(First Semester)

Branch- **BIOTECHNOLOGY**

APPLIED 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 discovered the microbial cause of anthrax? a) Louis Pasteur b) Robert Koch c) Antonie van Leeuwenhoek d) Joseph Lister	K1	CO1
	2	Which one of the following is NOT a criterion used in Bergey's system of classification? a) Morphological b) Ecological c) Astrological d) Biochemical	K2	CO2
2	3	The 16S rRNA gene is useful for a) Determining bacterial phylogeny b) Detecting viruses c) Analyzing fungal spores d) Protein sequencing	K1	CO2
	4	Metagenomics is primarily used to a) Study only cultured bacteria b) Explore unculturable microbes from natural environments c) Identify microbial toxins directly d) Test antimicrobial resistance	K2	CO2
3	5	Which drug inhibits bacterial cell wall synthesis? a) Penicillin b) Streptomycin c) Polymyxin d) Acyclovir	K1	CO3
	6	Amphotericin B is used to treat a) Viral infections b) Fungal infections c) Parasitic infections d) Bacterial infections	K2	CO3
4	7	Which microorganism is used as a biofertilizer in leguminous plants? a) Rhizobium b) Salmonella c) Streptococcus d) Aspergillus	K1	CO4
	8	Food preservation by pasteurization involves a) High pressure b) Low temperature heating c) Radiation d) Drying	K2	CO4
5	9	Which virus causes Rabies? a) Lyssavirus b) Enterovirus c) Retrovirus d) Orthomyxovirus	K1	CO5
	10	Malaria is caused by a) Candida b) Plasmodium c) Yersinia d) Mycobacterium	K2	CO5

Cont...

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

Module No.	Question No.	Question	K Level	CO
1	11.a.	Describe the methods of pure culture.	K3	CO1
		(OR)		
	11.b.	Determine the environmental factors affecting microbial growth.		
2	12.a.	Discover the role of MALDI-TOF in microbial taxonomy.	K3	CO2
		(OR)		
	12.b.	Describe the significance of studying unculturable organisms using metagenomics.		
3	13.a.	Explore the antibacterial, antifungal and antiviral agents with examples.	K4	CO3
		(OR)		
	13.b.	Examine the mode of action of tetracycline.		
4	14.a.	Figure out the types of food spoilage with examples.	K4	CO4
		(OR)		
	14.b.	Enumerate on the role of PGPR in crop improvement.		
5	15.a.	Identify the causative agent and symptoms of Tuberculosis.	K4	CO5
		(OR)		
	15.b.	Comment on fungal infections caused by *Candida*.		

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	Analyze the growth curve of bacteria with a neat diagram.	K4	CO2
2	17	Interpret the applications of Next Generation Sequencing (NGS) in microbial community analysis.	K5	CO2
3	18	Evaluate the different modes of action of antibacterial agents with suitable examples.	K5	CO3
4	19	Appraise the microbial role in nitrogen cycle and its importance in agriculture.	K5	CO4
5	20	Summarize a comparative framework for the diagnosis, treatment and prevention strategies of bacterial diseases.	K5	CO5

Z-Z-Z END