

STUDENT EDUCATION NUMBER

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GOVERNMENT OF SAMOA
MINISTRY OF EDUCATION, SPORTS AND CULTURE

Samoa Secondary Leaving Certificate

AGRICULTURAL SCIENCE 2017

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 left 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 at the appropriate places in this booklet.

STRANDS		Page	Time (min)	Weighting
STRAND 1:	AGRICULTURE	2	18	10
STRAND 2:	SOILS	4	45	24
STRAND 3:	FARM MANAGEMENT, ECONOMICS AND MARKETING	8	22	12
STRAND 4:	CROP PRODUCTION	10	40	24
STRAND 5:	ANIMAL PRODUCTION	14	43	24
STRAND 6:	TOOLS, EQUIPMENTS AND FACILITIES	18	12	6
TOTAL			180	100

Check that this booklet contains pages 2-20 in the correct order and that none of these pages is blank.
YOU MUST HAND THIS BOOKLET TO THE SUPERVISOR AT THE END OF THE EXAMINATION

Use the resource below to answer Number 1 to 3.



1. The resource above shows an example of an ecosystem that is

_____.

NATURAL

MANAGED

SL 1

2. Describe ONE characteristic of the ecosystem shown above.

SL 2

3. Use the resource to explain ONE impact of the agricultural practice on the surrounding ecosystems.

SL 3

Use the information below on **Genetically Modified (GM) Foods** to answer **Number 4 and 5**.

GM foods are foods produced from organisms that have had changes introduced in their DNA using the methods of genetic engineering. Genetic engineering techniques allow the introduction of new traits as well as greater control over traits than previous methods such as selective breeding.



4. Define **Genetically Modified Foods**.

SL 1

5. Explain the effect of breeding on production.

SL 3

6. What is **soil pH**?

SL 1

7. What is **soil texture**?

SL 1

8. What is **crop rotation**?

SL 1

9. Name ONE property of soil in your village.

Village_____

Soil property_____

SL 1

Use the resource below to answer Number 10 to 13.



10. Define **deforestation**.

SL 1

11. Describe the physical properties of soil in deforested areas.

SL 2

12. Explain how biological soil properties are affected by deforestation.

SL 3

13. Discuss the impact of deforestation on the quality of soil.

SL 4

Use the resource below to answer Number 14 to 17.



14. Name the soil conservation problem.

SL 1

15. List TWO ways that this problem can be solved.

1.

2.

SL 2

16. Explain your TWO ways of solving the soil conservation problem.

SL 3

17. Evaluate the impacts of the two ways that you have explained above.

SL 4



Use the resources above to answer Number 18 to 20.

18. Identify a market opportunity for tomato farming in Samoa.

SL 1

19. Give an example of **post-harvest handling** required for tomato production.

SL 2

20. Explain the importance of good tomato **post-harvest handling** methods in meeting consumer demand.

SL 3

Use the record sheet below to answer Number 21 to 24.

The screenshot shows the CattleMax 2006 software interface. The main window displays a record for a cow named "FF Stockman 575". The record is organized into several sections:

- Identificación:** Ear Tag (575), Brand, Tattoo, Other ID (575), Name (FF Stockman 575), Reg. # (432432), Electronic ID, Category (Breeding Stock), Comment, and Location (On Ranch, Main Ranch, Pasture: Back Pasture).
- Birth & Status:** Status (Active), Age (12 y, 5 m), Date of Birth (2/7/1993), Sire (9035), Dam (125), Breeder (Rocking R Ranch), Owner (Rocking R Ranch), and Purchased From (Lazy S Ranch) with a purchase date of 5/17/1997 for \$2,500.
- Physical Characteristics:** Breed (Angus), Horns (Polled), and Color Markings (Black).

21. Which category of cattle is identified in the record sheet above?

SL 1

22. Name ONE data in the record sheet relating to a physical resource.

SL 1

23. Name ONE data in the record sheet relating to a human resource.

SL 1

24. Explain the role of record keeping in the management of cattle.

SL 3

Use the resource below to answer Number 25 to 29.



