

MARKER CODE				



STUDENT ENROLMENT NUMBER (SEN)									

TONGA SCHOOL CERTIFICATE

2020

AGRICULTURAL SCIENCE

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. This paper consists of **SIX SECTIONS** and is out of 70 weighted scores.

SECTION	TOPICS	TOTAL SKILL LEVEL
ONE	SOILS	13
TWO	CROP PRODUCTION	17
THREE	CROP PROTECTION	7
FOUR	ANIMAL PRODUCTION	17
FIVE	ANIMAL PROTECTION	9
SIX	AGRICULTURAL INDUSTRY AND MARKETING	7
TOTAL		70

3. Answer **ALL QUESTIONS**. Write your answers in the spaces provided in this booklet.
4. Use a **BLUE** or **BLACK** ball point pen only for writing. Use a pencil for drawing if required.
5. If you need more spaces for answers, ask the supervisor for extra paper. Write your **Student Enrolment Number (SEN)** on each additional sheet, number the questions clearly and insert them in the appropriate places in this booklet.
6. Check that this booklet contain pages **2-23** in the correct order and that pages 22-23 have been deliberately left blank.

YOU MUST HAND IN THIS BOOKLET TO THE SUPERVISOR BEFORE YOU LEAVE THE EXAMINATION ROOM.

SECTION ONE:

SOILS

A. Soil Nature and Properties

Figure 1 shows one of the farming practices that have negative impact on the soil. Use it to answer the questions that follow.

Figure 1: Poor farming practice



Source: tes.com

1. Name the farming practice shown in **Figure 1**.

2. Describe the impact of the farming practice in **Figure 1** on soil structure.

Skill level 1	
1	
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Skill level 2	
2	
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0	
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Study **Figure 2** below and use it to answer the questions that follow.

Figure 2: Soil organism



Source: infrastructurenews.co.za

3. Name the group in which the above organism belong.

Skill level 1	
1	
0	
NR	

4. Describe the useful role of the organism in **Figure 2**.

Skill level 2	
2	
1	
0	
NR	

B. Soil Management and Soil Fertility

Figure 3 below is a picture of two different types of mulching used in Agriculture. Use it to answer the Questions that follow.

Figure 3: Two types of mulching



Source: thehindu.com

1. Differentiate between **organic** and **plastic** mulch.

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Skill level 3	
3	
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2. Discuss the importance of mulching.

[illegible]

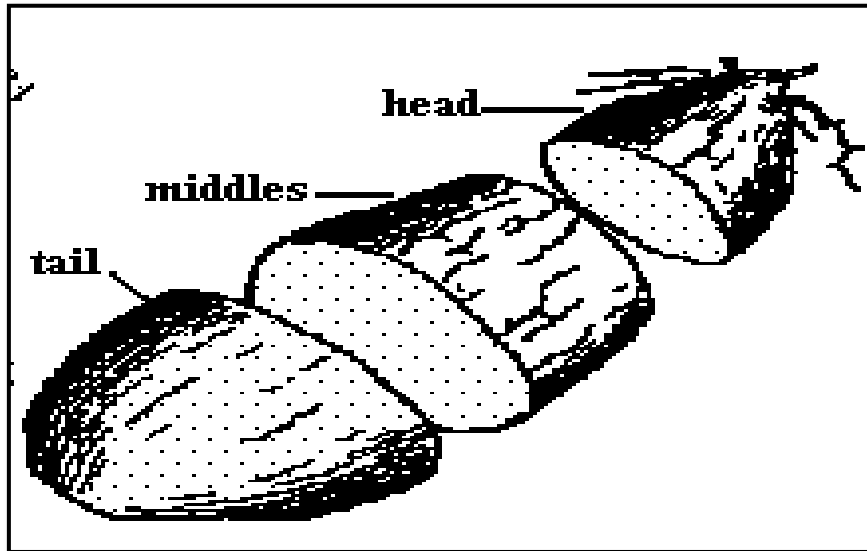
Skill level 4	
4	
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SECTION TWO: CROP PRODUCTION

A. Primary Products

Figure 4 below shows the planting materials for yam. Use it to answer the questions that follow.

Figure 4: Planting materials for yam



Source: uq.edu.au

1. Identify the BEST planting materials for yam from **Figure 4**.

2. Describe the appropriate methods of weeding for yam plantation.

Skill level 1	
1	
0	
NR	

Skill level 2	
2	
1	
0	
NR	

Figure 6 below shows Air Layering which is one of the vegetative propagation method used in Agriculture. Use it to answer the questions that follow.

Figure 6: Vegetative propagation in plants



Source: antropocene.it

3. Describe the advantages of vegetative propagation.

Skill level 2	
2	
1	
0	
NR	

4. Explain the procedure to be followed when practicing Air Layering in **Figure 6**.

Skill level 3	
3	
2	
1	
0	
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C. Plant Nutrients

Figure 7 below shows nutrient deficiency in maize. Use it to answer the questions that follow.

