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Samoa Secondary Leaving Certificate

AGRICULTURAL SCIENCE 2021

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 IN SAMOA	2	18	10
STRAND 2	SOILS	4	45	24
STRAND 3	FARM MANAGEMENT, ECONOMICS AND MARKETING	10	22	12
STRAND 4	CROP PRODUCTION	13	40	23
STRAND 5	ANIMAL PRODUCTION	21	43	24
STRAND 6	TOOLS, EQUIPMENTS AND FACILITIES	28	12	7
TOTAL			180	100

Check that this booklet contains pages 2-30 in the correct order and that none of these pages are blank.

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

Study Figure 1 given below and answer Questions 1 and 2.

Figure 1: An Ecosystem



Source: shutterstock.com - 1861359154

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

1. Name a decomposer in the ecosystem.

- A. Mountain
- B. Trees
- C. Mushrooms
- D. Fish

SL 1

2. An ecosystem which can survive without any intervention from human beings is called a:

- A. sustainable ecosystem.
- B. natural ecosystem.
- C. mon ecosystem.
- D. managed ecosystem.

SL 1

3. List TWO characteristics of a managed ecosystem.

- (a) _____

- (b) _____

SL 2

4. Explain why crop rotation as an agricultural management system is successful in Samoa.

SL 3

5. Explain ONE effect of inbreeding in cattle production.

SL 3

Study Figure 2 given below and answer Questions 6 and 7.

Figure 2: A Textural triangle



Source: Google search

For Questions 6 to 11, choose and write the LETTER of the correct answer in the box provided.

6. Which of the following is the most appropriate percentage (%) of Clay, Silt and Sand for Silty clay soil shown on the textural triangle above?

- A. 45, 45 and 35.
- B. 60, 40 and 50.
- C. 50, 50 and 60.
- D. 20, 80 and 30.

SL 1

7. What is the name of the soil type that contains 18% Clay, 82% Silt and 75% of sand based on the soil textural triangle shown in the picture?

- A. Clay soil.
- B. Sandy clay soil.
- C. Loamy sand soil.
- D. Sandy loam soil.

SL 1

8. The growing of different crops in succession on a piece of land to avoid exhausting the soil, as well as to control weeds, pests and diseases is known as:

- A. crop rotation.
- B. crop succession.
- C. multiple cropping.
- D. alley cropping.

☐

SL 1

9. The mechanical manipulation of the soil for the purpose of the crop production is known as:

- A. weeding.
- B. pruning.
- C. tillage.
- D. inter cropping.

☐

SL 1

10. The clearing or thinning of trees or forest by humans is known as:

- A. leaching.
- B. deforestation.
- C. mix planting.
- D. agroforestry.

☐

SL 1

11. Which of the following changes acidic soil to faintly alkaline or neutral soil?

- A. Coral sand.
- B. Rocks.
- C. Loam.
- D. Clay.

☐

SL 1

12. Describe ONE physical property of soil.

SL 2

13. Describe how low pH affects soil nutrient availability?

SL 2

14. Explain why soilless media are used in hydroponics farms for seed raising of lettuce seedlings.

SL 3

Use Figure 3 given below to answer Question 15.

Figure 3: **Spraying herbicides**



Source: Google search

15. Explain why using herbicides can reduce soil nutrients in farms.

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

SL 3

Use Figure 4 given below to answer Question 16.

Figure 4: Deforestation



Source: Google search

16. Discuss the impact of deforestation on the quality of clay soil.

This image shows a single 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

Use Figure 5 given below to answer Question 17.

Figure 5: A Terracing rice farm



Source: Google search

17. Discuss the impact of using terracing farm techniques in conserving soil on steep sloppy farmland.

This image shows a single 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

For Questions 18 to 21, choose and write the LETTER of the correct answer in the box provided.

18. Which of the following is a physical resource for cattle farming?

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

	SL 1

19. Which of the following is a human resource on a coconut farm?

- A. Coconut Farm manager.
- B. Coconut cream.
- C. Coconut oil.
- D. Coconut tree.

	SL 1

20. The name given to the process of outgoing of harvest, cooling, cleaning, grading, sorting and packing of a farm produce is:

- A. pre harvesting.
- B. mid harvesting.
- C. post harvesting.
- D. out harvesting.

