

College of Agriculture, Fisheries & Forestry
School of Agricultural Science and Forestry
Department of Entomology & Plant Pathology
Trade Diploma in Agriculture
Year 2, Semester 1 Final Examination, 2019
PPA 521: Plant Pathology

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

Allocated Marks: 100

Instructions:

1. This paper is consist of **five** sections. All Sections are **compulsory**. Take note of the Option given in Section E.
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 Answer sheet provided.

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

Section	Section Description	Suggested Time	Allocated Marks
A	15 Multiple Choices	15 Minutes	15
B	10 Matching	15 Minutes	10
C	10 True or False /Fill in the Blanks	15 Minutes	15
D	10 Short Answer Questions	50 Minutes	40
E	2 Essay Questions	85 minutes	20

Section A: Multiple Choice Questions

(15 x 1= 15 Marks)

1. The study of Plant Pathology focuses on -:
 - a. Pest infestation and their control
 - b. Plant Disease infestation and their control
 - c. Impact of climate change on plant growth
 - d. The introduction of plant diseases in Fiji.

2. A primary inoculum refers to -:
 - a. The pathogen that causes diseases in the first season of the crop
 - b. An inoculum that does damage repeatedly in the farm
 - c. An inoculum that causes diseases in many season
 - d. The pathogen that completes its life cycle more than one season

3. Koch Postulates is a technique used by plant pathologist to :
 - a. Detect the presence of Virus
 - b. Detect the presence of Nematodes
 - c. Detect the presence of Chlorophyll
 - d. Detect the presence of Fungus

4. An example of a symptom caused by environmental factor is -:
 - a. Fruit rot
 - b. Root Galls
 - c. Wilting
 - d. Anthracnose

5. Phytophthora infestans belong to the fungal class -:
 - a. Basidiomycota
 - b. Oomycota
 - c. Zygomycota
 - d. Ascomycota

6. Oozing is a sign of -:
 - a. Nematode infection
 - b. Fungal Infection
 - c. Viral infection
 - d. Bacterial infection

7. Which of the following is **not** part of integrated disease management practice?
 - a. Exclusion
 - b. Eradication
 - c. Avoidance
 - d. Biological

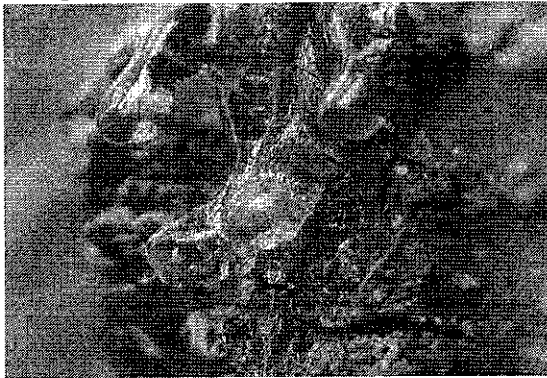
8. Refer to the diagrams below to answer the question that follows.



The plant symptoms shown above is known as -:

- a. Wilting
- b. Enation
- c. Dieback
- d. Leaf spot

9. The plant symptom shown below is an example of -:



- a. Canker
- b. Gumming
- c. Galling
- d. Bleeding

10. Disease gradient is used to measure -:

- a. Disease distribution
- b. Disease outbreak
- c. Disease infection
- d. Disease control

11. Rhizoctonia root rot usually occurs in -:

- a. Cold and wet weather
- b. Warm and moist conditions
- c. Poorly drained soils
- d. Dry and loamy soils

12. The latest invasive species that has recently caused damaged to parts of Fiji is -:

- a. American Iguana
- b. Taro beetle
- c. Giant African Snail
- d. Fruit Fly

13. Which of the following is a class of a true fungi?

- a. Oomycota
- b. Myxomycetes
- c. Acrasids
- d. Ascomycota

14. A common disease that cause collapse in seedlings -:

- a. Anthracnose
- b. Rusts
- c. Damping off
- d. Powdery mildew

15. Parasitic nematodes causes swollen on roots and tissues of plants known as -:

- a. Galls
- b. Knot
- c. Stunted
- d. Canker

SECTION B:

Matching

(10x 1 = 10 marks)

Match the following term in the table below to their correct description on the right.

1	Virulent	A. Fungal growth structure	
2	Stylet	B. Non infectious disease	
3	<i>Phytophthora</i>	C. Necrotic area of diseased organ	
4	Mycelium	D. Root-knot nematode	
5	Sign	E. Suck sap from host by nematodes	
6	Direct penetration	F. Causal agent for fungal disease	
7	Lesion	G. <i>Rhizoctonia spp.</i>	
8	Frost	H. Pathogen characteristic	
9	<i>Meloidogyne.</i>	I. Bacterial Ooze	
10	Soil Invader	J. Fungal Structure	

SECTION C

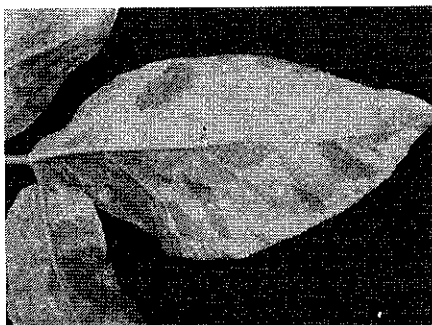
Write 'T' if the statement is correct or 'F' if the statement is incorrect.

