

STUDENT EDUCATION NUMBER

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GOVERNMENT OF SAMOA  
MINISTRY OF EDUCATION, SPORTS AND CULTURE

## Samoa School 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
<b>STRAND 1:</b>	AGRICULTURE IN SAMOA	2	14	8
<b>STRAND 2:</b>	SOILS	4	18	10
<b>STRAND 3:</b>	FARM MANAGEMENT, ECONOMICS AND MARKETING	6	36	20
<b>STRAND 4:</b>	CROP PRODUCTION	9	44	24
<b>STRAND 5:</b>	ANIMAL PRODUCTION	14	54	30
<b>STRAND 6:</b>	TOOLS	19	14	8
<b>TOTAL</b>			<b>180</b>	<b>100</b>

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**

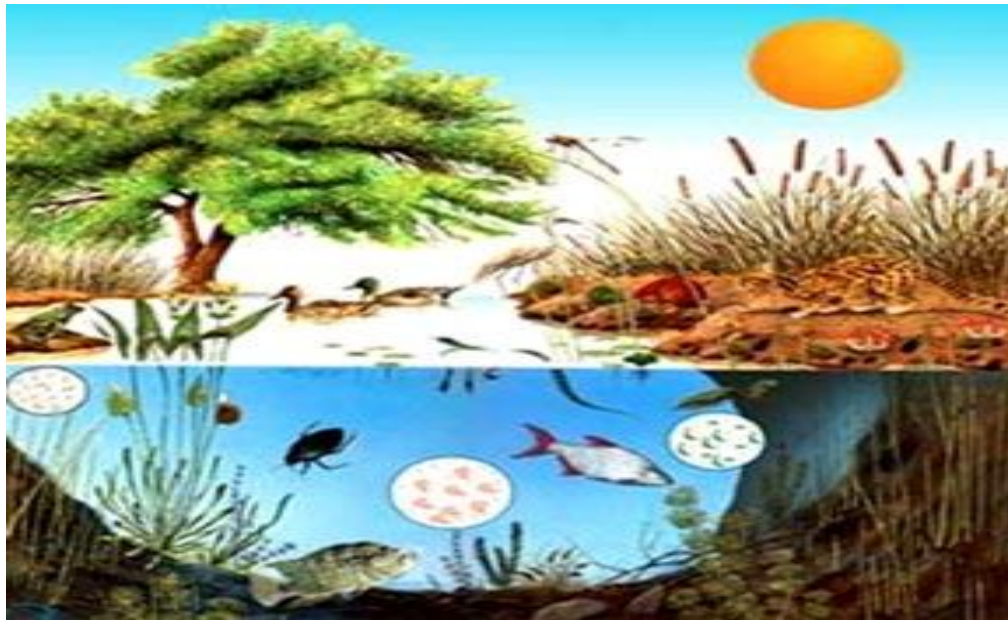
1. Define *ecosystem*.

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SL 1

Study the diagram of the ecosystem below and answer Number 2.



2. Identify a feature in the diagram to support your answer in Number 1.

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SL 1

3. Name a global issue relating to managed ecosystems.

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SL 1

4. Describe the features of a managed ecosystem.

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SL 2

5. Explain how to use genetics in selecting or improving livestock production and breeding.

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SL 3

6. Define *soil fertility*.

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SL 1

7. Describe how fertile soil is determined.

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SL 2

8. Explain the role of micro-organisms in changing soil fertility.

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SL 3

Study the diagram below and answer Number 9.



9. Discuss the soil conservation method that is shown in the farming system above for controlling soil erosion.

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SL 4

**10.** Define the following terms.

(a) *Gross margin*

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SL 1

(b) *Fixed cost*

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SL 1

(c) *Breakeven point*

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SL 1

**11.** Give an example of the given terms.

(a) *A variable cost*

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SL 1

(b) *A fixed cost*

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SL 1

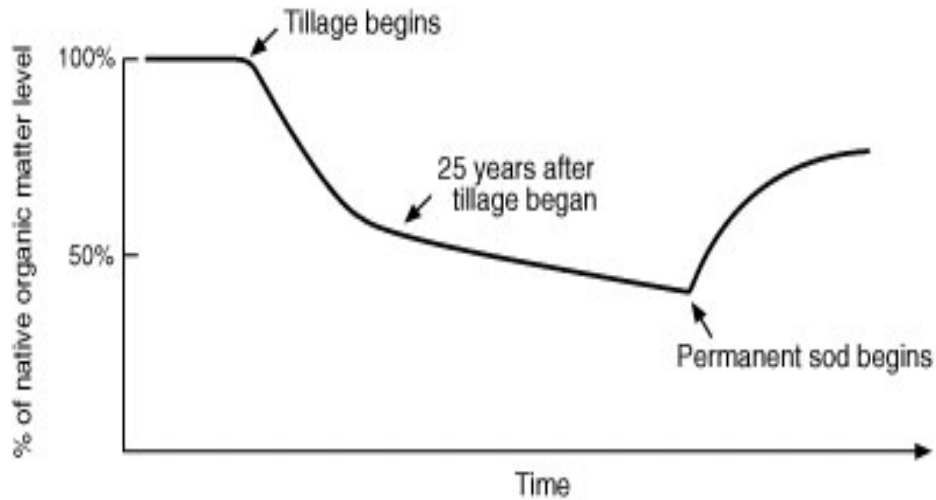
12. Name a type of record that you have studied.

