commonly used in a light microscope? a) Infrared light b) Ultraviolet light c) Visible light d) X-rays	K1	CO1
	2	Which of the following stains is commonly used as the primary stain in endospore staining procedures? a) Crystal violet b) Safranin c) Malachite green d) Methylene blue	K2	CO1
2	3	Which genus of actinomycetes is most commonly associated with antibiotic production? a) Streptomyces b) Bacillus c) Clostridium d) Lactobacillus	K1	CO2
	4	Fungi play an important role in which of the following industrial processes? a) Leather tanning b) Brewing and baking c) Cement manufacturing d) Paper recycling	K2	CO2
3	5	What is the primary component of endotoxins in Gram-negative bacteria? a) Lipopolysaccharides (LPS) b) Peptidoglycan c) Teichoic acids d) Proteins	K1	CO3
	6	What type of vaccine is used to prevent chickenpox? a) Live attenuated vaccine b) Inactivated vaccine c) Subunit vaccine d) DNA vaccine	K2	CO3
4	7	Which of the following is a commonly used chemical mutagen? a) Ultraviolet radiation b) X-rays c) Ethyl methanesulfonate (EMS) d) Infrared light	K1	CO4
	8	What is the genome type of the SV40 virus? a) Single-stranded RNA b) Single-stranded DNA c) Double-stranded RNA d) Double-stranded DNA	K2	CO4
5	9	What is the primary function of Rhizobia in their symbiotic relationship with plants? a) Photosynthesis b) Nitrogen fixation c) Decomposition of organic matter d) Water absorption	K1	CO5

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5	10	Sulfur is mainly found in which form in the Earth's crust? a) Sulfides b) Sulfates c) Elemental sulfur d) Hydrogen sulfide	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 principle and uses of phase contrast microscope.	K4	CO1
	(OR)			
	11.b.	Identify the Gram-staining technique. How does this method differentiate between Gram-positive and Gram-negative bacteria?		
2	12.a.	Classify the cyanobacteria with suitable example.	K4	CO2
	(OR)			
	12.b.	Describe the algae and their economic importance.		
3	13.a.	Discuss the typhoid fever caused by <i>Salmonella typhi</i> and state the primary mode of transmission.	K5	CO3
	(OR)			
	13.b.	Analyze the transmission of HIV/AIDS and their awareness.		
4	14.a.	Explore the mechanisms of physical mutagenesis and its types.	K6	CO4
	(OR)			
	14.b.	Evaluate the implications of the lysogenic cycle on the host bacterium.		
5	15.a.	Examine the relationship between the carbon cycle and climate change.	K5	CO5
	(OR)			
	15.b.	Assess the role of microbial communities in wastewater treatment processes.		

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 the principle and application of electron microscope.	K5	CO1
2	17	Discuss the life cycle of yeast and their significance.	K6	CO2
3	18	Analyze the primary modes of transmission for cholera and Investigate the role of vaccination in preventing cholera.	K4	CO3
4	19	Classify the DNA and RNA viruses and their features.	K4	CO4
5	20	Explain the processing techniques involved in penicillin production.	K5	CO5