THE OPEN UNIVERSITY OF SRI LANKA

B.Sc. DEGREE PROGRAMME - BOTANY - LEVEL 05

BTU 3102/BTE 5102 – PLANT PATHOLOGY I

ASSESSMENT TEST II (OPEN BOOK TEST)

DURATION : ONE (01) HOUR

Date: 17th September 2007 Time : 4.00 p.m. – 5.00 p.m.

Reg. No. .....

ANSWER ALL QUESTIONS IN THE SPACE PROVIDED.

I. Fill in the blanks with the most appropriate term/s.

1. A plant becomes diseased when it is continuously disturbed by some primary (1) _____ _____ bringing about abnormal and harmful changes in its (2)_____ processes. The resulting disease is visibly expressed in characteristic pathological conditions known as (3)_____. Plant diseases caused by animate agents are known as (4) _____ diseases while those due to inanimate agents are known as (5) _____ diseases.

2. (6) _____, (7) _____ (8)_____ are some of the important microorganisms that cause plant disease. (9)_____ and (10) _____ are also classified as animate agents as they must have living cells for their (11)_____ and are composed of nucleic acid. Mycoplasma-like-organisms lack rigid (12) _____ _____but are enclosed by a triple layered (13) _____ _____. Viruses are spread from one plant to another mainly by (14) _____ and (15) _____ or by humans. (16)_____ act like viruses but the infection particle is a simple strand of (17) _____ _____ and contains no (18) _____ coat.

3. (19) _____ is the sequence of stages in disease development where the (20) _____ is in intimate association with the living (21) _____ tissue. Three distinct stages are involved (22) _____, the transfer of the pathogen to the area in which invasion of the pathogen occurs, (23) _____ which is the period of time between the arrival of the pathogen in the infection court and the appearance of symptoms and (24) _____ the appearance of disease symptoms accompanied by the establishment and spread of the pathogen.

4. Although there are a large variety of pathogens, an important distinction can be made between those which rapidly kill all or part of their hosts, and others which co-exist with the hosts, tissues for an extended period without causing severe damage. The former, known as (25)_____, grow (26) _____ within the host tissue, often producing extracellular (27) _____ and (28)_____ and then utilizing the dead tissues as a source of food. The latter, known as (29)_____ do not kill their host immediately. They often form specialized infection structures such as modified (30) _____ known as (31)_____.

5. When a pathogen spreads to and affects many individuals within a (32)_____ over a relatively large area within a short (33) _____, the phenomenon is known as an (34)_____. This is brought about due to a combination of three basic factors: the (35) _____ _____, the presence of a (36) _____ _____ and a (37)_____ _____. Effective disease (38)_____ aims at breaking this triangle.

(40 marks)

II. Name the scientist who contributed most towards each of the following.

1. Discovery of mycoplasma-like-organisms in plants.

_____

2. Experimental proof of causality of disease :

_____

3. Gene-for-gene hypothesis:

_____

4. Mathematical description of epidemics:

_____

5. Purifications of tobacco mosaic virus:

_____

(15 marks)

III. Describe the symptoms expressed by each of the following terms.

1. Anthracnose

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2. Fasciculation

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3. Mosaic

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4. Phyllody

5. Rosetting

(20 marks)

IV. 1. How would you differentiate host-specific-toxins and host – non – specific toxins?

2. What are appressoria? What role do they play in pathogenesis?

3. What is referred to as the hypersensitive response?

4. How do pectolytic enzymes assist in initial host penetration?

5. What are protectant fungicides and systemic fungicides? How are they applied to plants?

(25 marks)