



FNU FIJI NATIONAL UNIVERSITY

College of Engineering, Science & Technology (CEST)

SCHOOL OF MECHANICAL ENGINEERING

CERTIFICATE IV IN AGRICULTURAL ENGINEERING

STAGE 5 / PENSTER 5 - 2013

AGE408 FARM ENVIROMENT & WASTE MANAGEMENT

DURATION: 2 HOURS

Instructions:

1. You are allowed 10 minutes Extra reading time during which you are NOT to write.
2. Begin each answer on a fresh page and use both sides of the sheet.
3. Do not write your name on any answer sheet - only write your examination number.
4. Insert all written sheets, graph paper, drawing paper, etc. in their correct sequence and secure with string.
5. For all sheets of paper of which rough/draft work has been done, cross it through and you **MUST ATTACH** to your answer scripts.
6. Write clearly the number(s) of the question(s) attempted on the top of each sheet.
7. **ATTEMPT ALL QUESTIONS**
8. **TOTAL MARKS = 100**

producer → carnivore → decomposer → detritivore

SECTION A: 40marks

Environmental Management

1. Define the following Environmental management terms: [16marks]
 - a. Ecosystem
 - b. Agro Eco system
 - c. Ecology
 - d. Ecological Management
 - e. Ecosystem service
 - f. Environmental Processes
 - g. Ecological Succession
 - h. Biodiversity
2. List down the 5 general categories of Ecological Management [5marks]
3. Draw and explain one of the Environmental Processes [4marks]
4. State 3 characteristics of an Agro ecosystem differ from Natural Ecosystem. [6marks]
5. Draw a food chain including the 3 main groups in a food chain? [3marks]
6. State 3 importance values of Biodiversity and site examples: [6 marks]

Handwritten notes for question 4 and 5:
 Agro ecosystem: non self sustainability, control by nature, agrobe naturally.

SECTION B: 30 marks

Waste Management

1. Define the term waste management. [2marks]
2. List and explain 4 ways of waste disposal? [8marks]
3. Draw the diagram of the waste hierarchy? [8marks]
4. Define the two term: [6marks]
 - a. Waste hierarchy
 - b. Polluter pays principle
5. What is Agriculture waste management [2marks]
6. State 2 benefits of waste management in agriculture [4marks]

Handwritten notes and diagrams for Section B:

- Notes for Q2: Recycling, Landfill, Resource Recovery, Energy.
- Notes for Q3: Farm Agricultural waste management.
- Notes for Q4: Waste hierarchy, Polluter pays principle.
- Notes for Q5: Agriculture waste management.
- Notes for Q6: most favourable, least favourable.

Diagram for waste hierarchy (labeled '1'):

```

  Prevention
  +
  reduce
  +
  recycle
  +
  recovery
  
```

Diagram for waste hierarchy (labeled '1') with arrows:

```

  most favourable
  ↑
  Diagram for waste hierarchy
  ↓
  least favourable
  
```

Notes for Q3: Roles of ISO.

Agricultural Waste Management and ISO

QUESTION 1 [15marks]

1. What is Agricultural Waste Management? [2marks]
2. State 4 example of agricultural waste? [4marks]
 - Surplus milk
 - empty containers
 - used tires
 - leaves
3. State 3 important benefits of waste management in Agriculture production? [9marks]

Question 2 [15marks]

1. What is ISO? [5 marks] *International standard organisation*
2. State 3 important roles of ISO in Environmental Management System? [6marks]
3. State 4 benefits of ISO? [4marks]

*****END OF PAPER*****

GOOD LUCK