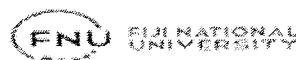


FIJI NATIONAL UNIVERSITY



COLLEGE OF AGRICULTURE, FISHERIES & FORESTRY

SCHOOL OF AGRICULTURAL SCIENCE & FORESTRY

Bachelor of Science in Agriculture Year 3: Trimester 1 Examination, 2019

PPA 601: Plant Diseases & Their Management

Allocated Time: 3 hours and 10 Minutes (Reading Time)

Allocated Marks: 100

Instructions:

1. This paper is consist of **four** sections. All Sections are **compulsory**. Note the choices in section D.
2. Ensure to write your names and ID Number on each sheet of paper of the answer sheet.
3. No written or printed materials are allowed into the examination room.
4. No mobile phone and other electronic device is allowed into the examination room.
5. You need to provide your own writing materials for the examination.
6. Write all your answers in the answers sheet provided.

The table below shows the breakdown of the assessment paper and allocated time.

Section	Section Description	Suggested Time	Allocated Marks
A	Multiple Choices	15 Minutes	20
B	Matching	15 Minutes	10
C	Short Answer Questions	30 Minutes	30
D	Essay Questions	120 minutes	40

Section A: Multiple Choices

(20 Marks)

1. Kava Dieback disease is usually caused by :
 - a. *Cucumber mosaic virus*
 - b. *Pyricularia oryzae*
 - c. *Magnaporthea grisea*
 - d. *Leifsonia xyli*

2. Majority of viral diseases are caused by:
 - a. Insect vectors
 - b. Diseased planting materials
 - c. Susceptible host plants
 - d. Nematode infestation

3. The dissemination of fungi and its successful establishment on other host plants is initiated by the fungal structure known as -:
 - a. Plasma
 - b. Sclerotia
 - c. Root
 - d. Filament

4. Ginger is a common spicy crop grown in Fiji under the family.
 - a. Colocasia
 - b. Curcubits
 - c. Fabaceae
 - d. Zingerberaceae

5. The most effective stage of nematode life cycle that usually cause damages on host plant is:
 - a. J1 and Adult
 - b. J2 and Adult
 - c. J3 and adult
 - d. J4 and adult

6. Which of the following varieties of sugarcane is resistant to Ratoon stunted disease?
 - a. Q200A
 - b. Q155
 - c. Q242A
 - d. KQ228A

7. Which of the following rice variety is resistant to Rice Blast?
 - a. Jupiter
 - b. Pirogue
 - c. Catahoula
 - d. Bengal

8. Stem rot disease of rice is a fungal disease caused by:

- a. *Magnaporthe grisea*
- b. *Pyricularia oryzae*
- c. *Xanthomonas oryzae*
- d. *Sclerotium oryzae*

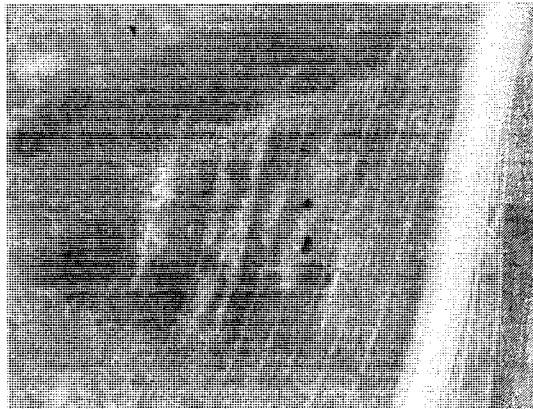
9. Refer to the diagram below to answer question 9.



The disease symptom displayed by the diagram is known as -:

