GOVERNMENT OF SAMOA

| STUDENT EDUCATION NUMBER | | | | | | | | | |
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# Samoa Secondary Leaving Certificate

# AGRICULTURAL SCIENCE

# 2024

## QUESTION and ANSWER BOOKLET

**Time allowed: 3 Hours & 10 minutes**

**INSTRUCTIONS**

1. You have 10 minutes to read **before** you start the exam.
2. Write your **Student Education Number (SEN)** in the space provided on the top right-hand corner of this page.
3. **Answer ALL QUESTIONS.** Write your answers in the spaces provided in this booklet.
4. If you need more space, ask the Supervisor for extra paper. Write your SEN on all extra sheets used and clearly number the questions. Attach the extra sheets to the appropriate places in this booklet.

| STRANDS | | Page | Time (min) | Weighting |
|---|---|---|---|---|
| **STRAND 1** | AGRICULTURE | 2-3 | 14 | 8 |
| **STRAND 2** | SOILS | 4-6 | 18 | 10 |
| **STRAND 3** | FARM MANAGEMENT, ECONOMICS AND MARKETING | 7-10 | 36 | 20 |
| **STRAND 4** | CROP PRODUCTION | 11-16 | 44 | 24 |
| **STRAND 5** | ANIMAL PRODUCTION | 17-24 | 54 | 30 |
| **STRAND 6** | TOOLS, EQUIPMENT AND FACILITIES | 25-27 | 14 | 8 |
| **TOTAL** | | | **180** | **100** |

Check that this booklet contains pages 2 - 28 in the correct order and that none of these pages are blank.

**HAND THIS BOOKLET TO THE SUPERVISOR AT THE END OF THE EXAMINATION.**

| STRAND 1: | AGRICULTURE | WEIGHTING 8 |
|---|---|---|

**Use the Figure 1 below to answer Questions 1 to 4.**

**Figure 1: An Ecosystem**


Source: Getty images

**For Questions 1 and 2, choose and write the LETTER of the correct answer in the box provided.**

1. A consumer in the ecosystem shown in Figure 1 is the:

   A. cow
   B. soil
   C. trees
   D. clouds

| | SL 1 |
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2. Cattle are raised as:

   A. layers.
   B. free range.
   C. indoor cattle.
   D. mixed farming.

| | SL 1 |
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3. Describe a weather related problem that can affect a characteristic of the cattle farm shown in Figure 1.

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| SL 2 |
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4. Discuss the impact of climate change on this ecosystem.

| SL 4 |
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| STRAND 2: | SOILS | WEIGHTING 10 |
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**For Question 5, choose and write the LETTER of the correct answer in the box provided.**

**Study Figure 2 given below and answer Question 5.**

**Figure 2: A Damaged Soil Structure**

*Source*: Google search

5. The damaged soil structure in Figure 2 is caused by:

A. Tilling.

B. Drought.

C. Leaching.

D. Fallowing.

| SL 1 |
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**Study Figure 3 given below and answer Question 6.**

**Figure 3: Deforestation**


*Source*: iStock

6. Explain how soil water is affected by deforestation.

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| SL 3 |
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**Study Figure 4 given below and answer Questions 7 and 8.**

**<u>Figure 4</u>: Mulching of soil**

*Source*: Google search

7. Describe how mulching improves biological activity in soil.

| SL 2 |
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8. Discuss the effect of mulching on soil structure.

| SL 4 |
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| STRAND 3: | FARM MANAGEMENT, ECONOMICS AND MARKETING | WEIGHTING 20 |
|---|---|---|

**For Questions 9 and 10, choose and write the LETTER of the correct answer in the box provided.**

9. A marketing role of a taro exporter is:

A. grading taro.
B. weeding the farm.
C. identify potential market for taro.
D. decide taro variety to be planted.

| | SL 1 |
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10. Farm workers are examples of what kind of resource?

A. Human
B. Financial
C. Physical
D. Livestock

| | SL 1 |
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**Use Figure 5 below to answer Question 11.**

**<u>Figure 5</u>: Market**

*Source*: Getty images

11. Explain the influence of market availability on farm management decisions.

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12. Describe the post-harvest handling steps of taro for the local market.

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13. Explain **THREE** things a farmer can do to meet the export grade of taro.

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| SL 3 |
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14. From your knowledge of taro sales, outline **TWO** potential local and **TWO** potential export markets for taro.

| SL 2 |
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15. Describe **TWO** types of information normally recorded in the management of cattle.

| SL 4 |
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16. Describe **TWO** important conditions a farm manager needs to consider for the storage of farm products.

| SL 2 |
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17. Describe the value added process using a mature green banana finger as an example.

| SL 2 |
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**For Questions 18 to 20, choose and write the LETTER of the correct answer in the box provided.**

**Use Figure 6 below to answer Question 18.**

**Figure 6: Plant propagation**

Source: Getty images

18. The plant propagation method in Figure 6 is called:

A. grafting.
B. budding.
C. air layering.
D. tissue culture.

| | SL 1 |
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**Use Figure 7 below to answer Question 19.**

**Figure 7: Tomato plant**

Source: Getty images

19. Tomato is a:

A. pest.
B. dicot.
C. tricot.
D. monocot.

| | SL 1 |
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**Use Figure 8 below to answer Question 20.**

**Figure 8: Pineapples**

Source: Getty images

20. Pineapples can be induced to flower if applied with:

A. pollen.
B. honey.
C. nectar.
D. hormones.

| | SL 1 |
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**Use Figure 9 below to answer Question 21.**

**Figure 9: Taro leaf affected by Taro Leaf Blight fungus**

Source: Google search

21. Describe how the fungus spreads on the taro leaves.

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| SL 2 |
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22. Explain the steps you will follow to determine what fertilizers your crop needs.