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SL 1

Study the given graph and answer Questions 13 and 14.



13. Describe the best point of production on the graph.

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SL 2

14. Mark on the graph an area for improvement to management practices.

SL 3

15. Evaluate the impact of an input factor in improving crop production.

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SL 4

16. Describe a promotional programme for canned coconut cream.

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SL 2

17. Explain the channel of processing bananas chips from harvesting through to packing and distribution.

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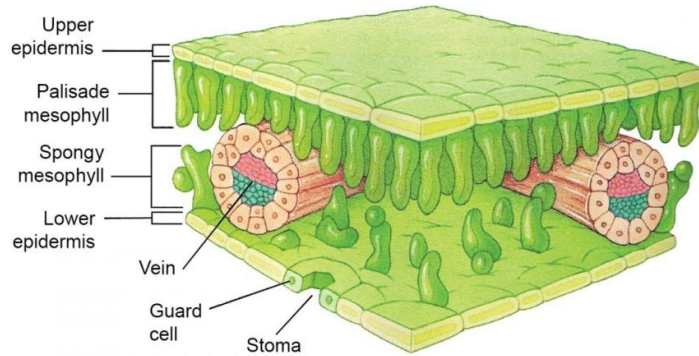
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SL 3



Diagram: Internal Structure of a Leaf



18. Define the organelles of the internal structures of the leaves given.

(a) *The chloroplast*

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SL 1

(b) *Spongy mesophyll*

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SL 1

(c) *Guard cell*

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SL 1

(d) *Upper epidermis*

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SL 1

(e) *Stomata*

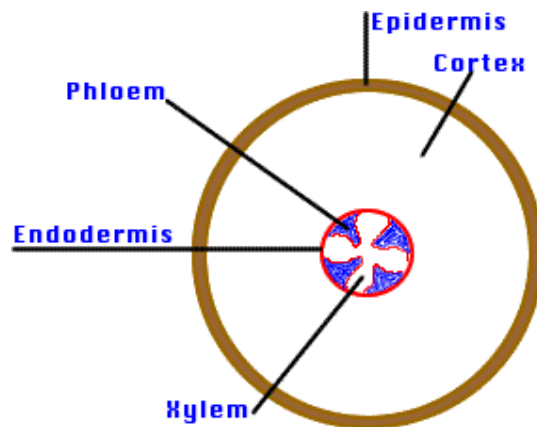
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SL 1

19. Define the following plant features of the hardwood or stem given.



(a) The *pith*

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SL 1

(b) The *epidermis*

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SL 1

(c) The *cortex*

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SL 1

(d) The *phloem*

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SL 1

**20.** Explain how the functions of the stem contribute to the overall function of the plant.

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SL 3

21. Describe the mouth part of the rhinoceros beetle.



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SL 2

Study the diagram and answer Number 22.



22. From your own understanding discuss how do you grow the vegetable shown above from seeds to seedlings and straight to the market.

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SL 4

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**23.** Explain the impact of intercropping on steep slopes.

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SL 3

**24.** Explain the difference between micro and macro nutrients for plant growth and development.

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SL 3

Use the diagram to answer Number 25 and 26.



**25.** Name the pig breed.

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SL 1

**26.** State the importance of the pig for semi intensive pig farming system.

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SL 1

Use the diagram to answer Number 27 and 28.



27. Name the cattle breed.

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SL 1

28. State the importance of the cattle for semi intensive cattle farming system.

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SL 1

29. Define the following terms.

(a) *Breed*

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SL 1

(b) *Artificial insemination*

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SL 1

(c) *Parasites*

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SL 1

(d) *Mono gastric digestive system*

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SL 1

**30.** Justify in your own words the selecting of pig breeds in breeding programmes to satisfy commercial farmers.

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SL 3



31. Describe how to castrate a young boar.

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SL 2

32. Explain how you would improve traditional or bush slaughtering in relation to cattle welfare system.

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SL 3

33. Discuss the importance of cattle production in Samoa.

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SL 4

34. Describe possible uses of cattle in crop production system.

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SL 2

35. Discuss a management practice in handling pigs to minimise stress.

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SL 4

36. How can tape worms be controlled in cattle?

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SL 2

37. List TWO ruminant animals that you have studied.

(i) \_\_\_\_\_

(ii) \_\_\_\_\_

SL 2

38. Define the term *calibration*.

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SL 1



39. State the function of a *weed eater*.

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SL 1

Use the pictures to answer Number 40, 41 and 42.



A



B

40. Name the equipment shown in **diagram A**.

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SL 1

41. Describe the best time to use **equipment A** for applying agricultural chemicals.

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SL 2

42. Differentiate the functions of the equipment shown in **diagrams A** and **B**.

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SL 3

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## AGRICULTURAL SCIENCE

2017

(For Scorers only)

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<b>STRAND 6: TOOLS</b>	8		
<b>TOTAL</b>	<b>100</b>		