

PSG COLLEGE OF ARTS & SCIENCE (AUTONOMOUS)

MSC DEGREE EXAMINATION DECEMBER 2025
(First Semester)

Branch – APPLIED MICROBIOLOGY

BIORESEARCH INSTRUMENTATION AND AI

Time: Three Hours

Maximum: 75 Marks

SECTION-A (10 Marks)

Answer ALL questions

ALL questions carry **EQUAL** marks

$$(10 \times 1 = 10)$$

Cont...

SECTION - B (35 Marks)

Answer ALL questions

ALL questions carry EQUAL Marks $(5 \times 7 = 35)$

Module No.	Question No.	Question	K Level	CO
1	11.a.	How does light microscopy work? – Mention its components and its applications. (OR)	K1	CO1
	11.b.	How do Geiger counters detect radiation? Add notes on its importance.		
2	12.a.	Compute the principle and application of X- ray crystallography. (OR)	K3	CO2
	12.b.	Organize the principle and applications of differential and density gradient centrifugation.		
3	13.a.	Differentiate Ion exchange and gel permission chromatography. (OR)	K4	CO3
	13.b.	Examine the process and importance of drying and crystallization.		
4	14.a.	How are electrochemical biosensors for disease detection? – Discuss. (OR)	K5	CO4
	14.b.	Why is CLIA better than RIA and EIA? - Explain.		
5	15.a.	Develop the foundations and need of Artificial Intelligence. (OR)	K6	CO5
	15.b.	Assemble the types and methods of machine learning in molecular research.		

SECTION -C (30 Marks)

Answer ANY THREE questions

ALL questions carry EQUAL Marks $(3 \times 10 = 30)$

Module No.	Question No.	Question	K Level	CO
1	16	Describe the principle, working mechanism and applications of SEM.	K2	CO1
2	17	Describe the procedure and applications of various types of ELISA techniques.	K3	CO2
3	18	Classify the types and significance of Chromatography.	K4	CO3
4	19	Evaluate the molecular methods for detection of drug resistance microbes.	K5	CO4
5	20	How are microbes used in pest management? - Discuss.	K6	CO5