

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BSc DEGREE EXAMINATION MAY 2025
(Second Semester)

Branch - MICROBIOLOGY

MICROBIAL DIVERSITY AND TAXONOMY

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 among the following kingdoms were proposed by Whittaker? a) Monera b) Protista, Fungi c) Plantae, Animalia d) Monera, Protista, Fungi, Plantae, Animalia	K1	CO1
	2	Two organisms which are very closely related to each other have which of the following property? a) similar mol% G+C values b) different mol% G+C values c) similar mol% G+C values and heteroduplexes are formed d) different mol% G+C values and heteroduplexes are not formed	K2	CO2
2	3	<i>Chlorobium sp.</i> is which type of bacteria? a) Purple Sulphur Bacteria b) Purple Non-sulphur Bacteria c) Green Sulphur bacteria d) Green Non-sulphur bacteria	K1	CO2
	4	Where are bacteriochlorophyll present in the cell? a) chloroplast b) cytoplasm c) mitochondria d) membrane	K2	CO1
3	5	Which among the following come under Gram-positive eubacteria? a) <i>Clostridium</i> b) <i>Actinomyces</i> c) <i>Rhizobium</i> d) <i>Mycobacterium</i>	K1	CO2
	6	According to Bergey's Manual of Systematic Bacteriology, prokaryotes that lack a cell wall belong to the group a) Gracilicutes b) Firmicutes c) Tenericutes d) Mendosicutes	K2	CO1
4	7	Which one is true with respect to Archaeobacteria? a) Archaeobacteria are fossils b) Archaeobacteria are halophiles c) Archaeobacteria are old living entities d) Archaeobacteria are photosynthetic	K1	CO2
	8	Most likely, the single-celled organism found in the water sample from the hot thermal vent is classified as a prokaryote. a) Eukarya b) Fungi c) Protista d) Archaea	K2	CO2
5	9	Which of the following viruses possess an envelope? a) Herpesvirus b) Reovirus c) Tobacco mosaic virus d) Papilloma virus	K1	CO1
	10	The rabies virus consists of a) Single-stranded RNA b) Double-stranded RNA c) Single-stranded DNA d) Double-stranded DNA	K2	CO2

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.	What is the basis of the five-kingdom classification scheme according to Whittaker?	K3	CO3
	(OR)			
	11.b.	Summarize the details of taxonomic ranking.		
2	12.a.	List out the general characteristics of Photosynthetic Bacteria.	K4	CO4
	(OR)			
	12.b.	In what ways do cyanobacteria differ from other phototrophic bacteria?		
3	13.a.	Give the major characteristics of the phylum Chlamydiae.	K5	CO3
	(OR)			
	13.b.	Describe the general properties of the Beta-proteobacteria.		
4	14.a.	Concise the phenotypic features of Archae.	K4	CO3
	(OR)			
	14.b.	What levels of archaea are found in aquatic environments? How have these been detected?		
5	15.a.	Elaborate the general characters of Viruses.	K5	CO4
	(OR)			
	15.b.	Concise the classification of plant viruses and its nomenclature.		

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	If two microorganisms have an identical mol% G + C value for their DNA, are they necessarily related? Explain.	K4	CO4
2	17	Discuss in detail the structures, function and important of cyanobacteria.	K4	CO4
3	18	Elucidates the characteristic features of Enteriobacteraciae members of G-ve bacteria.	K5	CO4
4	19	Describe the characteristic features of Thermophilic Archae and its important in ecology.	K6	CO5
5	20	Inference the life cycle of T4 phage with suitable diagram.	K5	CO5

Z-Z-Z END