TONGA FORM SIX CERTIFICATE  
2017  
AGRICULTURAL STUDIES  

QUESTION AND ANSWER BOOKLET  

Time allowed: 3 Hours  

INSTRUCTIONS:  
1. Write your Student Enrolment Number (SEN) on the top right-hand corner of this page.  
2. Additional sheets of paper can be obtained from your supervisor if necessary. Write your Student Enrolment Number (SEN) on each additional sheet. Number the questions clearly and insert them in the appropriate part of your booklet.  

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<th>SECTION</th>
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3. Check that this booklet contains pages 2-19 in the correct order and that none of the pages is blank.  

YOU MUST HAND IN THIS BOOKLET TO THE SUPERVISOR BEFORE YOU LEAVE THE EXAMINATION ROOM.
SECTION A: Agricultural Ecosystem and Environment.

1. Define Agricultural Ecosystem.

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Use Figure 1 below to answer the questions that follow.

**Figure 1**: Spraying Yam

2. Identify ways agricultural chemicals pollute the environment.

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3. Define Sustainable Agriculture.

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4. List factors influencing the development of farming system in Tonga.

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5. **Explain** appropriate **handling of pesticides.**
SECTION B: Soils

Use Figure 2 below and answer the question that follow.

Figure 2: Different types of Soil Structure.

1. **Define** Soil Structure.

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Figure 3 below shows a Textural Triangle with percentage of sand, silt and clay in different types of soil.

Figure 3: Textural Triangle

2. **Identify** soil types with 30% sand, 40% silt and 30% clay.

   _________________________________________________________________
Use **Figure 4** below to answer the question that follow.

**Figure 4: Soil Profile**

3. **Label** Horizon A in Soil Profile above.

Use **Figure 5** below to assist you in answering the question that follow.

**Figure 5: Organic Mulch**

4. **Describe** how Mulch maintains soil fertility.
Use Figure 6 below to assist you in answering the question that follow.

**Figure 6**: Mixed Cropping.

5. **Explain** the importance of **Mixed Cropping** to soil conservation.

Skill level 3

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1. **Label** tractor part A above.

2. **Identify** parts of a tractor that should be **checked daily**.
Study Figure 8 below and answer the question that follows.

**Figure 8**: Tractor drawn equipment

<table>
<thead>
<tr>
<th>Tractor Implement 1</th>
<th>Tractor Implement 2</th>
<th>Tractor Implement 3</th>
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3. **Name** the equipment shown in tractor **implement 3**.

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Study Figure 9 below and answer the question that follows.

**Figure 9**: Tractor Air Cleaner

4. **Describe** the service performed by a **Tractor Air Cleaner**.

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Skill level 1

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5. **Explain** the **Safety procedures** for tractor operation.
SECTION D: Crop Production and Crop Protection

Study Figure 10 below and answer the questions that follow.

**Figure 10**: Seed Germination

1. **Define** Seed Germination.

2. **List** factors needed for **Seed Germination**.

3. **Compare Monocot** and **Dicot Seeds**.
4. **Evaluate** the advantages of **Sexual Reproduction** in plants.

5. **Nitrogen** is a Macro element. **Define** Macro element.

6. **Describe** the importance of **Nitrogen fertilizer** in the soil.

7. **Explain** how to apply **Nitrogen fertilizer** to watermelon that is **deficient** in Nitrogen.
8. **Define** Ethylene Hormone.
SECTION E: Animal Production and Health

Study Figure 11 below and answer the questions that follow.

**Figure 11:** Sow A

1. What is the **name** given to the breed of pig above?

2. **Describe** the characteristic of **Sow A**.

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3. **Compare** the production of **Sow A** and the **Tongan Native Sow**.
Study Figure 13 below and answer the questions that follow.

**Figure 13**: Breeding Pig

<table>
<thead>
<tr>
<th>100% Tongan Native Sow</th>
<th>X</th>
<th>100% Duroc Boar</th>
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<tr>
<td>![Image of 100% Tongan Native Sow]</td>
<td>![Image of 100% Duroc Boar]</td>
<td>F1 Progeny 50% Tongan Native Sow and 50% Duroc Boar</td>
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4. What is the name given to the breeding system above?

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5. Identify the Gestation period of pig.

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6. **Describe** the advantages of breeding Tongan Native Sow and Duroc Boar.

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Skill level 1

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Skill level 2

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Study **Figure 14** below and answer the questions that follow.

**Figure 14:** Mastitis Cow

7. **Explain** the clinical signs of Mastitis.

8. **Analyse** the control of Mastitis as shown in the Cow above.
SECTION F: Agricultural Management and Marketing

1. Define Market.

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2. Describe the importance of Promotion in Marketing.

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Skill level 1

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Skill level 2

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Study **Figure 15** below and answer the questions that follow.

**Figure 15**: Demand Curve

3. **Explain** the impact of shift in the demand curve as it moves the market equilibrium from **Point A** to **Point B**.

4. **Define** market equilibrium price.
Study **Figure 16** below and answer the questions that follow.

**Figure 16**: Supply and Demand Curve

5. In December 2016, the price of Watermelon dropped and the quantity of watermelon sold rose. **Analyse** the relationship of **supply** and **demand** for watermelon in December 2016.

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6. **Define** Quarantine.

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