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Samoa Secondary Leaving Certificate

AGRICULTURAL SCIENCE 2022

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 at the appropriate places in this booklet.

STRANDS		Page	Time (min)	Weighting
STRAND 1	AGRICULTURE	2-3	18	10
STRAND 2	SOILS	4-9	45	24
STRAND 3	FARM MANAGEMENT, ECONOMICS AND MARKETING	10-12	22	12
STRAND 4	CROP PRODUCTION	13-18	40	23
STRAND 5	ANIMAL PRODUCTION	19-23	43	24
STRAND 6	TOOLS, EQUIPMENTS AND FACILITIES	24-25	12	7
TOTAL			180	100

Check that this booklet contains pages 2-26 in the correct order and that none of these pages are blank.

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

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

Study Figure 1 given below and answer Questions 1 – 3.

Figure 1: An Ecosystem



Source: Gatty images

1. Name a producer in the ecosystem.

- A. Pasture
- B. Cattle
- C. Insects
- D. Clouds

SL 1

2. An ecosystem which can survive with intervention from human beings is called a:

- A. Ecosystem.
- B. Natural ecosystem.
- C. Sustainable ecosystem.
- D. Unmanaged ecosystem.

SL 1

3. Describe the main impact of the agricultural practice shown in the photo on the ecosystem.

SL 2

4. Explain how breeding can reduce the impact you described in Question 3.

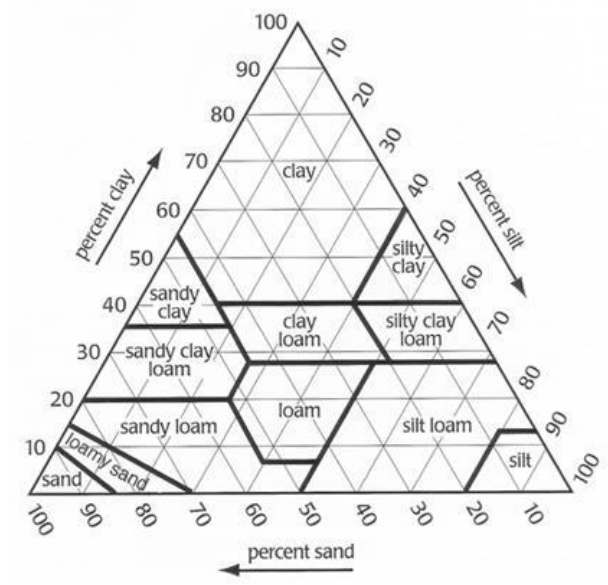
SL 3

5. Explain the outcome of breeding on pasture production.

SL 3

Study Figure 2 given below and answer Question 6.

Figure 2: A Textural triangle



Source: Google search

For Questions 6 to 8, choose and write the LETTER of the correct answer in the box provided.

6. What is the name of the soil type that contains 20% Clay, 40% Silt and 40% of sand based on the soil textural triangle shown in Figure 2?

- A. Loam
- B. Clay loam
- C. Silt loam
- D. Sandy loam

SL 1

Study Figure 3 given below and answer Question 7.

Figure 3: Determining of soil texture



Source: Google search

7. The method of determining of soil texture in the diagram is known as:

- A. Feeling.
- B. Hydrometer.
- C. Pipette sampling.
- D. Press.

☐

SL 1

Study Figure 4 given below and answer Question 8.

Figure 4: A Soil Structure



Source: Google search

8. The soil structure in the diagram is known as:

- A. Plate like.
- B. Blocky.
- C. Granular.
- D. Prism like.

☐

SL 1

Study Figure 5 given below and answer Question 9.

Figure 5: Clearing of trees



Source: Google search

9. Describe how soil micro-organisms are affected by the clearing of trees.

SL 3

Study Figure 6 given below and answer Questions 10 – 12.

