



UNIVERSITY OF EMBU

2018/2019 ACADEMIC YEAR

SECOND SEMESTER EXAMINATIONS

FOURTH YEAR EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE
IN AGRICULTURE AND BACHELOR OF SCIENCE IN HORTICULTURE

ACP 402: DIAGNOSTICS OF CROP DISEASES

DATE: APRIL 10, 2019

TIME: 11.00AM – 1.00PM

INSTRUCTIONS:

Answer Question ONE and ANY Other TWO Questions

QUESTION ONE (30 MARKS)

- a) Explain how plant disease symptoms are grouped (4 marks)
- b) Name any bacterial disease that can be identified by signs. What is the sign of this disease (2 marks)
- c) Describe how you would perform a vector transmission assay (3 marks)
- d) You are called to identify a plant disease problem in a farmer's field. In the field you notice that the symptoms are uniformly distributed. You visit the field again after two weeks but you find that the symptoms did not progress. What type of disease causal agent could be causing the problem, give an example of such a causal agent (2 marks)
- e) State any four symptoms produced on roots by nematodes (4 marks)
- f) You are faced with a possible abiotic disease in your garden. Describe how you would confirm the problem. (3 marks)
- g) Describe disease symptom 'shot hole'. What causal agent causes this symptom (2 marks)
- h) Describe how you would carry out field diagnosis of Fusarium wilt of tomato (4 marks)



ISO 27001:2013 Certified

Knowledge Transforms



ISO 9001:2015 Certified

- i) Describe any four kinds of information you are required to provide during plant disease sample collection (4 marks)
- j) Explain the advantages of freeze drying when preserving bacterial cultures (2 marks)

QUESTION TWO (20 MARKS)

- a) Discuss any five techniques used in the diagnosis of plant pathogenic bacteria (10 marks)
- b) Outline how you would isolate nematodes from soil using the sieving method (10 marks)

QUESTION THREE (20 MARKS)

- a) As a researcher you have recently been isolating fungal cultures that you would require to store for future use. Outline how you would prepare and preserve the fungal cultures to ensure their viability (8 marks)
- b) Discuss the experimental method for assessing yield loss in crops (12 marks)

QUESTION FOUR (20 MARKS)

- a) Discuss disease severity as a technique for measuring disease intensity (6 marks)
- b) Discuss collection of samples for diagnostic purposes (14 marks)

QUESTION FIVE (20 MARKS)

- a) You are asked by a farmer to diagnose her tomato crop which is wilting. You suspect that the problem could be due to Fusarium wilt or bacterial wilt. Outline how you will carry out field diagnosis to determine the causative agent for the wilting. (8 marks)
- b) Discuss plant disease diagnosis in non-infectious disease causing agents (12 marks)

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