25MBU101

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BSc DEGREE EXAMINATION DECEMBER 2025
(First Semester)

Branch - **MICROBIOLOGY**

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	Recognize the scientist who worked on phagocytosis. a) Elie Metchnikoff b) Alexander Fleming c) Paul Ehrlich d) Robert Koch	K1	CO1
	2	Associate Streptomycin for TB with the correct scientist. a) Paul Ehrlich b) Selman Waksman c) Elie Metchnikoff d) Shibasaburo Kitasato	K2	CO1
2	3	Which arrangement refers to cocci in chains? a) *Staphylococci* b) *Diplococci* c) *Streptococci* d) Tetrads	K1	CO2
	4	Compute the bacterial 70S ribosome subunits. a) 30S + 50S b) 40S + 60S c) 20S + 50S d) 25S + 4S	K2	CO2
3	5	Recall the main cell wall component of diatoms. a) Cellulose b) Silica c) Lignin d) Pectin	K1	CO3
	6	Express the nutritional type of algae. a) Autotrophic b) Heterotrophic only c) Saprophytic d) Parasitic	K2	CO3
4	7	Recognize the division also called "club fungi." a) Zygomycetes b) Ascomycetes c) Basidiomycetes d) Deuteromycetes	K1	CO4
	8	Compute how many ascospores are typically formed in one ascus. a) 2 b) 4 c) 8 d) 16	K2	CO4
5	9	Identify the stage in amoeba that helps survive harsh conditions. a) Spore b) Cyst c) Trophozoite d) Bud	K1	CO5
	10	Clarify which organelle regulates water in protozoa. a) Contractile vacuole b) Food vacuole c) Nucleus d) Lysosome	K2	CO5

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.	Write short notes on Robert Koch's postulates and explain their significance in medical microbiology.	K1	CO1
		(OR)		
	11.b.	Name the scientist who developed the smallpox vaccine and state his contribution.		

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2	12.a.	Discuss the types of inclusion bodies in bacteria.	K2	CO2
	(OR)			
	12.b.	Elaborate the mechanism of bacterial flagellar movement.		
3	13.a.	Demonstrate the use of algae as single-cell protein and explain its commercial applications.	K3	CO3
	(OR)			
	13.b.	Analyze the process of asexual reproduction in algae through fragmentation and binary fission.		
4	14.a.	Outline the general characteristics of Ascomycetes.	K4	CO4
	(OR)			
	14.b.	Examine the role of fungi in agriculture with suitable examples.		
5	15.a.	Compare holozoic and saprozoic nutrition in protozoa.	K4	CO5
	(OR)			
	15.b.	Give a short account of the distribution and importance of protozoa.		

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 theory of spontaneous generation and describe how it was disproved by Redi, Spallanzani, and Pasteur.	K1	CO1
2	17	Compare and contrast the Gram-positive and Gram-negative cell wall.	K2	CO2
3	18	Illustrate and explain the ultrastructure of a typical algal cell.	K3	CO3
4	19	Diagram and analyze the life cycle of *Rhizopus stolonifer* showing both sexual and asexual stages.	K4	CO4
5	20	Explain sexual reproduction in protozoa with reference to conjugation in *Paramecium caudatum.*	K4	CO5

Z-Z-Z END