

STUDENT EDUCATION NUMBER

GOVERNMENT OF SAMOA
MINISTRY OF EDUCATION, SPORTS AND CULTURE

Samoa Secondary Leaving Certificate

AGRICULTURAL SCIENCE 2018

QUESTION and ANSWER BOOKLET

Time allowed: 3 Hours & 10 minutes

INSTRUCTIONS

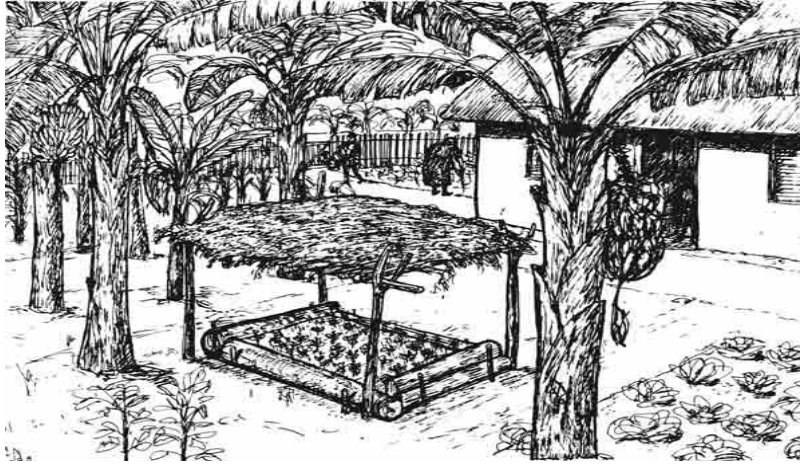
1. You have 10 minutes to read **before** you start the exam.
2. Write your **Student Education Number (SEN)** in the space provided on the top left hand corner of this page.
3. **Answer ALL QUESTIONS.** Write your answers in the spaces provided in this booklet.
4. If you need more space, ask the Supervisor 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	9	40	23
STRAND 5:	ANIMAL PRODUCTION	15	43	24
STRAND 6:	TOOLS, EQUIPMENTS AND FACILITIES	19	12	7
TOTAL			180	100

Check that this booklet contains pages 2-21 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

Study the picture given below and answer Number 1.



“Samoa is improving productivity and ensuring sustainable agriculture system”

1. Define subsistence farming.

SL 1

“Ecosystem is defined as an organism and its surrounding environment.”

2. With reference to the above statement, list TWO differences between a managed ecosystem and a natural ecosystem.

SL 2

3. The heavy application of fertilizers on crops could be harmful. Explain how this could be detrimental to agriculture production.

SL 3

4. Discuss the impact of agricultural systems on the **natural ecosystem**.

SL 4

5. What is parent material?

SL 1

6. Name a **Soil Forming factor**?

SL 1

7. Describe TWO ways in which soil texture affects plant growth.

SL 2

8. Describe an important soil fertility problem on coral islands.

SL 2

9. Describe an example of a biological activity that can help **soil improvement**.

SL 2

10. Identify an important soil fertility problem on **volcanic soil**.

SL 2

11. Explain THREE **mechanisms** through which soil becomes acidic.

SL 3

12. Explain how **herbicides** can reduce soil nutrients in soil.

SL 3

Use the picture given below to answer Number 13.



“Soil formed by the process of weathering that occurs naturally over a long period of time.”

13. With reference to the statement given above, briefly discuss the Physical, Chemical and Biological properties of soil.

SL 4

15. What are **economic resources**?

SL 1

16. List TWO benefits of **keeping farm records**.

(i) _____

(ii) _____

SL 2

17. The Manager’s task in marketing is basically to match production to market needs. Name TWO tasks that are involved in **making decisions**.

SL 2

18. Discuss THREE factors external to an agribusiness enterprise which can affect the marketing manager’s ability to achieve **set marketing objectives**.

SL 3

19. Discuss the **role played** by the middle man in agricultural marketing.

SL 4

STRAND 4:

CROP PRODUCTION

Weighting 24

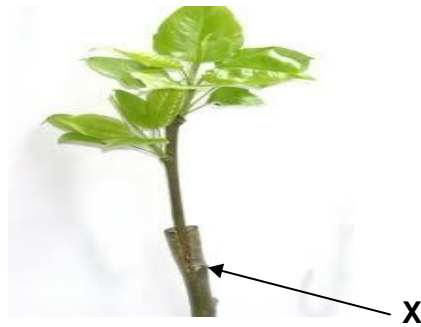
20. What is **vegetative propagation**?

SL 1

21. Name a **method used in the laboratory** to improve plant breeding.

SL 1

Use the picture below to answer Number 22.



22. Name the part labeled X.

SL 1

23. Briefly differentiate between **Air Layering** and **Grafting**, using ONE example from each.

SL 2

24. Explain **seed dormancy** and how the weather affects its germination.

SL 2

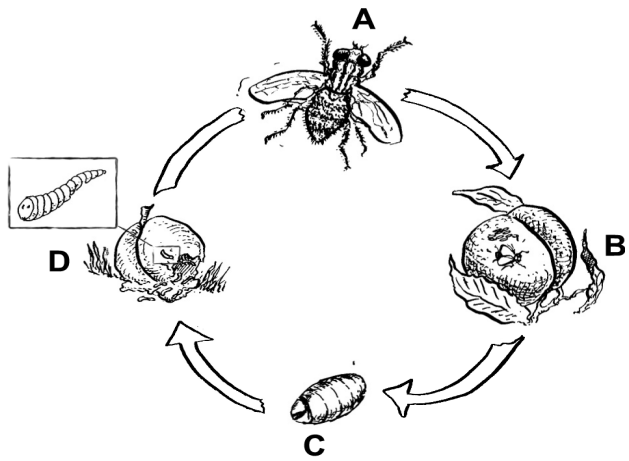
25. Give an example of each from a **biting & chewing** and **piercing & sucking** insect pests.