Figure 6: Ploughing or tilling soil



Source: Google search

10. Describe how soil structure is affected by the farming activity in the diagram.

SL 2

11. Explain how ONE chemical soil property is improved by ploughing.

SL 3

12. Discuss the effect of tilling on the physical properties of soil.

This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

SL 4

13. List **TWO** Samoan traditional methods of soil conservation still used by our farmers today.

1. _____
2. _____

SL 2

14. Explain **ONE** soil conservation method you listed above.

[illegible]

SL 3

For Questions 16 – 19, choose and write the LETTER of the correct answer in the box provided.

16. Which of the following is a physical resource for pig farming?

- A. Boar.
- B. Feeding trough.
- C. Water.
- D. Farmer.

	SL 1

17. Which of the following is a human resource on a cocoa farm?

- A. Farm records.
- B. Farm workers.
- C. Cocoa beans.
- D. Cocoa tree.

	SL 1

18. A marketing role of the Samoa Farmers Association is:

- A. pre-harvesting checks.
- B. securing overseas buyers.
- C. post-harvest handling.
- D. soil preparation.

	SL 1

19. Which of the following is a by-product from talo?

- A. Sugar.
- B. Corms.
- C. Talo suckers.
- D. Talo chips.

	SL 1

Figure 7: Record sheet of cattle breeding stock

[illegible]

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21. List the market opportunities of cattle breeding stock.

SL 2

22. Explain the influences of land ownership or tenure on management decisions.

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SL 3

For Questions 23 – 27, choose and write the LETTER of the correct answer in the box provided.

Use the diagram below to answer Question 23.

Figure 8: Giant African Snail



Source: Getty images

23. The Giant African Snail belongs to the group of animals called:

- A. Insects.
- B. Vertebrates.
- C. Molluscs.
- D. Flies.

SL 1

Use the diagram below to answer Question 24.

Figure 9: Taro Leaf Blight



Source: Getty images

24. The Taro Leaf Blight belongs to a group of disease causing agents called:

- A. Virus.
- B. Bacterial.
- C. Fungus.
- D. Pests.

SL 1

Use the diagram below to answer Question 25.

Figure 10: Pineapple plant



Source: Getty images

25. Pineapples are planted using the tops, slips or suckers. This method of plant propagation is known as:

- A. Sexual reproduction.
- B. Asexual reproduction.
- C. Air layering.
- D. Embryogenesis.

☐

SL 1

26. The haploid reproductive cells can also be termed as:

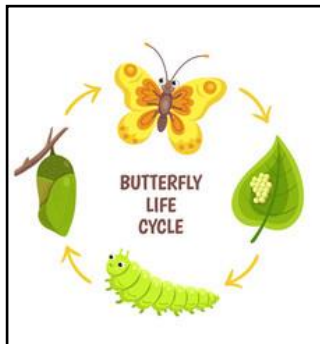
- A. Diploids.
- B. Gametes.
- C. Microspores.
- D. Embryogenesis.

☐

SL 1

Use the diagram below to answer Question 27.

Figure 11: Butterfly life cycle



Source: Google search

27. The process of transformation of an organism from an immature form to an adult form in two or more distinct stages is known as:

- A. Insect growth.
- B. Metamorphosis.
- C. Nymph stages.
- D. Mortality rate.

☐

SL 1

Use the diagram below to answer Questions 28 – 29.

Figure 12: Germinating coconut



Source: Google search

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

SL 2

29. Some seeds can remain dormant for long periods. Explain **ONE** method of breaking seed dormancy.

SL 3

Use Figure 13 below to answer Question 30.

Figure 13: Rhinoceros beetle



Source: Getty images

30. Describe the best method of controlling this pest of coconuts.

SL 2

Use Figure 14 below to answer Questions 31 – 32.

Figure 14: Germinating plant



Source: Getty images

31. Explain the importance of water in the growth and development of plants.

SL 3

32. Discuss how sexual reproduction in plants is affected by genetically modified organisms.

SL 4

Use Figure 15 below to answer Question 33.

Figure 15: Air layering



Source: Google search

33. Discuss the steps involved in air layering a plant.

SL 4

For Questions 34 – 39, choose and write the letter of the correct answer in the box provided.

Use Figure 16 below to answer Questions 34 – 36.

