



*“Investing in Africa’s future”*

**COLLEGE OF HEALTH, AGRICULTURE AND NATURAL SCIENCES**

**NACP 304: PLANT PATHOLOGY**

**END OF SECOND SEMESTER FINAL EXAMINATIONS**

**APRIL 2022**

**LECTURER: W. MANYANGARIRWA**

**DURATION: 3 HRS**

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**INSTRUCTIONS**

1. Answer All Questions in Section A, and
2. Choose and Answer any two Questions in Section B.

## SECTION A, ANSWER ALL QUESTIONS IN THIS SECTION

1. a) Outline the different types of microscopes that are used in the diagnosis of the following disease causing agents;  
(i) fungal fruiting bodies, (ii) fungal spores, (iii) nematodes, (iv) bacterial cells, and, (v) virus particles. [10]  
  
b) Give a brief outline of the Koch's Postulates. Explain why it is not always possible to fulfil all the requirements of the postulates. [10]  
  
c) Describe in detail a procedure that you used in the laboratory to test a soil sample for the presence of nematodes. [10]  
  
d) Outline the role played by Plant Quarantine in the management of plant diseases across national boundaries. [10]  
  
e) Briefly discuss the nematode species that affect tobacco and bananas. [10]

## SECTION B, ANSWER ANY TWO QUESTIONS

2. Insects in the Order Hemiptera are the major vectors of plant viruses. With the aid of relevant examples, give a comparative analysis of the differences between persistent transmission of plant viruses and non-persistent transmission of plant viruses. [25]
3. Outline the measures enunciated by the Fungicide Resistance Action Committee (FRAC) to slow down the development of fungicide resistance in fungi. [25]
4. With reference to **three** named field crops that you have studied in detail, give a brief overview of the main diseases encountered and the disease control measures implemented. [25]
5. As a soyabean breeder you have been asked to evaluate the levels of soyabean rust resistance in six soyabean cultivars namely; Tarnby, Gentofte, Lyngby, Taarstrup, Luft and Valby. All the requirements for growing the crop are given i.e. *ceteris paribus* conditions.  
  
a) How would you generate data on the area under disease progress curves to evaluate and rank the varieties for their resistance? [16]  
  
b) How would you determine the yield loss attributable to soyabean rust disease in the six cultivars? [9]

**End of Examination Paper**