- a. Downey mildew
- b. Powdery mildew
- c. Sooty mold
- d. Leaf rust

10. The disease symptom displayed by the diagram below is known as -:



- a. Leaf rust
- b. Leaf spot
- c. Bacterial leaf streak
- d. Chlorosis

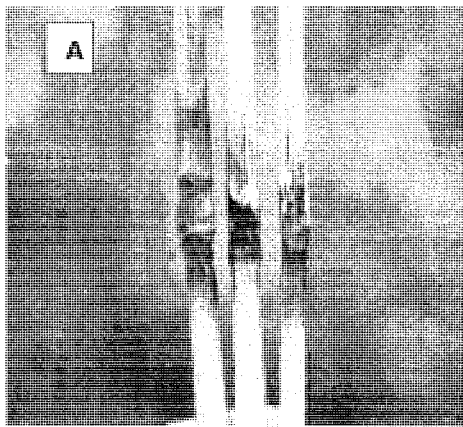
11. The two common diseases classified under Abiotic disorder are -:
- | | |
|-------------------------|------------------------------|
| a. Smut and Wilt | c. Chlorosis and wilting |
| b. Stunting and Dieback | d. Brown leaf spot and smut. |
12. A common disease which causes swollen and sunken of tissues is known as-:
- | | |
|-------------------|-----------|
| a. Canker | c. Blight |
| b. Powdery mildew | d. Smut |
13. Another common name for Fusarium wilt disease on banana is known as -:
- | | |
|---------------------------|------------------------------|
| a. Panama Disease | c. Yellow sigatoka disease. |
| b. Black sigatoka disease | d. Banana bunchy top disease |
14. Rice Blast disease of rice is caused by -:
- | | |
|----------------------------------|--------------------------------|
| a. <i>Cochicobolus myabeanus</i> | c. <i>Magnaporthe oryzae</i> . |
| b. <i>Curvularia lunata</i> | d. <i>Rhizoctonia solani</i> |
15. *Meloidogyne spp.* is the scientific name for -:
- | | |
|---------------------|-----------------------|
| a. Root nematode | c. Root-knot nematode |
| b. Foliage nematode | d. Lesion nematode |
16. A bacteria that causes citrus greening disease is known as -:
- | | |
|--|---------------------------|
| a. <i>Candidatus libetobacter spp.</i> | c. <i>Baciliform spp.</i> |
| b. <i>Xanthomonas spp.</i> | d. <i>Pysllid spp.</i> |
17. Chili belongs to the crop family known as -:
- | | |
|-------------|---------------|
| a. Capsicum | c. Solanaceae |
| b. Pepper | d. Curcubit |

SECTION C

Short Answer Questions

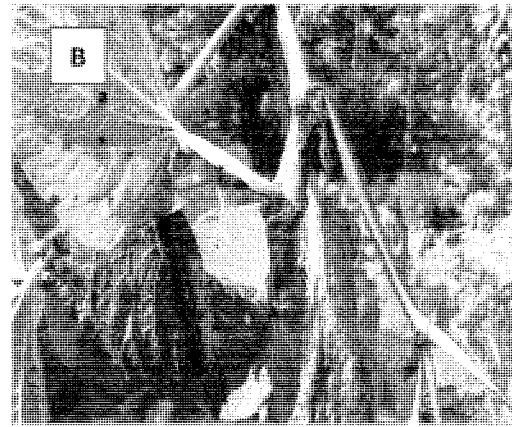
(30 Marks)

1. Black knot is a common fungal disease of any trees. State three ways to treat this disease. (3 marks)
2. List two symptoms of Rhizopus soft rot. (2 marks)
3. State 2 common diseases caused by Plasmodiophoromycete fungi. (1 mark)
4. With the supplied diagrams, write down the name of the disease and causal agents. (12 marks)



