

THE OPEN UNIVERSITY OF SRI LANKA

B.Sc. DEGREE PROGRAMME - BOTANY - LEVEL 05

FINAL EXAMINATION - 2015/2016

BOU3101 - PLANT PATHOLOGY

BTU3102/BTE5102 - PLANT PATHOLOGY I

DURATION: TWO (02) HOURS



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Date: 15<sup>th</sup> July 2016

Time: 1.30 p.m. – 3.30 p.m.

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ANSWER ANY FOUR (04) OF THE FOLLOWING QUESTIONS.

ILLUSTRATE YOUR ANSWER WITH FULLY LABELED DIAGRAMS WHEREVER NECESSARY.

1. Briefly outline the effect of each of the following substances in the development of plant disease:
  - a) Cell wall degrading enzymes.
  - b) Toxins.
  - c) Growth regulators.
  
2. Name and classify the causative organism/s, describe the diagnostic symptoms and disease cycles for any two (02) of the following:
  - a) Scab disease on potato.
  - b) Powdery mildew on rubber.
  - c) Rust disease on wheat.

3. With the aid of fully labeled diagrams, describe the following and indicate how each of these affects their host.
- Haustorial development of *Plasmopara viticola* in the mesophyll cells of grapes.
  - Transfer of T<sub>i</sub> plasmid of *Agrobacterium tumefaciens* on its host cell.
  - Establishment of *Fusarium oxysporum* f.sp. *lycopersici* on tomato.
4. a) Give one (01) economically important fungal disease of rice (*Oryza sativa*) in Sri Lanka.
- b) For the disease you mention in (a):
- Name and classify the causative organism.
  - With the aid of fully labeled diagrams, illustrate the characteristic vegetative and/or reproductive features of the causative organisms.
  - Describe the diagnostic symptoms.
  - Give the mode/s of survival and spread of pathogen.
  - Recommend suitable methods of disease management.
5. Write a concise account on:
- Koch's postulates.
  - Cultural methods in plant disease control.
  - Typical progress curve of disease during the development of a plant disease epidemic.
6. (a) What is meant by (i) hyperplasia, and, (ii) hypertrophy?
- (b) Describe the different types of morphological symptoms which occur in diseased plants due to hyperplasia and hypertrophy.