



STUDENT EDUCATION NUMBER									

Samoa School 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 paper to write your answers, 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		Pages	Time (min)	Weighting
STRAND 1	AGRICULTURE IN SAMOA	2-3	13	8
STRAND 2	SOIL	4-6	18	10
STRAND 3	FARM MANAGEMENT, ECONOMICS AND MARKETING	7-9	32	20
STRAND 4	CROP PRODUCTION	10-14	50	24
STRAND 5	ANIMAL PRODUCTION	15-21	54	30
STRAND 6	TOOLS EQUIPMENT AND FACILITIES	22-24	13	8
TOTAL			180	100

Check that this booklet contains pages 2-25 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 – 3, choose and write the LETTER of the correct answer in the box provided.

Study the picture given below to answer Questions 1 – 2.



Source: Google search.

1. What is a managed ecosystem?

- A. A community.
- B. A biosphere.
- C. A biological community of interacting organisms and their physical environment.
- D. It is a system that relies on science to guide decisions, set boundaries and manage land.

SL 1

2. Use the picture given to identify a feature of a managed ecosystem.

- A. Humans
- B. Forest
- C. Bees on plants
- D. Grass

SL 1

3. Which of the following is a global issue that relates to managed ecosystems.

- A. Describes a mating experiment between two organisms that are identically hybrid for two traits.
- B. The destruction of tropical rainforests and rapid declines in forest cover.
- C. The type of hybrid that is produced when two different single-cross hybrids are cross-pollinated.
- D. The type of hybrid that is produced when two different inbreeds are cross-pollinated.

SL 1

4. Describe TWO features of an unmanaged ecosystem.

SL 2

5. Explain THREE examples of how genetics is used to improve livestock production and profitability.

SL 3

Study the picture given below to answer Questions 6 and 7.



Source: <https://weedaway.com/blog/why-does-soil-become-infertile/>

For Question 6, choose and write the LETTER of the correct answer in the box provided.

6. Define soil fertility.

- A. Over use of mechanical labour and chemical properties of soil that can lead to land degradation.
- B. Over watering of plants.
- C. Rotating of crops in an area.
- D. To provide plant habitats that produce yields of high quality.

SL 1

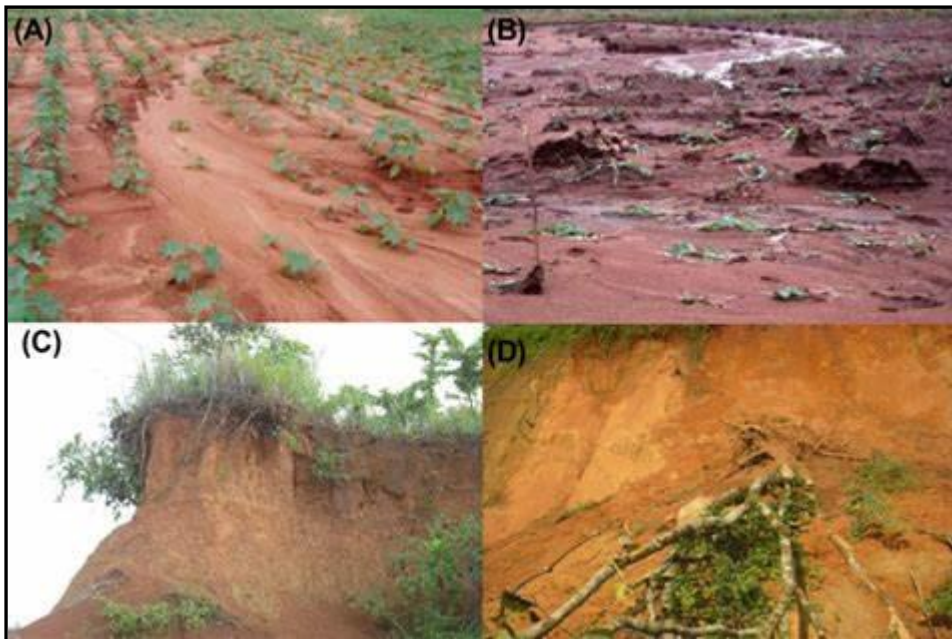
7. List TWO methods of soil conservation.

(i)

(ii)

SL 2

Study the picture given below to answer Questions 8 and 9.



Source: Google search

8. Explain the effects on the soil properties as a result of maintaining a continuous cover crop on it, as in the case in crop rotation.