	SL 1

21. Which of the following is a byproduct from cocoa pods?

- A. Sugar
- B. Kernel
- C. Husk
- D. Chocolate

	SL 1

22. Describe the role of record keeping in pig farming.

SL 2

23. Explain the importance of using correct post-harvest handling steps when exporting taro to New Zealand.

SL 3

For Question 25 to 33, choose and write the LETTER of the correct answer in the box provided.

25. Grafting, air layering and budding are some methods used for artificial multiplying of planting materials. This artificial multiplying of planting materials is known as:

- A. in breeding.
- B. tissue culture.
- C. sexual reproduction.
- D. asexual reproduction.

SL 1

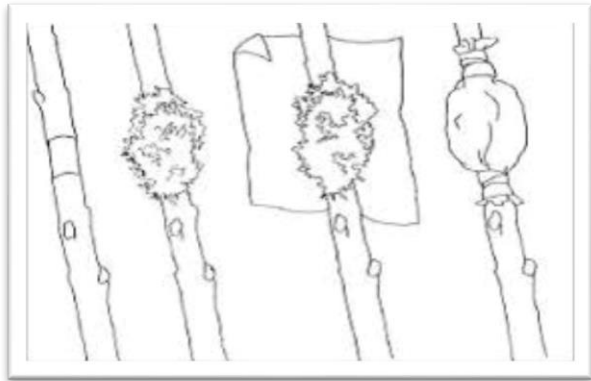
26. The haploid reproductive cells can also be termed as:

- A. diploids.
- B. gametes.
- C. microspores.
- D. embryogenesis.

SL 1

Use Figure 6 given below to answer Question 27.

Figure 6: Asexual reproduction of citrus stem



Source: Google search

27. A form of propagation in which the branch is potted or wrapped in a moist growing medium to promote root growth is known as:

- A. air layering.
- B. budding.
- C. T-grafting.
- D. cutting.

☐

SL 1

28. A technique whereby tissues of plants are joined so as to continue their growth together is known as:

- A. multiplying.
- B. tissue culture.
- C. grafting.
- D. budding.

☐

SL 1

Use Figure 7 given below to answer Question 29.

Figure 7: Tissue culture in soilless media



Source: Google search

29. The growth in an artificial medium of cells derived from a part of living organism is also known as:
- A. tissue culturing.
B. teething.
C. zygote.
D. budding.
30. Procedures or measures designed to protect the population against harmful biological or biochemical substances in a country is referred to as:
- A. bio-security.
B. immigration control.
C. trade restriction.
D. national security.
31. Any group of spore-producing organisms feeding on organic matter, including moulds, yeast, mushrooms, and toadstool is known as:
- A. bacteria.
B. nematodes.
C. fungus.
D. virus.

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SL 1

☐

SL 1

☐

SL 1

32. 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 natality.
- B. metamorphosis.
- C. nymph stages.
- D. mortality rate.

☐

SL 1

33. The type of reproduction that produces plants that are genetically identical to the parent plant because no mixing of male and female gametes takes place is called:

- A. asexual reproduction.
- B. sexual reproduction.
- C. in-breeding.
- D. in-vitro fertilization.

☐

SL 1

34. Describe one pest and disease control measure using integrated pest management methods.

SL 2

Use Figure 8 given below to answer Question 35.

Figure 8: Infected banana tubers



Source: Google search

35. Describe the effect of nematodes on banana tubers that can be seen in the above picture.

SL 2

Use Figure 9 given below to answer Question 36.

Figure 9: Quarantine officers



Source: Google search

36. Explain the importance of the biosecurity officers' role at the Samoan ports of entry for security of the country.

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SL 3

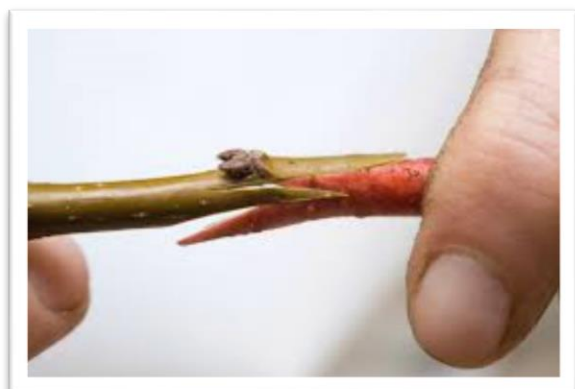
37. How does temperature influence the growth and development of plants?