(10 x 1 = 10 marks)

1. *Sphaerotheca fuliginea* is a fungi that causes powdery mildew. _____
2. Taro leaf blight is a severe disease of taro found in Fiji. _____
3. Necrotic symptoms expressed after the death of the protoplast is known as holonecrosis _____
4. Primary inoculum usually starts the disease on a new season after it develops _____
5. A Susceptible host is a host that can fight against pathogens. _____
6. Potassium deficiency is a non-infectious disorder. _____
7. Biotic diseases of crops are also known as non-infectious disease. _____
8. The yellowing of green tissues due to chlorophyll destruction is known as Chlorosis. _____
9. Crop rotation is an example of mechanical control measure. _____
10. Bacteria is also dispersed through wind. _____

Part II: Fill in the Blanks on the diagrams provided with the proper disease symptom.

(5x 1= 5 Marks)



1. _____

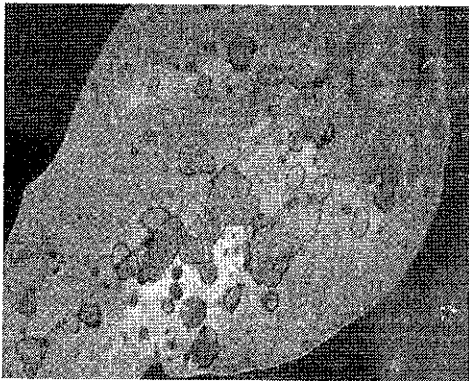


2. _____

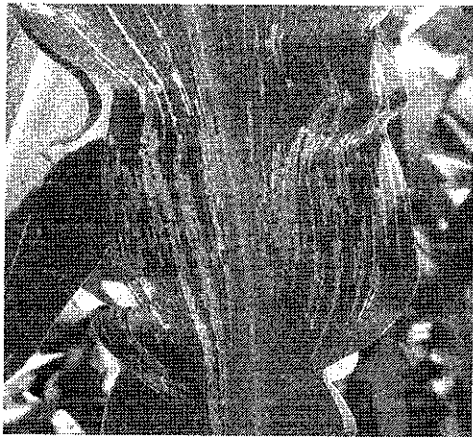
3.



4.



5.



Short Answer Questions

(40 Marks)

1. Define the following terms: (6 x 1 = 6 marks)
 - a. Disease
 - b. Inoculum
 - c. Symptom
 - d. Avoidance
 - e. Guttation
 - f. Saprophytic phase.

2. Differentiate between the following terms: (4 x 2 = 8 marks)
 - a. Eradication and Exclusion
 - b. Primary and secondary inoculum.
 - c. Continuous and discontinuous infection.
 - d. Hypoplasia and Hypertrophy

3. With the aid of the diagram, draw aggregation and patch distribution of disease. (2 x 1 = 2 marks)

4. State 4 root functions that will be affected by nematode infestation. (4 x 1 = 4 marks)

5. List four common symptoms of non-infectious disease disorder. (4 x 1 = 4 marks)

6. Briefly explain the roles of Biosecurity in Fiji. (2 x 1 = 2 mark)

7. Briefly explain 4 ways human contributes to the spread of diseases to new areas. (4 x 1 = 4 marks)

8. Briefly explain two common plant diseases caused by Oomycota and Basidiomycota fungi. (2 x 2 = 4 marks)

9. With the aid of the diagram, draw the structure of the fungi penetrating the host plant cell. (2 x 1 = 2 marks)

10. Briefly explain the disease cycle with reference to inoculation, penetration, infection, symptoms and dispersal. (4 x 1 = 4 mark)

SECTION D: Essay Questions

(20 Marks)

Select any **two topics** from the following topics and write an essay of 500-800 words.

1. Select **one invasive species** of pest and disease that is a worry for Biosecurity. Briefly explain the pest or disease and how biosecurity control the pest or disease in the country. **(10 marks)**

or

2. Explain the 5 stages of **Disease Development** and 5 ways pathogens can be **dispersed** from the infected plant to uninfected areas. **(10 marks)**

or

3. Base on Disease symptoms, briefly describe **Blight, Anthracnose, Rot, Gall, Witches broom and chlorosis**. You can also use diagram to show your symptoms clearly.

and

4. Explain the **five principles** of Integrated Disease Management (IDM) that can be carried out to control the spread of diseases. **(10 marks)**

The End