

THE OPEN UNIVERSITY OF SRI LANKA

B.Sc. DEGREE PROGRAMME – BOTANY – LEVEL 5

FINAL EXAMINATION – 2012/2013

BOU3101 – PLANT PATHOLOGY

BTU3102/BTE5102 – PLANT PATHOLOGY I



DURATION: TWO (02) HOURS

DATE: 12th June 2013

TIME: 1.00 p.m. – 3.00 p.m.

ANSWER ANY FOUR (04) OF THE FOLLOWING QUESTIONS.

ILLUSTRATE YOUR ANSWER WITH FULLY LABELLED DIAGRAMS WHEREVER NECESSARY.

1. a) What is an inoculum?
 - b) List out the types of inocula produced by different groups of plant pathogens, giving examples for the types you mention.
 - c) Briefly indicate how these inocula are dispersed or disseminated.

2. a) What are downy mildew diseases and powdery mildew diseases?
Briefly describe the taxonomic group of the causative organisms and the diagnostic symptoms for each of these diseases in your answer.
 - b) With the aid of fully labelled diagrams, explain how you would identify the different pathogenic genera based on:
 - (i) Sporangiochore morphology of the downy mildews.
 - (ii) Sexual reproductive structures of the powdery mildews.
 - c) Name one (01) economically important example each, for a downy mildew disease and a powdery mildew disease.
 - d) Illustrate how the downy mildew and the powdery mildew you mention, colonize their host tissues.

3. a) What are the main functions played by cell wall degrading enzymes during plant disease development?
- b) Name the important types of cell wall degrading enzymes and describe the mode of action of each of these enzyme types.
- c) How does cell wall degrading enzyme activity affect diseased host tissue?
4. a) Give two (02) economically important fungal diseases of rice (*Oryza sativa*) in Sri Lanka.
- b) For each of the diseases you mention:
- Name and classify the causative organism.
 - With the aid of fully labelled diagrams, illustrate the characteristic vegetative and/or reproductive features of the causative organism.
- c) For any one (01) of the diseases you mention:
- Describe the diagnostic symptoms.
 - Give the mode/s of survival and spread of pathogen.
 - Recommend suitable methods of control.
5. Write a short account on the following:
- Koch's postulates.
 - Biological control of plant diseases.
 - Macrocytic rusts.
6. a) What is an epidemic?
- b) What are the three (03) main factors necessary for the development of an epidemic?
- c) Briefly discuss how these factors affect the progress curve of a plant disease during an epidemic.