

[This question paper contains 2 printed pages.]

Your Roll No.....

Sr. No. of Question Paper : 1889

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Unique Paper Code : 2533012005

Name of the Paper : Plant Pathogen Interactions

Name of the Course : **Microbiology**

Semester : IV

Duration : 2 Hours

Maximum Marks : 60

Instructions for Candidates

1. Write your Roll No. on the top immediately on receipt of this question paper.
2. Attempt **five** questions in all.
3. **All** questions carry equal marks.

Q.1. a. Enlist the contributions of the following scientists (**any four**):

- i. O. Diener
- ii. E.J. Butler
- iii. Anton De Bary
- iv. J. F. Dastur
- v. E. Smith

2x4=8

b. Discuss the etiology and symptoms of black stem rust of wheat

4

Q.2. Differentiate between the following (**any four**):

- i. Chlorosis and Necrosis
- ii. Disease escape and disease tolerance
- iii. Phytoalexin and PR proteins
- iv. HV and Tabtoxin
- v. Vertical and Horizontal resistance

3x4=12

Q.3. a. How does pectinase produced by pathogens play a role in disease development? 5

b. Discuss Flor's hypothesis 5

c. What are the effects of pathogens on plant growth? 2

Q.4. a. What are the various Induced structural defence mechanisms in plants? 5

b. Write a short note on Hypersensitive Response **OR** Systemic Acquired resistance. 5

P.T.O.

c. Give any two effects of pathogens on respiration in plants. 2

Q.5. a. Define the following terms giving a suitable example (**any three**):

- i. Smut
 - ii. Blight
 - iii. Wilt
 - iv. Mosaic
- 2.5x3=7.5

b. Write a note on genetic engineering of disease resistant plants with pathogen derived genes. 4.5

Q.6. a. Mention the causative organism, two major symptoms and control measures of the following diseases (**any two**):

- i. Crown gall
 - ii. Banana bunchy top
 - iii. Tobacco mosaic
- 4x2=8

b. What are the various types of virulence factors in viruses? 4