

CHUKA



UNIVERSITY

**UNIVERSITY EXAMINATIONS**

**EXAMINATION FOR THE AWARD OF DEGREE OF  
MASTER OF SCIENCE IN BOTANY PLANT PATHOLOGY**

**BOTA 857: BREEDING FOR PEST AND DISEASE RESISTANCE**

**STREAMS: MSC (BOTANY**

**TIME: 3 HOURS**

**DAY/DATE: TUESDAY 14/04/2020**

**11.30 AM – 2.30 PM**

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**INSTRUCTIONS:**

**Answer any Three Questions (20 Marks)**

1. (a) Discuss the genetic interaction of host and pathogens in relation to the following aspects
  - (i) Host – pathogen specificity [4 marks]
  - (ii) Development of host resistance [4 marks]
  - (iii) Variability in plants and pathogens [4 marks]
- (b) Discuss the sexual-like mechanisms in fungi. [8 marks]
2. (a) Discuss variation in bacterial plant pathogens. [10 marks]
- (b) Discuss the sources of genes for resistance breeding. [5 marks]
- (c) Describe the techniques that are used in breeding for disease resistance. [5 marks]
3. Discuss the role of genes in virulence of pathogens and resistance of hosts. [20 marks]
4. (a) Describe the difference between horizontal resistance and vertical resistance. [10 marks]
- (b) Describe the methodology for screening for the following pests
  - (i) Bores [5 marks]
  - (ii) Aphids [5 marks]

5. Discuss the mechanisms of plant resistance to insect pests. [20 marks]
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