Your Roll No ……..……

Department of Botany
School of Chemical & Life Sciences
Jamia Hamdard, New Delhi-110062

M.Sc. BOTANY
1st SEMESTER EXAMINATION JANUARY 2025

Paper Name: **Microbiology and Plant Pathology** Paper Code: **MBO-CC104**
Time: **2 ½ hours** Maximum Marks: **60**
Note: This paper has 3 sections A, B, and C.
Section A: Answer all the questions.
Section B: Attempt any **4** Out of **6.** Section C: Attempt any **2** out of **3.**

Abbreviations used:
CLO-Course Learning Outcomes
On completing this course, the students should be able to
CLO1: recall history, characteristic features, classification and enumerate the economic importance of plant viruses, phytoplasma, bacteria and fungi (remember/ analyse);
CLO 2: relate disease epidemics and epidemiology with host pathogen interaction (create);
CLO 3: recognize innate and acquired immunity and disease resistance mechanisms of plants (understand); and
CLO 4: explain diseases of plants with reference to the causal agents, symptomatology, disease cycle, transmission and management (evaluate).
BLT-Bloom's Taxonomy Levels
1- Remembering, 2-Understanding, 3-Applying, 4-Analyzing, 5-Evaluating, 6-Creating

SECTION A

Very Short Type Question (15 questions) 15 x 1 = 15 marks

Q.No.	Question	Marks	CLO	BTL
1	Little leaf in brinjal is caused by ----------	1	4	3
2	PCR is used to identify phytoplasma by amplifying 18S rRNA (T/F)	1	1	3
3	Plant viruses are primarily composed of ……. and protein.	1	1	1
4	What Latin term did Beijerinck use to describe the agent of transmissible diseases?	1	1	1
5	Name one protein based technique used for detecting plant viruses.	1	1	2
6	What is the role of plasmids in bacteria?	1	1	2
7	Give an example of an insect that transmits phytoplasma	1	1	1
8	Define "RNA silencing".	1	2	2
9	What is the causal agent of Smut of wheat?	1	4	1
10	Name a bacterium that contributes to nitrogen fixation.	1	1	1

Please turn over

11	Define antibiotic giving an example.	1	1	2
12	Name a commercially important product derived from *Aspergillus niger*	1	1	1
13	What is the term given to relationship between fungi and plant roots?	1	2	2
14	What constitutes "disease triangle"?	1	3	2
15	What is a monocyclic disease? Give an example.	1	2	2

SECTION B

Short Type Question. (Attempt any **FOUR**) 4 x 5 = 20 marks

Q.No.	Question	Marks	CLO	BTL
1	Briefly describe the history and discovery of plant viruses.	5	1	1
2	Explain the difference between innate and acquired immunity in plants.	5	3	2
3	Describe the ultrastructure of a bacterial cell with labeled diagrams.	5	1	2
4	Explain the hypersensitive response and its role in plant defence.	5	3	2
5	Write a note on the economic importance of fungi in agriculture, industry, and medicine.	5	1	3
6	Explain Koch's postulates and their significance in plant pathology.	5	2	4

SECTION C

Long type Question (Attempt any **TWO**) 2 x 12.5 = 25 marks

Q.No.	Question	Marks	CLO	BTL
1	Describe the causal agent, symptoms, disease cycle, transmission and management of: a) Late blight of potato b) Phyllody of sesame	 6.25 6.25	4	2
2	a) Explain the various modes of transmission of plant viruses. b) Write a detailed account of classification of viruses proposed by Baltimore.	7.5 5.0	1	2,4
3	a) Compare the cell wall structure of Gram-positive and Gram-negative bacteria. b) Tabulate significant differences among biotrophic, hemi-biotrophic, and necrotrophic plant pathogens.	5 7.5	1	4

*****END OF QUESTION PAPER*****