

M.Sc. BOTANY
Third Semester
Plant Pathology and Microbiology
(MSB - 11)

Duration: 3Hrs.

Full Marks: 70

Part-A (Objective) =20
Part-B (Descriptive)=50

(PART-B: Descriptive)

Duration: 2 hrs. 40 mins.

Marks: 50

1. Answer the following questions (any five):

2×5=10

- a) Give one example each of pre existing and induced defence mechanism in plants.
- b) Name some infective structures developed by plant pathogens.
- c) What is Blast of rice? Write two symptoms.
- d) What is Bt-cotton? How is it useful?
- e) Mention two techniques used to obtain pure culture.
- f) Mention two industrially important microorganism along with their importance
- g) Mention two chemicals used against plant pathogens.

2. Answer the following questions (any five):

3×5=15

- a) Describe three categories of toxins associated with plant diseases caused by pathogens.
- b) Explain the roles of immediate early, delayed early and late genes in viral replication.
- c) What are the three ways in which plant diseases can be managed? Explain with examples.
- d) Discuss about the molecular techniques used in microbial taxonomy.
- e) What is Louis Pasteur's contribution to microbiology?
- f) What are the different types of media used in microbial culture?
- g) What are the different fields of application of microbiology?

3. Answer the following questions (any five):

5×5=25

- a) Write note (*any one*)
 - (i) Discuss about the enzymatic process of entry of plant pathogen into host tissue.
 - (ii) Host parasite interaction in plants
 - (iii) Induced and pre-existing defence mechanisms in plants.
- b) Write in short about the causal organism, etiology and control of “Blast of Rice”
- c) Write note (*any one*)
 - (i) Control of powdery mildew of pea
 - (ii) Fruit rot of papaya.
- d) Write short note (*any one*)
 - (i) History of microbiology
 - (ii) Structure and multiplication of virus
 - (iii) Chemical, biological and biotechnological approaches of plant disease control. Give one example from each.
- e) Discuss about the ultra structure of gram positive bacterial cell wall.
- f) Discuss about the process of alcohol production by fermentation.
- g) Write note (*any one*)
 - (i) The different types of microbes associated with biochemical changes of milk
 - (ii) Waste can be converted to resource through microorganism.
 - (iii) Microbes associated with food spoilage and food fermentation.

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(The figures in the margin indicate full marks for the questions)

Duration: 20 minutes

Marks – 20

PART A- Objective Type

Mark the correct alternative

1×20 =20

1. Direct penetration takes place through

- a) Germ tube
- b) Aspressorium
- c) Both
- d) None

2. Entry of plant pathogen through stomata is an example of

- a) Direct penetration.
- b) Indirect penetration.
- c) Both
- d) None.

3. Pathotoxins are the toxins that play

- a) causal role in
- b) Partial role in plant disease.
- c) No role in plant disease.
- d) None of the above.

4. Phytoalexins are associated with

- a) Plant defence
- b) Plant susceptibility to infection
- c) None
- d) Both.

5. The causative organism of Brown leaf spot of rice is.

- a) *Alternaria solani*
- b) *Helminthosporium oryzae*
- c) *Pyricularia oryzae*
- d) None

6. Citrus canker is caused by

- a) Algae
- b) Fungi
- c) Virus
- d) Bacteria

7. Causative organism of red rot of sugarcane belongs to the family

- a) Ascomycetes
- b) Fungi imperfecti
- c) Basidiomycetes
- d) Phycomycetes

8. *Erysiphe polygoni* causes

- a) Powdery mildew of pea
- b) Late blight of potato
- c) White rust of Brassicaceae
- d) None

9. Tikka disease occurs in

- a) *Brassica campestris*
- b) *Arachis hypogea*
- c) *Hevea brazihensis*
- d) *Pisum sativum*

10. Microscope was first used in observing microbes by

- a) Edward Jenner
- b) Antony Van leeuwenhoek
- c) Louis Pasteur
- d) None

11. That Fermentation is caused by microorganisms was found by

- a) Louis Pasteur
- b) L. Spallenzani
- c) Both
- d) None

12. Endotoxins of bacteria are present in

- a) Lipopolysaccharide
- b) Cell wall
- c) Both
- d) None

13. Pure culture of bacteria can be obtained by

- a) Serial dilution
- b) Streaking
- c) Both
- d) None

14. The DNA of virus gets integrated with Bacterial DNA in

- a) Lytic cycle
- b) Lysogenic cycle
- c) Both
- d) None

15. HIV virus is a

- a) RNA virus
- b) DNA virus
- c) None
- d) Both

16. Tm can be used in

- a) Microbial Taxonomy
- b) Microbial culture
- c) Microbial ecology
- d) None

17. Commercial production of citric acid is done with the help of

- a) *Aspergillus flavus*
- b) *Aspergillus niger*
- c) *Rhizopus*
- d) *Mucor*

18. Antibiotic penicillin is produced commercially using

- a) *Penicillium chrysogenum*
- b) *Aspergillus niger*
- c) *Penicillium notatum*
- d) None

19. Curd can be prepared using

- a) *Lactobacillus bulgaricus*
- b) *Bacillus thermoacidurans*
- c) Both
- d) None

20. From organic waste we can obtain

- a) Biogas
- b) Manure
- c) Compost
- d) All of the above
