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22MBU521AN

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BSc DEGREE EXAMINATION DECEMBER 2025
(Fifth Semester)

Branch- **MICROBIOLOGY**

MAJOR ELECTIVE COURSE – I : PHARMACEUTICAL 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	Which of the following lacks nucleic acid? a. Viroid b. Bacteriophage c. Virus d. Prion	K2	CO1
	2	Which of the following is used for short-term preservation of microorganisms? a. Lyophilization b. Storage in desiccators c. Refrigeration at 4°C d. Cryopreservation in liquid nitrogen	K2	CO1
2	3	The ability of a microorganism to cause disease is called a. Immunity b. Virulence c. Epidemiology d. Pathogenicity	K2	CO2
	4	The most common route of respiratory infections is a. Vector bite b. Inhalation of droplets c. Ingestion of contaminated food d. Skin penetration	K2	CO2
3	5	The primary mechanism of action of β-lactam antibiotics is: a. Inhibition of DNA gyrase b. Inhibition of protein synthesis c. Inhibition of transpeptidase (penicillin-binding proteins) → preventing peptidoglycan crosslinking d. Disruption of cell membrane integrity	K4	CO3
	6	Azoles (e.g. fluconazole, itraconazole) inhibit which fungal enzyme / step? a. DNA synthesis b. Cell wall glucan synthase c. Protein synthesis d. Ergosterol biosynthesis via inhibition of 14-α demethylase (a cytochrome P450)	K4	CO3
4	7	The most common Gram-positive bacterium associated with healthcare-associated infections? *a.* Klebsiella pneumoniae b. Escherichia coli c. Acinetobacter baumannii d. Staphylococcus aureus	K4	CO3
	8	Which of the following is NOT part of Standard Precautions? a. Hand hygiene b. Use of PPE when necessary c. Placing all patients in isolation d. Safe injection practices	K4	CO3
5	9	The effectiveness of a preservative is least affected by: a. Size of the inoculum b. Temperature c. Preservative concentration d. Shape of the container	K4	CO3

Cont...

5	10	Which type of microorganism is most likely to spoil syrups and elixirs? a. Viruses b. Yeasts c. Protozoa d. Molds	K4	CO3

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.	Describe the fundamental characteristics of viruses, viroids, and prions.	K2	CO1
		(OR)		
	11.b.	Discuss the principles and methods of microbial cultivation.		
2	12.a.	Explain the principles of Microbial Pathogenicity and Epidemiology.	K2	CO2
		(OR)		
	12.b.	Briefly discuss about the recovery and exit of pathogens.		
3	13.a.	Mention newer antibiotics for MRSA and Gram-positive cocci.	K2	CO2
		(OR)		
	13.b.	Write a short note on antifungal antibiotics.		
4	14.a.	Define Healthcare-associated infections (HAIs).	K4	CO3
		(OR)		
	14.b.	Write a short note on droplet and contact precautions.		
5	15.a.	Define microbial spoilage. What are the main causes of spoilage in pharmaceuticals?	K4	CO3
		(OR)		
	15.b.	Write a short notes on the basic principles of preservation of medicines?		

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	Summarize how microorganisms are both useful and harmful in pharmaceutical contexts.	K2	CO1
2	17	Explain the manifestation of disease by different types of pathogens.	K2	CO2
3	18	Summarize the role of antimicrobial therapy in infection control.	K2	CO2
4	19	Describe the methods of prevention and control of healthcare-associated infections.	K4	CO3
5	20	Explain the principles of preservation of medicines using antimicrobial agents.	K4	CO3

Z-Z-Z END