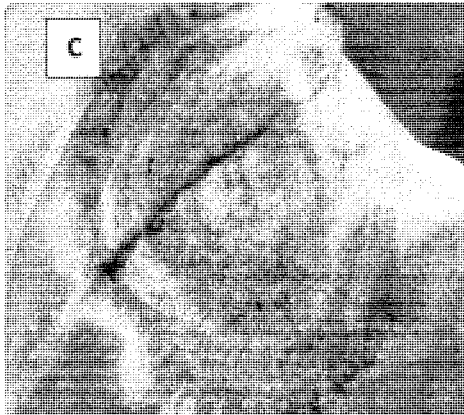
Disease Name: _____

Causal Agent: _____



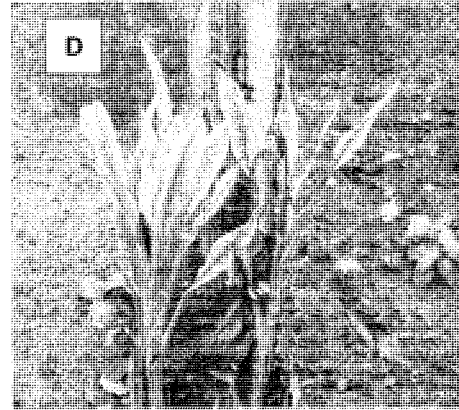
Disease Name: _____

Causal Agent: _____



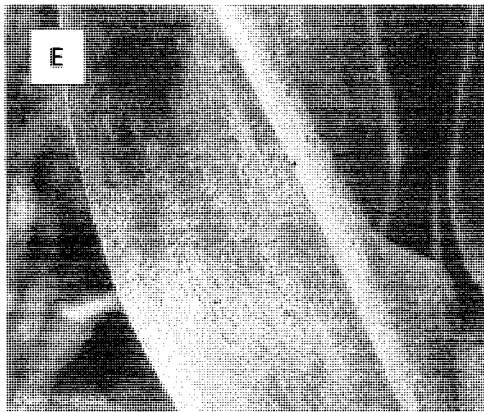
Disease Name: _____

Causal Agent: _____



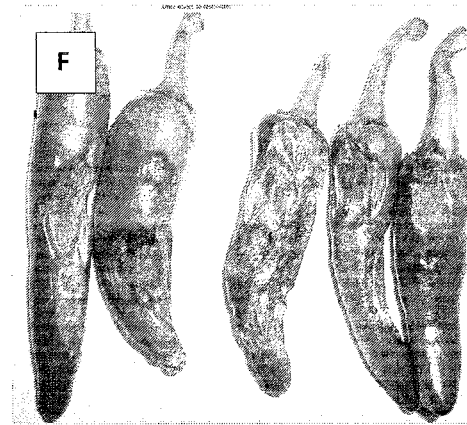
Disease Name: _____

Causal Agent: _____



Disease Name: _____

Causal Agent: _____



Disease Name: _____

Causal Agent: _____

5. List four causal agent of maize stalk rot. (2 marks)
6. Name two common chemical control used in Fiji to control Anthracnose disease. (2 marks)
7. Briefly explain two different types of damping off diseases and state their causal agents. (2 marks)

8. Briefly explain the difference between Powdery mildew and Downey mildew and state their causal organisms. (2 marks)
- b. State two common vectors that transfer sooty mould disease in Fiji. (1 mark)
9. State a common virus that usually cause papaya ringspot disease. (1 mark)
10. Briefly explain the symptoms of red rust on mango trees. (1 mark)
- b. State the causal agent of bacterial black spot on Mango. (1 marks)

SECTION D: Essay Questions

(40 Marks)

Select **any 4 questions** from the 6 options below and write an essay of 750 -800 words on each topic selected.

1. Based on the topics below, you are to select a crop with its common disease. The Essay should address the following: (10 marks)
 - i. Name of disease
 - ii. Causal agent
 - iii. Signs and symptoms
 - iv. Favorable conditions
 - v. Disease cycle
 - vi. Management practices.

The following are the some of the selected crops covered in lecture where you have to select **any one** crop diseases. Ensure to include the above mentioned areas of disease development and management.

Crops: **Rice, Sugarcane, Taro, Papaya, Mango, Ginger, Peanuts, Cassava, Banana and kava.**

or

2. Cultural control has been a common control measure used by many farmers in Fiji. Briefly explain what is your own understanding on cultural control and state 4 common cultural control practices used in Fiji, how they have been implemented with given examples. (10 marks)

or

3. Discuss the impact of climate change on the spread of diseases in the country and use local examples to support your argument. (10 marks)

4. A farmer has brought into your laboratory diseased samples collected from his papaya farm for inspection. Upon inspection, you have found out that the fruits of papaya brought in have round lesions which turns black at a later stage thus spreading over the fruits and caused it to rot. What would you explain the farmer on the situation of the crop based on the disease and what are your advises to the farmer for the disease discovered.

(10 marks)

5. Nematode has become one of the major disease causal agent which has caused collapse to many crops in the field as well as causing severe damage to crops if no attention is given to them. Write an Essay on nematodes based on the following topics.

- a. Morphology and Taxonomy
- b. Life Cycle and reproduction
- c. Types of parasitic Nematodes and the damage caused.
- d. Management practices and recommendation.

(10 marks)

6. Plant protection plays an important role in safeguarding our flora and fauna. Briefly explain the role of Biosecurity in our country and how they helped safeguard our country from exotic plant diseases.

(10 marks)

The End