Figure 7: Nutrient deficiency in corn



Source: extension.umd.edu

1. Name the nutrient that is deficient in **Figure 7**.

2. Discuss the function of the nutrient that is deficient in **Figure 7**.

Skill level 1	
1	
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NR	

Skill level 4	
4	
3	
2	
1	
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SECTION THREE:

CROP PROTECTION

A. Plant Health

Figure 8 below shows a disease in yam production. Use it to answer the questions that follow.

Figure 8: A picture of yam infected by a



Source: plantvillage.psu.edu

1. Name the disease shown in **Figure 8**.

Skill level 1	
1	
0	
NR	

2. Identify the major cause of the disease in **Figure 8**.

Skill level 1	
1	
0	
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3. Describe the mode of infection of the disease in **Figure 8**.

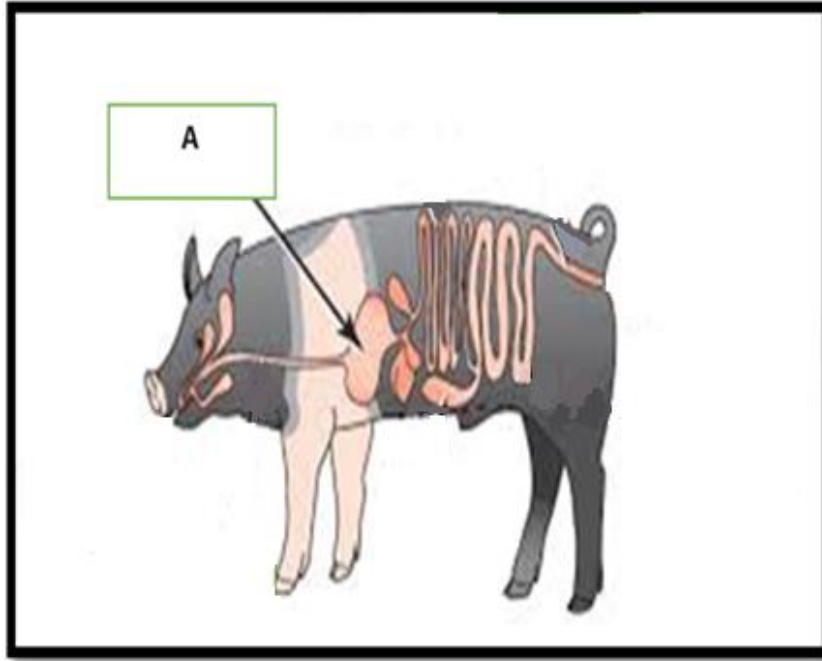
Skill level 2	
2	
1	
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NR	

SECTION FOUR: ANIMAL PRODUCTION

A. Animal Nutrition

Figure 9 below shows the digestive system of a pig. Use it to answer the questions that follow.

Figure 9: Digestive system of a pig



Source: fyi.uwex.edu

- Describe the functions of part A in **Figure 9**.

Skill level 2	
2	
1	
0	
NR	

Figure 10 below shows a paddock filled with pastures. Use it to answer the questions that follow.

Figure 10: An area filled with pasture grass



Source: liberaldictionary.com

2. Define **pastures**.

3. Describe the importance of pastures.

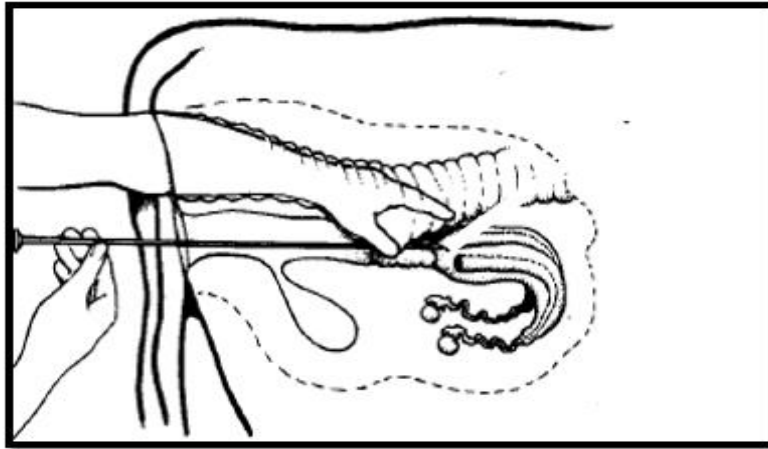
Skill level 1	
1	
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Skill level 2	
2	
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B. Breeds and Breeding

Figure 11 below shows one of the breeding system used in Livestock Animals. Use it to answer the questions that follow.