Figure 16: System of raising chickens



Source: Getty images

34. The system used for raising chickens in the diagram is known as:

- A. free range.
- B. caged.
- C. semi-intensive.
- D. commercial.

SL 1

35. The breed of chicken in the diagram is called a:

- A. Fayoumi.
- B. Rhode Island Red.
- C. White fowl.
- D. White leg horn.

SL 1

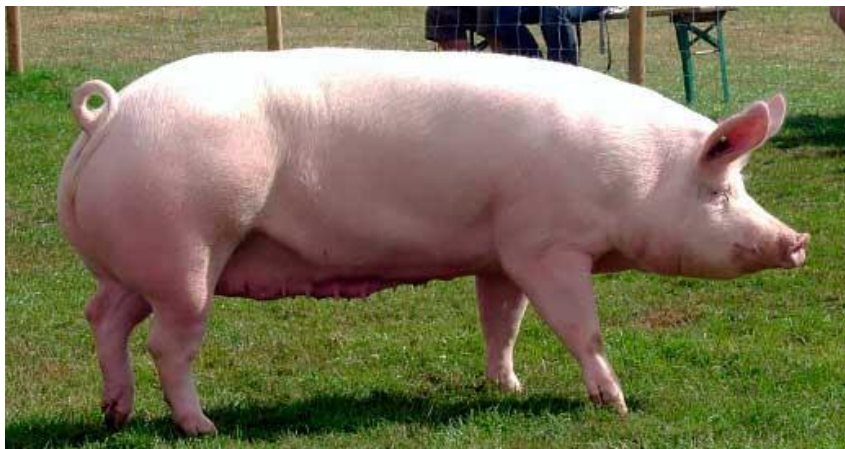
36. The key factor that influences commercial poultry production in Samoa.

- A. Breeds.
- B. Housing.
- C. Cost of feed.
- D. Water rates.

SL 1

Use Figure 17 below to answer Questions 37 – 38.

Figure 17: Pigs



Source: Getty images

37. The breed of pig in the diagram is called a:

- A. Landrace.
- B. Saddle back.
- C. Large white.
- D. Duroc.

<input type="checkbox"/>	SL 1

38. The most suitable system for raising this breed of pig is known as:

- A. Free range.
- B. Semi traditional.
- C. Traditional.
- D. Commercial.

<input type="checkbox"/>	SL 1

Use Figure 18 given below to answer Question 39.

Figure 18: Cattle



Source: Getty images

39. The breed of cattle in the diagram is called a:

- A. Draught master.
- B. Fresiean.
- C. Hereford.
- D. Zebu.



SL 1

Use Figure 19 below to answer Question 40.

Figure 19: Husbandry practice in Cattle



Source: Getty images

40. Describe the husbandry practice illustrated in the diagram.

SL 2

41. Describe how nutritive value of feed influences the growth and development of chickens.

SL 2

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

SL 3

43. Explain the role of animal reproduction strategies in increasing productivity.

SL 3

44. Discuss the nutritional requirements for dry sows (female breeding pigs).

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SL 4

45. Discuss the role of reproductive strategies in improving beef cattle productivity.

[illegible]

SL 4

For Questions 46 and 47, choose and write the LETTER of the correct answer in the box provided.

Use Figure 20 below to answer Questions 46 – 47.

Figure 20: Agricultural equipment



Source: Getty images

46. The agricultural equipment shown on the diagram is a:

- A. Knapsack sprayer.
- B. Weed eater.
- C. Chainsaw.
- D. Mist blower.

SL 1

47. A systemic weed killer used in this equipment is?

- A. Water.
- B. Agazone.
- C. Round up.
- D. Attach.

SL 1

48. Explain the safe and correct procedure of mixing agricultural chemicals in a knapsack sprayer.

SL 3

Use Figure 21 given below to answer Question 49.

Figure 21: An agricultural tool



Source: Getty image

49. Describe the correct use of the tool shown.

SL 2

STUDENT EDUCATION NUMBER									

AGRICULTURAL SCIENCE

2022

(For Scorers only)

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STRAND 1	AGRICULTURE	10			
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TOTAL		100			