| SL 3 |
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**Use Figure 10 below to answer Question 23.**

**Figure 10: Corm rot in taro**

Source: Getty images

23. Describe the best method of controlling corm rot disease in taro.

| SL 2 |
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**Use Figure 11 below to answer Question 24.**

**<u>Figure 11</u>: Thinning seedlings**

Source: Getty images

24. Explain how growth and development of seedlings are influenced by thinning.

| SL 3 |
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25. Explain how sexual reproduction of plants is affected by genetically modified organisms.

| SL 3 |
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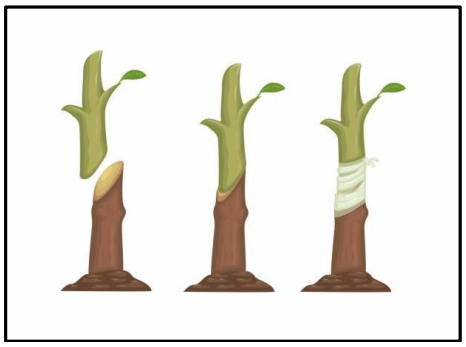
**Use Figure 12 below to answer Question 26.**

**<u>Figure 12</u>: Grafting**



Source: Getty images

26. Explain the steps when grafting a plant.

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| SL 3 |
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27. Describe complete and incomplete metamorphosis.

| SL 2 |
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**Use Figure 13 below to answer Question 28.**

**<u>Figure 13</u>: Seed Germination**

Source: Getty images

28. Explain how a seed germinates.

| SL 3 |
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**For Questions 29 to 31, choose and write the LETTER of the correct answer in the box provided.**

**Use Figure 14 below to answer Question 29.**

**Figure 14: System of raising chickens**

Source: Getty images

29. The breed of chickens in the diagram is called a:

A. fayoumi.
B. white fowl.
C. local chicken.
D. white leghorn.

| | SL 1 |
|---|---|
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**Use Figure 15 below to answer Question 30.**

**Figure 15: Pigs**

**Source**: Getty images

30. The breed of pigs in the diagram is called a:

A. local pig.
B. landrace.
C. large white.
D. saddle back.

| | SL 1 |
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**Use Figure 16 given below to answer Question 31.**

**Figure 16: Cattle breeds**

Source: Getty images

31. The breed of cattle in the diagram is called :

A. Zebu.
B. Fresian.
C. Hereford.
D. Draught master.

| | SL 1 |
|---|---|
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**Use Figure 17 below to answer Question 32.**

**Figure 17: Husbandry practice in Cattle**

Source: Getty images

32. Describe how rotational grazing influences the growth and development of beef cattle.

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33. Describe how temperature influences the growth and development of housed layer chickens.

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34. Explain how hygiene influences the growth and development of layer hens.

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| SL 3 |
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**Use Figure 18 to answer Question 35.**

**<u>Figure 18</u>: Cattle with TB**

**Source**: Getty images

35. Explain the symptom, cause and control of TB disease in cattle.

| SL 3 |
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**Use Figure 19 to answer Question 36.**

**Figure 19: Legumes – Centro**

Source: Getty images

36. Discuss the nutritive value of legumes.

| SL 3 |
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37. Describe the characteristics of local and commercial pigs.

| SL 2 |
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38. Discuss the importance of Integrated Pest Management in cattle.

| SL 4 |
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39. Discuss levels of pest infestation due to climate change in livestock production.

| SL 4 |
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40. Compare and contrast digestive systems of monogastrics and ruminant animals.

| SL 4 |
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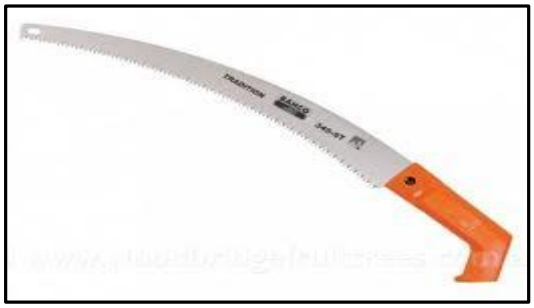
**For Question 41, choose and write the LETTER of the correct answer in the box provided.**

**Use Figure 20 below to answer Question 41.**

**<u>Figure 20</u>: Agricultural tool**



**Source:** Getty images

41. The tool shown on the diagram is a:

A. secateur.
B. bush knife.
C. pruning saw.
D. knapsack sprayer.

| | SL 1 |
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42. Describe the correct use of the knapsack sprayer.

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| SL 2 |
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**Use Figure 21 given below to answer Question 43.**

**<u>Figure 21</u>: Agricultural Chemical**


**Source:** Getty images

43. Describe how Round-Up works (Mode of action).

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| SL 2 |
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**Use Figure 22 given below to answer Question 44.**

**<u>Figure 22</u>: Spraying vegetables**

**Source:** Getty images

44. Explain why spraying must be done two weeks before harvesting.

| SL 3 |
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| STUDENT EDUCATION NUMBER | | | | | | | | | |
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# SSLC AGRICULTURAL SCIENCE

## 2024

***(For Scorers only)***

| STRANDS | | Weighting | Scores | Check Scorer | AED Check |
|---|---|---|---|---|---|
| **STRAND 1** | AGRICULTURE | 8 | | | |
| **STRAND 2** | SOILS | 10 | | | |
| **STRAND 3** | FARM MANAGEMENT, ECONOMICS AND MARKETING | 20 | | | |
| **STRAND 4** | CROP PRODUCTION | 24 | | | |
| **STRAND 5** | ANIMAL PRODUCTION | 30 | | | |
| **STRAND 6** | TOOLS, EQUIPMENT AND FACILITIES | 8 | | | |
| **TOTAL** | | **100** | | | |