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22MBU102N

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BSc DEGREE EXAMINATION DECEMBER 2025
(First Semester)

Branch - **MICROBIOLOGY**

PRINCIPLES OF MICROBIOLOGICAL METHODS

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 helps us in getting a three-dimensional picture of the specimen? a) Transmission Electron Microscope b) Scanning Electron Microscope c) Compound Microscope d) Simple Microscope	K1	CO1
	2	_____ is used to clean the lenses of microscope. a) Alcohol b) Paraffin oil c) Wax d) Water	K2	CO1
2	3	What is the commonly used stain in electron microscopy? a) Ethidium bromide b) Osmium tetroxide c) Bismarck brown d) Nile red	K1	CO2
	4	What is the approximate size of the bacterial cell? a) 2mm in diameter b) 1mm in diameter c) 2 micrometer in diameter d) 0.5 to 1.0 micrometer in diameter	K2	CO2
3	5	Which of the following instruments is used to perform tyndallization? a) Autoclave b) Steam Arnold c) Gas oven d) Incubator	K1	CO3
	6	Which material is used for the Berkefeld filter? a) Diatomaceous earth b) Asbestos pad c) Porcelain d) Sintered glass disks	K2	CO3
4	7	Name the chemical in a 'bleach' (a disinfectant) used to eliminate bacteria, fungi, and viruses? a) Sodium chloride b) Ethylene oxide c) Sodium hypochlorite d) Ethyl alcohol	K1	CO4
	8	Which of the following is not a disinfectant containing a heavy metal? a) Silver nitrate b) Mercurochrome c) Chlorine d) Copper sulfate	K2	CO4
5	9	Peptone water medium is an example for a) Synthetic medium b) Semisynthetic medium c) Differential medium d) None of these	K1	CO5
	10	What is the temperature of liquid nitrogen? a) -120 degree C b) 0 degree C c) -150 degree C d) -196 degree C	K2	CO5

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.	Distinguish light and electron microscopy in detail.	K2	CO1
		(OR)		
	11.b.	Demonstrate the working principle of Phase contrast Microscopy with neat diagram.		
2	12.a.	How will you perform motility test using Hanging drop method? Explain with neat sketch.	K3	CO2
		(OR)		
	12.b.	Demonstrate the principle and procedure of flagellar staining with neat sketch.		
3	13.a.	Define Pasteurization. Extend the principle of sterilization in detail.	K3	CO3
		(OR)		
	13.b.	State the different types filters used in sterilization process.		
4	14.a.	Relate how the dyes and Phenols act as disinfectant? Discuss in detail.	K4	CO4
		(OR)		
	14.b.	Inference the role of soap and detergent in sterilization process.		
5	15.a.	Analyse the role of media in bacterial growth – Transport media, Enriched media and Differential media.	K4	CO5
		(OR)		
	15.b.	Relate the Streaking methods with microbial growth.		

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	Elaborate the working principles of Transmission electron microscopy and discuss the specimen preparation.	K4	CO1
2	17	Define staining? Explain the principle and procedure of Endospore staining and acid fast staining with neat protocol.	K6	CO2
3	18	Justify the role and importance of moist heat and radiation in sterilization process.	K5	CO3
4	19	Explain the different forms of chemical agents used in sterilization process and give its potential activity.	K5	CO4
5	20	How will you isolate pure culture from soil? Elaborate the preservation methods with neat sketch.	K4	CO5

Z-Z-Z END