Figure 11: A breeding system in livestock



Source: thebeefsite.com

1. Identify the type of breeding system in **Figure 11**.

Skill level 1	
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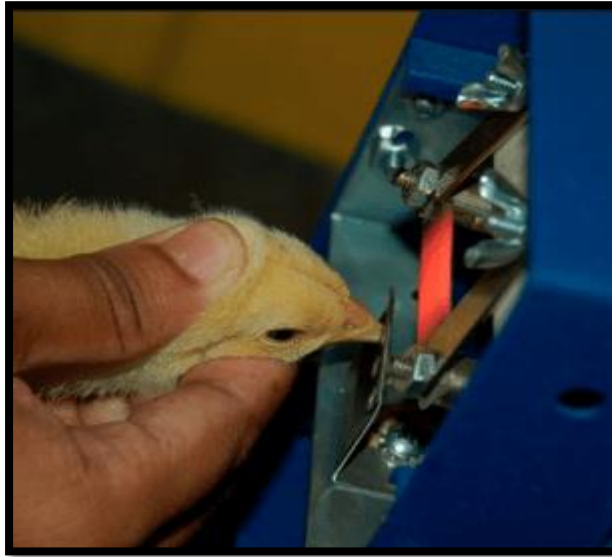
2. Explain the principles of the breeding system in **Figure 11** in relation to animal improvement.

Skill level 3	
3	
2	
1	
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NR	

C. Management

Figure 12 below shows a management practice in Livestock. Use it to answer the questions that follow.

Figure 12: Management practice in livestock



Source: highpoultry.com

1. Name the husbandry practice in **Figure 12**.

Skill level 1	
1	
0	
NR	

2. Explain the effects of the husbandry practice in **Figure 12** on the behavior of the Chick.

[illegible]

Skill level 3	
3	
2	
1	
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3. Discuss the importance of the management practice in **Figure 12**.

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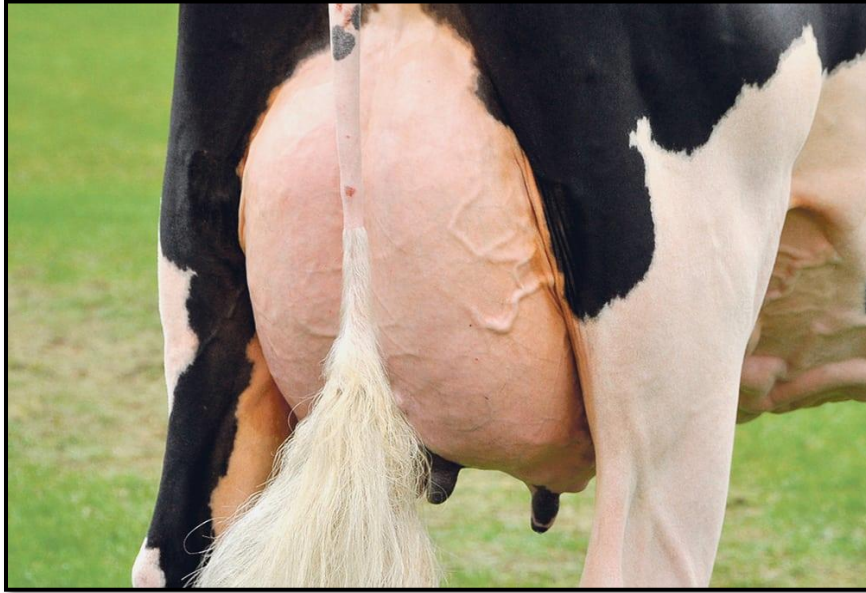
Skill level 4	
4	
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SECTION FIVE: ANIMAL PROTECTION

A. Animal Health (Common Diseases)

Figure 13 below shows a cow that has been affected by a disease. Use it to answer the questions that follow.

Figure 13: A cow affected by a disease



Source: producer.com

1. Name the disease shown in **Figure 13**.

Skill level 1	
1	
0	
NR	

2. List the treatments for the disease shown in **Figure 13**.

i.

ii.

Skill level 2	
2	
1	
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NR	

3. Explain the control measures for the disease in **Figure 13**.

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Skill level 3	
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B. Internal Parasites

Figure 14 below shows a tapeworm. Use it to answer the questions that follow.

Figure 14: A picture of an internal parasite



Source: webmd.com

1. Name the internal parasite in **Figure 14**.

Skill level 1	
1	
0	
NR	

2. Describe how the internal parasite in **Figure 14** above affects its intermediate hosts.

Skill level 2	
2	
1	
0	
NR	

SECTION SIX: AGRICULTURAL INDUSTRY AND MARKETING

A. Post Harvesting and Marketing

Below is **Table 1** which records the ‘Kahokaho’ yam quantity demanded and the quantity supplied at the Talamahu Market for the month of June 2016. Given prices are per baskets of yams. Use it to answer the questions that follow.

Table 1: Kahokaho Quantity Demanded and Supplied at Talamahu Market (June 2016)

DATE	PRICE	DEMAND	SUPPLY
June 1	\$40	26	10
June 8	\$45	22	14
June 15	\$50	18	18
June 22	\$55	14	22
June 29	\$60	10	26

1. Define **demand**.

Skill level 1	
1	
0	
NR	

2. Define **supply**.

Skill level 1	
1	
0	
NR	

3. Describe the ‘Law of Demand’ as shown in **Table 1**.

[illegible]

Skill level 2	
2	
1	
0	
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4. Explain the relationship between Supply and the price of kahokaho in **Table 1**.

[illegible]

Skill level 3	
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