SL 2

26. **Genetically modified seeds** are well known for improving yield of crops, however they could have an effect on the growth and development of plant. Explain how this is so...

SL 3

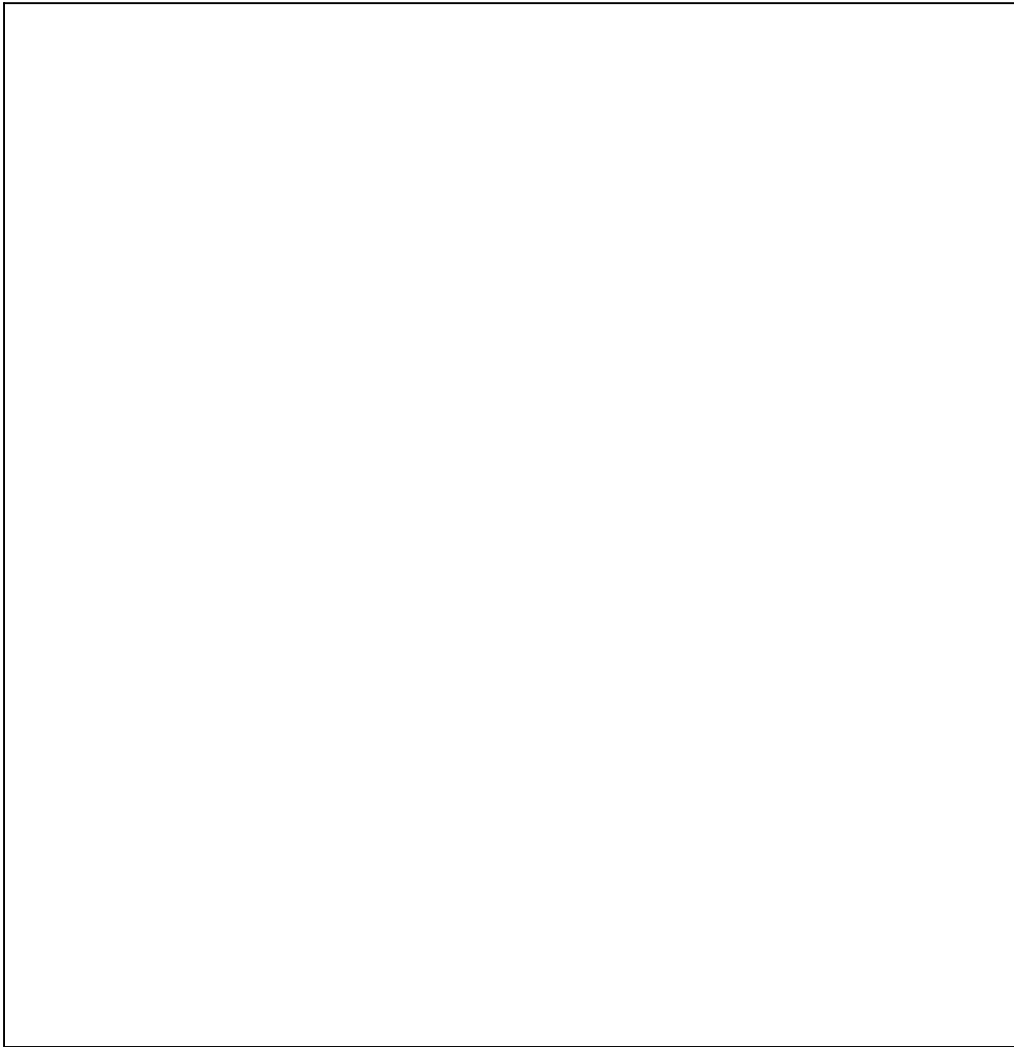
Use the picture given below to answer Number 27.



27. Explain the life cycle of the fruit fly shown in the picture above and name the stage in which it does most **damage to the crop**.

SL 3

28. In the box provided, **draw and label** a simple process of carrying out **Air Layering** technique on a citrus plant.



SL 4

30. Name ONE type of Agriculture production system that is practiced here in Samoa for raising **Pigs and Chickens**.

(i) Pigs _____

SL 2

(ii) Chickens _____

Select TWO farm animals that you have studied and briefly describe any farming system that are used currently that relate to animal welfare system.

31. Name of animal _____

SL 2

Current production system _____

32. Name of animal _____

SL 2

Current production system _____

Use the picture given below to answer Number 33.



A



B

33. Describe the TWO common **breeds of chicken** shown in the diagram.

SL 2

34. Give TWO advantages of raising or keeping **traditional/indigenous** pigs.

SL 2

Use the picture given below to answer Number 35.



35. Briefly describe the **function of the organs** that are labeled in the picture above.

SL 3

36. Describe the correct order of the **digestive system** of a cow. You may use labeled drawing to clarify your answer.

SL 3

PIGS	CHICKEN
BEEF	SHEEP

With reference to the livestock given above, discuss

37. TWO management practices from **birth to weaning**.

SL 4

TWO signs of Oestrus in female animals.

As the Ministry of Agriculture livestock officer, your role is to provide advice and technical assistance to farmers to improve and promote livestock production for dairy animals.

38. Discuss TWO **Husbandry practices** that are required to achieve these.

SL 4

STRAND 6: TOOLS, EQUIPMENTS AND FACILITIES **Weighting 7**

Name the following agriculture equipments used.



39. _____

SL 1



40. _____

SL 1

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AGRICULTURAL SCIENCE

2018

(For Scorers only)

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STRAND 1: AGRICULTURE	10		
STRAND 2: SOILS	24		
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		