[illegible]

SL 3

Use Figure 10 given below to answer Question 38.

Figure 10: Grafted lemon stem



Source: Google search

38. Discuss the steps involved in how to graft a lemon plant with the usage of root stock and scion.

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SL 4

For Questions 39 to 45, choose and write the letter of the correct answer in the box provided.

Use Figure 11 given below to answer Question 39.

Figure 11: Poultry equipment



Source: Google search

39. What is the name of the farming equipment shown above which is used for raising poultry birds?

- A. Drinking trough.
- B. Feeding trough.
- C. Watering can.
- D. Warming bucket.

SL 1

Use Figure 12 given below to answer Question 40.

Figure 12: A hen



Source: Google search

40. Name the type of poultry chicken shown above.

- A. White leghorn.
- B. Rhode island red.
- C. Austral white.
- D. Sussex mix.

☐

SL 1

41. What is the term given to the day-to-day care, selective breeding and the raising of livestock?

- A. Artificial insemination.
- B. Safety procedures.
- C. Hygiene welfare.
- D. Husbandry practices.

☐

SL 1

Use Figure 13 given below to answer Question 42.

Figure 13: An Internal parasite



Source: Google search

42. Name the internal parasite shown above.

- A. Hook worm.
- B. Tape worm.
- C. Round worm.
- D. Fluke worm.

☐

SL 1

43. Which of the factors given below influences the growth and development of cattle the most?

- A. Feeding
- B. Teething
- C. Running
- D. Swimming

☐

SL 1

44. What is an infectious disease condition resulting in an inflammatory reaction in the mammary gland of the cow?

- A. A protozoan disease.
- B. Mad cow disease.
- C. Mastitis disease.
- D. Tuberculosis.

☐

SL 1

45. What is an infectious disease caused by bacteria that produces characteristic infection in animals and can infect humans as well?

- A. Brucellosis
- B. Leptospirosis
- C. Mastitis
- D. Tuberculosis

☐

SL 1

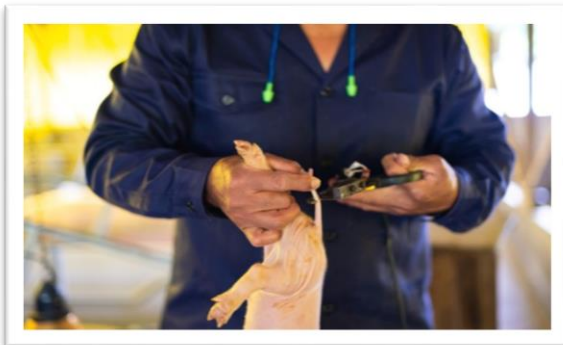
46. List TWO examples of external parasites.

- (i) _____
- (ii) _____

SL 2

Use Figure 14 given below to answer Question 47.

Figure 14: A farmer cutting a pig's tail



Source: Google search

47. List TWO reasons why farmers do tail docking in piglets.

- (i) _____
- _____
- (ii) _____
- _____

SL 2

48. Describe the lameness disorder in sheep.

SL 2

49. Explain ONE purpose of cattle mustering.

SL 3

50. Discuss the importance of control measures in beef farming.

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

SL 4

Use Figure 15 given below to answer Question 51.

Figure 15: Branding technique



Source: Google search

51. Discuss the importance of branding of cattle for cattle farmers. Use examples.

[illegible]

SL 4

Use Figure 16 given below to answer Questions 52 and 53.

Figure 16: Agricultural equipment



Source: Google search

For Questions 52 and 53, choose and write the LETTER of the correct answer in the box provided.

52. Name the agriculture equipment shown on the diagram.

- A. Brush cutter.
- B. Weed eater.
- C. Chainsaw.
- D. Mist blower.

SL 1

53. What is the equipment shown on the diagram above used for?

- A. Trim weeds.
- B. Cut trees.
- C. Spray insects.
- D. Spray weeds.

SL 1

Use Figure 17 given below to answer Question 54.

Figure 17: An agricultural tool



Source: Google search

54. Describe the correct use of the tool shown on the diagram.

SL 2

55. Explain the importance of using the right methods of applying herbicides on the farm.

[illegible]

SL 3

STUDENT EDUCATION NUMBER									

AGRICULTURAL SCIENCE

2021

(For Scorers only)

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