25. Identify the type of taro disease shown in the resource.

SL 1

26. Describe the group of the disease causing agent it belongs to.

SL 2

27. Explain how this disease can be controlled.

SL 3

28. Discuss how the growth and development of taro is affected by this disease.

SL 4

29. Explain the economic reasons for controlling this disease.

SL 3

30. Define *biosecurity*.

SL 1

31. Define *fungus*.

SL 1

32. Define *bacteria*.

SL 1

33. Define *metapmorphosis*.

SL 1

34. Name a major group of **pests**.

SL 2

35. Describe how seed germination is affected by the environment.

SL 2

36. Name the stages of an insect life cycle.

SL 1

37. Define *air layering*.

SL 1

38. Define *sexual reproduction*.

SL 1

Use the resource below to answer Number 39 to 42.



39. Identify the system used for raising poultry in the resource.

SL 1

40. Name a breed of chicken pictured in the resource above.

SL 1

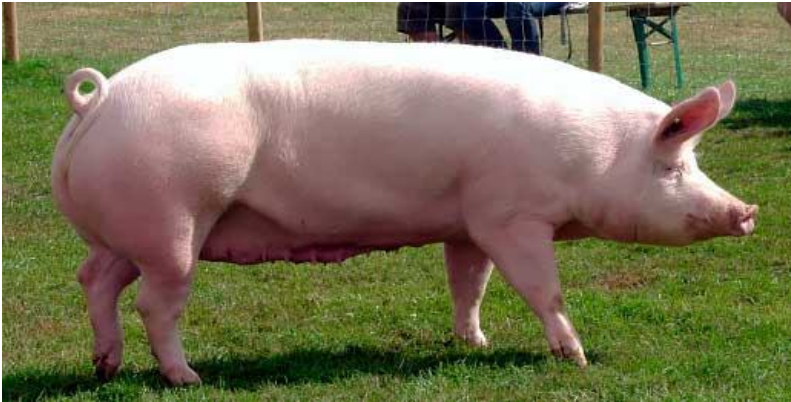
41. Identify a key factor that influences the growth and development of poultry in Samoa.

SL 1

42. Define *chronic respiratory disease in poultry*.

SL 1

Use the resource below to answer Number 43 to 46.



43. Name the breed of pig in the resource.

SL 1

44. Describe how this breed can make a difference to the pig industry.

SL 2

45. Identify the best system for raising the breed of pig in the resource above.

SL 1

46. Discuss the nutritional requirements for this breed of pig.

SL 4

Use the resource below to answer Number 47.



47. Name the breed of cattle in the resource.

SL 1

48. Describe injury disorders in cattle.

SL 2

49. Describe how the nutritive value of feed influences the growth and development of cattle.

SL 2

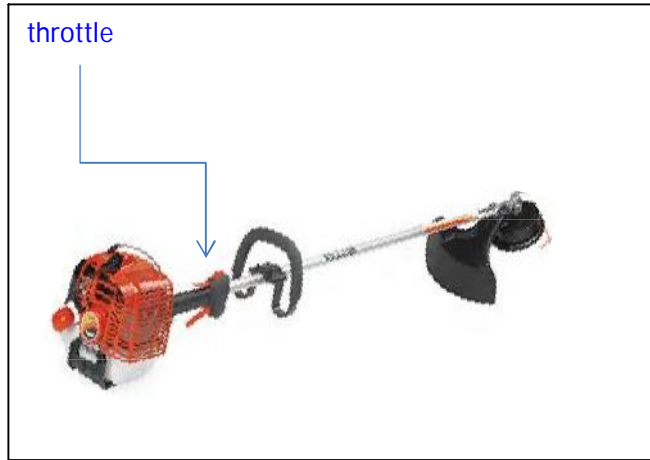
50. Explain how hygiene influences the growth and development of cattle.

SL 4

51. Discuss the role reproductive strategies in increasing of cattle productivity.

SL 3

Study the resource below and answer Number 52 to 56.



52. Name the equipment pictured in the resource.

SL 1

53. On the equipment above, label the part that cuts the grass with an **X**.

SL 1

54. Describe the function of the throttle.

SL 3

55. Explain how the weed eater is used.

SL 1

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AGRICULTURAL SCIENCE

2017

(For Scorers only)

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STRAND 3: FARM MANAGEMENT, ECONOMICS AND MARKETING	12		
STRAND 4: CROP PRODUCTION	24		
STRAND 5: ANIMAL PRODUCTION	24		
STRAND 6: TOOLS, EQUIPMENTS AND FACILITIES	6		
TOTAL	100		