



**FIJI NATIONAL UNIVERSITY**  
**COLLEGE OF AGRICULTURE, FISHERIES AND FORESTRY**

**Principle of crop establishment – ACP 401**

**Trade Diploma, Year1.**

**Trimester 1 - 2014**

Time Allowed : 3 hours plus 10 minutes reading time.

Instructions : This paper consists of **8 pages**.

Answer **ALL** questions in the answer booklet. Number your answers Correctly.

Please check to see that your paper is complete.

Write your students ID number on all the pages that you use including an Any additional sheet of paper.

Printed or written material is not allowed into the examination hall.

Mark values appear at the end of each question or part thereof.

Non – programmable calculators are permitted.

**“MOBILE PHONES ARE STRICTLY NOT ALLOWED”**

<b>SECTIONS</b>	<b>DESCRIPTION AND MARK ALLOCATION</b>
<b>SECTION A</b>	<b>30 Marks</b> <b>Part 1 – 10 Multiple Choice Questions – 10 Marks</b> <b>Part 2 - Matching - 10 Marks</b> <b>Part 3 - True or False - 10 Marks</b>
<b>SECTION B</b>	<b>40 Marks - Short Answer Questions</b>
<b>SECTION C</b>	<b>30 Marks - Long Answers Questions</b>
<b>TOTAL MARKS</b>	<b>100 Marks.</b>

**SECTION A**  
**[30 Marks]**

**PART 1**

**MULTIPLE CHOICE**

**[10 Marks]**

In the **ANSWER BOOKLET** provided, circle the letter corresponding to the **BEST** answer to each of the following question.

1. Agricultural contribution to GDP IN 2010 was?
  - A. 11%
  - B. 12%
  - C. 13%
  - D. 14%
  
2. Is one of the role of the Ministry of Agriculture in Fiji is:
  - A. responsible for facilitating development of the country's agriculture sector
  - B. to ensure adequate food for its people and simultaneously
  - C. to facilitate export of agricultural produce abroad to generate valuable foreign exchange.
  - D. All of the above
  
3. The sugar industry has struggled in recent years due to the:
  - A. the loss of preferential access to the EU market.
  - B. expiry of many long term leases for sugar lands.
  - C. financial difficulties of the Fiji Sugar Corporation.
  - D. All of the above
  
4. Fijis wet season is from:
  - A. November to April
  - B. November to December
  - C. November to January
  - D. None of the above
  
5. Is one of the most important crop in the world are:
  - A. Corn
  - B. Potato
  - C. Rice
  - D. All of the above.

6. Is the highest rice producing country in the World?
- A. China
  - B. India
  - C. Indonesia
  - D. Vietnam
7. One of the objectives of tillage is to :
- A. make the soil loose & porous
  - B. aerate the soil
  - C. control weeds
  - D. All of the above
8. Which of the following is a weed?
- A. Grass sprouting in a flowered bed
  - B. Grass growing in a lawn.
  - C. Taro plant sprouting in a tomatoes nursery bed.
  - D. All of the above
9. Is one of the weed classification that based on life cycle:
- a) Seasonal weeds
  - b) Monsoon annuals
  - c) Winter annuals weeds
  - d) All of the above
10. One methods of sowing seeds is:
- a) Line sowing
  - b) Transplanting
  - c) Dibbling

d) All of the above

**PART II**

**MATCHING**

**[10 MARKS]**

**INSTRUCTION:**

In the “ANSWER BOOKLET “provided, write the letter of the statement in **LIST B** that **BEST** corresponds to the phrase in **List A**.

	<b>LIST A</b>		<b>LIST B</b>
<b>11</b>	Weed	A	Increase in the cost of cultivation
<b>12</b>	A Characteristics of weeds	B	Useful as fodder for castles & vegetable by human beings.
<b>13</b>	Disadvantages of Weeds	C	By water
<b>14</b>	One advantages of weeds	D	It includes the use of living organisms for suppressing or controlling the weeds.
<b>15</b>	One way of spreading weeds	E	Selective herbicides
<b>16</b>	Biological weed control methods	F	Is to control disease

17	One type of herbicides	G	Is broadcasting
18	One objectives of seed treatment	H	Farmers should use only healthy and vigorous seedlings
19	One methods of seed sowing	I	They are harmful to crops, cattle and human beings.
20	To reduce transplanting shock	J	is a plant growing where it is not wanted

**PART III**

**TRUE or FALSE**

**[10 Marks]**

**INSTRUCTIONS:**

In the “ANSWER BOOKLET” provided, write “TRUE” if the statement is correct and “FALSE” if the statement is incorrect.

