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22MBU205N

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BSc DEGREE EXAMINATION DECEMBER 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	Name the scientist who proposed the phylogenetic tree for living things. a) Carlo Urbani b) Louis Pasteur c) Robert Koch d) Carl Woese	K1	CO1
	2	% Similarity (%S) of each strain to every other strain is calculated by which method? a) Intuitive Method b) Numerical Taxonomy c) Genetic Relatedness d) DNA homology experiments	K2	CO2
2	3	Which of the following kingdoms contains anoxygenic phototrophs? a) Fungi b) Eukaryota c) Bacteria d) Plantae	K1	CO2
	4	Purple Sulphur Bacteria contains bacteriochlorophyll b and bacteriochlorophyll c. a) True b) False c) Bacteria d) Plantae	K2	CO1
3	5	According to Bergey's Manual of Systematic Bacteriology volume II deals a) Proteobacteria b) Archeae c) Gram negative bacteria d) All three	K1	CO2
	6	In the classification of bacteria according to shape,which among the following refer to cuboidal arrangement of bacterial cells? a) Tetrads b) Staphylococci c) Sarcinae d) Streptococci	K2	CO1
4	7	Methanogens belong to a) Dinoflagellates b) Eubacteria c) Archaebacteria d) Slime moulds	K1	CO2
	8	Which of the following bacterium is found in extreme saline conditions? a) Eubacteria b) Archebacteria c) Mycobacteria d) Cyanobacteria	K2	CO2
5	9	Which is a filamentous phage with a single-stranded DNA genome a) T_4 b) M13 c) λ d) ϕx174	K1	CO1
	10	The virus which is known to infect *Synechococcus* called as a) T_4 b) Phycophage c) Mycophage d) Bactriophage	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 are phylogenetic and phenetic classification systems? How do the two systems differ?	K3	CO3
		(OR)		
	11.b.	What is the reason that each taxon has only one officially recognized name?		
2	12.a.	List the major differences between the families of anoxygenic phototrophic bacteria.	K4	CO4
		(OR)		
	12.b.	How do purple and green sulfur bacteria differ?		
3	13.a.	Briefly discuss the ways in which three other peptidoglycan types differ from the gram-negative peptidoglycan.	K5	CO3
		(OR)		
	13.b.	What morphological feature distinguishes the mycoplasmas? In what class are they found?		
4	14.a.	List out the characters of methanogenic archaea and distinguish them from other groups	K4	CO3
		(OR)		
	14.b.	Define the characters of *Archaeoglobus* and how does it differ from other extreme thermophiles?		
5	15.a.	Discuss about ICTV classification of viruses and nomenclatures	K5	CO4
		(OR)		
	15.b.	What morphological feature algal virus? How it classified explain?		

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 very different mol% C + C values for their DNA are they necessarily unrelated? Explain.	K4	CO4
2	17	Explain the characters of purple non sulphur bacteria and its metabolism.	K4	CO4
3	18	Summarize the details of Bergey's Manual of systematic classification of bacteria.	K5	CO4
4	19	How do an extremophilic Archae thrive in extreme conditions ?List out their unique phenotypic features.	K6	CO5
5	20	List out the general Features of T4 Phage and its applications in r-DNA technology.	K5	CO5

Z-Z-Z END