

M.Sc. BOTANY
Third Semester
PLANT PATHOLOGY & MICROBIOLOGY
(MSB - 301)

Duration: 3Hrs.

Full Marks: 70

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

(PART-B: Descriptive)

Duration: 2 hrs. 40 mins.

Marks: 50

Answer any four from Question no. 2 to 8
Question no. 1 is compulsory.

1. Mention the names of pathogens responsible for Red Rot of sugarcane and areca nut fall disease. Describe the symptoms and control measures of these diseases.
(2+8=10)
2. What do you mean by disease management? What are the different chemical and biological means of disease control?
(2+4+4=10)
3. Write the different methods of control of microorganisms by physical means. (10)
4. Define pure culture. Give an account of the methods of isolation of pure culture.
(1+9=10)
5. What is antibody? Write in brief the different types of antibodies with their specific functions.
(1+9=10)
6. What is microbial taxonomy? Write a note on the modern trend in bacterial classification.
(2+8=10)
7. Write briefly the role of monoclonal antibody in disease management. (10)
8. Give an account of the Host-parasite interaction in a diseased plant. (10)

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(PART A - Objective Type)

I. Choose the correct answer:

1×8=8

- a) Smut is a symptom of plant disease which
- i) shows a black or purplish black dusty mass usually on floral organs and sometimes on stems and leaves also.
 - ii) shows crust like or roughened lesion on plant parts.
 - iii) shows rusty small pustules of spores emerging through broken host epidermis.
 - iv) shows enormous numbers of spores giving a dusty or powdery or cottony appearance.
- b) Aflatoxin is produced by
- i) *Alternaria*
 - ii) *Aspergillus*
 - iii) *Rhizopus*
 - iv) *Fusarium*
- c) Bacterial blight disease of rice is caused by
- i) *Xanthomonas citri*
 - ii) *Xanthomonas oryzae*
 - iii) *Xanthomonas campestris*
 - iv) *Xanthomonas cynarae*
- d) Which of the following methods is the most reliable method of classification of bacteria?
- i) Intuitive method
 - ii) Numerical taxonomy
 - iii) Genetic relatedness
 - iv) Morphological characteristics
- e) Mac Conkey agar medium is widely used to select for Gram-negative intestinal pathogens such as
- i) *E.coli*
 - ii) *Klebsiella*
 - iii) *Enterobacter*
 - iv) *Salmonella and Shigella*
- f) Long term preservation of bacteria by Lyophilization, the required temperature is
- i) 0°C to -10°C
 - ii) -10°C to -20°C
 - iii) -40°C to -50°C
 - iv) -60°C to -78°C
- g) Streptomycin is produced by
- i) *Streptomyces gresiolus*
 - ii) *Streptomyces greseus*
 - iii) *Streptomyces greseofalvus*
 - iv) *Streptomyces greseofuscus*
- h) In leather processing industry, which of the following microbial enzymes is used?
- i) Protease
 - ii) Amylase
 - iii) Pectinase
 - iv) Invertase

II. Choose true or false:

1×6=6

- a) A plant disease is known as systemic when it is affecting only organ or part of the plant. True/False
- b) Chemicals of non-metal origin used as fungicides are Copper, Mercury and Zinc. True/False
- c) The pour plate method is a method of isolation of pure culture. True/False
- d) Citrus canker is a serious viral disease prevalent in India, China, Java and Japan. True/False
- e) Stem nodules are produced by a symbiotic nitrogen fixer called *Azorhizobium caulinodans*. True/False
- f) *Mucor pyriformis* can be used in the industrial production of citric acid. True/False

III. Fill in the blanks:

1×6=6

- a) Pathogens are causal agents of plant diseases which may be group into Animate pathogens, viral pathogens and.....
- b) The initial invasion of a host by a pathogen is termed as.....
- c) Five Kingdom system was proposed by.....
- d) Boletus, Amanita and Russula are some fungal partners of the symbiotic association with root called.....
- e) Preservation of foods in sealed containers is called.....
- f) VAM is also known as.....
