

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

MSc DEGREE EXAMINATION DECEMBER 2025
(First Semester)

Branch - BOTANY

MICROBIOLOGY AND PLANT PATHOLOGY

Time: Three Hours

Maximum: 75 Marks

SECTION-A (10 Marks)

Answer ALL questions

ALL questions carry EQUAL marks $(10 \times 1 = 10)$

Module No.	Question No.	Question	K Level	CO
1	1	Pick one of the following was Gram negative, chemolithotrophic bacteria? a) <i>Siderococcus</i> b) <i>E. coli</i> c) <i>Spirellum</i> d) <i>Mycoplasma</i>	K1	CO1
	2	Isolation is a) Purification of culture b) Introduction of inoculum c) Separation of a single colony d) To grow microorganisms on surfaces	K2	CO1
2	3	Lederberg and Tatum (1946) described the phenomena of a) Conjunction b) Transformation c) Mutation d) Plasmids	K1	CO2
	4	Multiple antibiotic resistance is mediated by a) Episome b) Plasmid c) Colplasmid d) Vector	K2	CO2
3	5	Choose the viruses that possess an envelope a) Herpesvirus b) Reovirus c) Tobacco mosaic virus d) Papillomavirus	K1	CO3
	6	The host range of a virus is determined by a) the proteins on its surface and that of the host. b) whether its nucleic acid is DNA or RNA. c) the proteins in the host's cytoplasm. d) the enzymes produced by the virus before it infects the cell.	K2	CO3
4	7	Select the steps of pathogenesis in the correct order a) invasion, infection, adhesion, exposure b) adhesion, exposure, infection, invasion c) exposure, adhesion, invasion, infection d) disease, infection, exposure, invasion	K1	CO4
	8	Which is NOT a chemical weapon used by pathogens? a) Enzymes b) Toxins c) Antibodies d) Growth regulators	K2	CO4
5	9	How do plant diseases impact global security? a) they have no significant impact on food production b) they increase crop yields by promoting plant growth c) they can reduce crop yields, leading to food shortages d) they only affect ornamental plants	K1	CO5
	10	Which of the following bacterial disease is also known as "Ring Disease"? a) Black arm of cotton b) Wilt of potato c) Citrus Canker d) Tungro disease of rice	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.	How traditional approach helps to distinguish bacterial cell wall on the basis of gram stain? (OR)	K2	CO2
	11.b.	Describe the different plating techniques used in bacterial culture.		
2	12.a.	Examine the methods that bacteria can exchange genetic information and its important to study. (OR)	K4	CO2
	12.b.	Identify the extra chromosomal elements in bacteria and mention its properties.		
3	13.a.	Demonstrate the process of virus-vector transmission. (OR)	K3	CO3
	13.b.	Sketch out the lytic and lysogenic life cycle in Bacteriophage.		
4	14.a.	Explain the major epidemics in plant pathology and discuss their social impacts. (OR)	K6	CO4
	14.b.	Categorize the mode of entry of pathogens in plant systems and its dispersal.		
5	15.a.	Summarize the symptoms and disease cycle of Yellow leaf disease in sugarcane. (OR)	K5	CO5
	15.b.	Assess various biological methods to control plant diseases.		

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 bacterial classification you have studied.	K2	CO1
2	17	Analyze the ultra-structure, chemical composition and nutrition in bacteria and economic importance of bacteria.	K4	CO2
3	18	Explain the principles of classification viruses.	K4	CO3
4	19	Explain the Phyto Pathology.	K5	CO4
5	20	Explain the causal organism, symptoms, diseases cycle and control measures of Bacterial Blight of Cotton.	K5	CO5