21. Agriculture is the backbone of Fiji economy.
  
22. In 2001, agriculture comprised about 30% of Fijis export earnings.
  
23. One of the roles of the Research Division in Fiji is to support the Ministry of Agriculture through the development of new technologies and its transfer to suit the need of farmers, the clients and the stakeholders.

24. Agriculture is the science, art, and business of cultivating soil, producing crops, and raising livestock farming.
25. Annual rainfall in the dry zones averages around 2000mm, whereas in the wet zones, it ranges from 3000mm around the coast to 6000mm on the mountainous sites.
26. Surface soil, in which seed are to be sown, should not be hard & compact, but soft & friable, so that tender shoots of germinating seeds can push above the soil surface without any difficulty.
27. Soil should also be free from weeds which otherwise rob the crop of water & nutrients.
28. Tillage is the manipulation of soil with tools & implements for loosening the surface crust & bringing about conditions favorable for the germination of seeds and the growth of crops.
29. Some seeds germinate and grow slowly, and if sown too deep, poor establishment may result.
30. Oxygen usually or only limiting when the soil around the seed is saturated (completely wet or soaked) for long period.

## **SECTION B**

### **SHORT ANSWER QUESTIONS**

**[40 Marks]**

This section consists of **TWELVE** short answer questions.

**ATTEMPT ALL QUESTIONS IN THIS SECTION.**

#### **INSTRUCTIONS:**

Write your answers in the “**ANSWER BOOKLET**” provided.

Begin each question on a **NEW PAGE**.

**Question 31**

Lists and briefly describe three (3) factors Influencing Preparatory or Tillage Operations: (4 marks)

**Question 32**

Lists six (6) effects of tillage on soil: (3 marks)

**Question 33**

Briefly discuss two (2) effect of tillage on crop growth. (3 marks)

**Question 34**

Lists and briefly discuss the three types of tillage operations. (4 marks)

**Question 35**

Lists the three major requirements for seed germination. (2 marks)

**Question 36**

Briefly discuss the following methods of crop establishment. (6 marks)

- a) Direct seedling/sowing
- b) Transplanting
- c) Vegetative propagation:

**Question 37**

Name three (3) crops that can germinate well in dry soil? (2 marks)

**Question 38**

Briefly discuss the two types of germinations. (3 marks)

**Question 39**

Explain what is seed dominance? (2marks)

**Question 40**

Lists the three (3) kind of seed dominancy.

(2marks)

**Question 41**

Briefly discuss the following classes of seeds that used in seed production program:

(4marks)

- a) Breeder seed
- b) Foundation seed

**Question 42**

Briefly explain the following tests are conducted to determine the quality of

Seeds:

(5marks)

- a) Purity test
- b) Germination test
- c) Moisture content

**SECTION C**  
**LONG ANSWER QUESTIONS.**

**[30 Marks]**

This section consists of **FOUR** long answer questions.  
**ATTEMPT ALL QUESTIONS IN THIS SECTION.**



**INSTRUCTIONS:**

Write your answers in the “**ANSWER BOOKLET**” provided.  
Begin each question on a **NEW PAGE**.

**Question 43**

- a) Briefly discuss what seedling emergence is? (5marks)
- b) Discuss one of the factors that normally affect seedling emergence?
- c) Briefly discuss how the factor above can be avoided

**Question 44**

(5marks)

- a) Explain what is mulch?
- b) Briefly explain any problem of mulch.
- c) Briefly discuss what is seed germination

**Question 45**

Briefly discuss the following about Nursery management:

(15 marks)

- a) Thinning
- b) Watering
- c) Fertilizing
- d) Hardening

**Question 46**

Briefly discuss four (4) changes normally happen during germination.

(5marks)

**END OF THE PAPER**