SL 3

9. Discuss how contouring can reduce soil run off.

SL 4

For Questions 10 to 15, choose and write the LETTER of the correct answer in the box provided.

10. The point on the curve where the function reaches a high point is called the:

- A. Optimum point.
- B. Business cost.
- C. Unit cost.
- D. Maximum point.

SL 1

11. What is an optimum point in a production function of a farm business?

- A. It is a planning and decision-making framework used to compare the costs and benefits of alternatives faced by a farm business.
- B. A point at which the condition, degree or amount of something is the most favourable or profitable.
- C. A point that refers to a curve that has a high and a low point of production.
- D. The sum of all costs incurred by a firm in producing a certain level of output.

SL 1

12. The point at which the total cost and total revenue are equal is known as the:

- A. Breakeven point.
- B. Maximum point.
- C. Optimum point.
- D. Total cost.

SL 1

13. The channels used by any company to reach their end customers are:

- A. Market channels.
- B. Rainwater channels.
- C. Road channels.
- D. Sea channels.

SL 1

14. Farm records that show the lists of all items present on the farm at a particular time are:

- A. Farm dairy records.
- B. Annual valuation records.
- C. Farm inventory records.
- D. Yield and production records.

SL 1

15. Name a type of fixed cost in a poultry farm.

- A. Pigs.
- B. Electricity.
- C. Differentiation value.
- D. Eggs.

SL 1

16. Give TWO examples of a variable cost in a beef farm.

- (i) _____
- (ii) _____

SL 2

17. Describe the purpose of a production record used in a pig farm.

SL 2

18. Differentiate between total cost and fixed cost.

SL 3

19. Differentiate between the production, financial and inventory records.

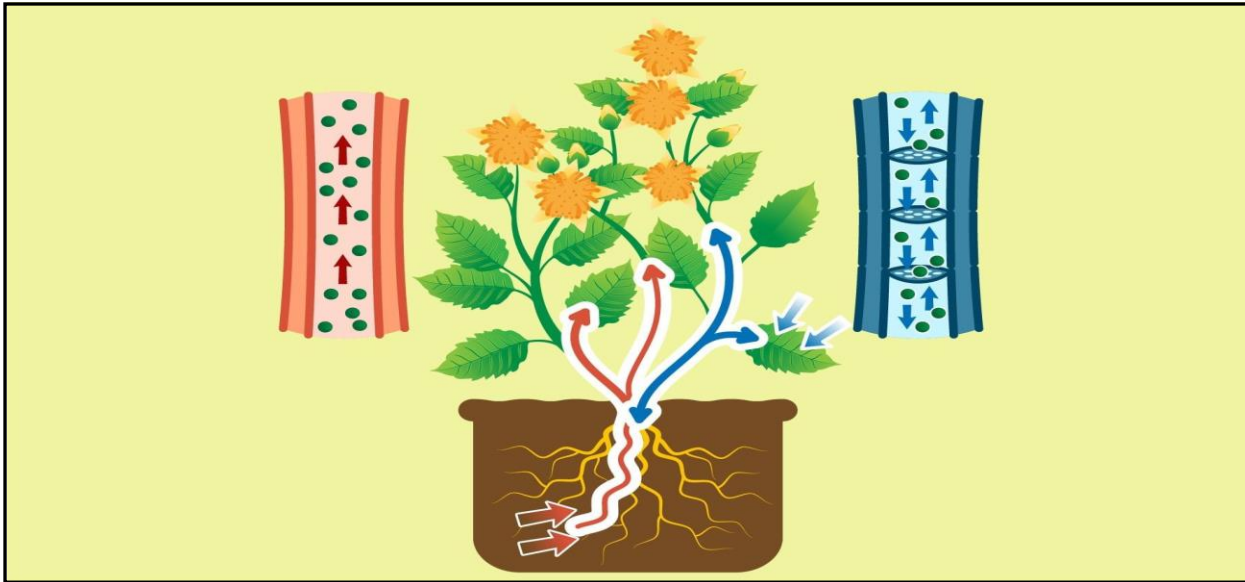
SL 3

20. Discuss good farm management on a taro farm production.

SL 4

For Questions 21 – 26, choose and write the LETTER of the correct answer in the box provided.

Study the picture given below and answer Questions 21 – 24.



Source: Google search

21. The chemical elements and compounds necessary for plant growth and reproduction are known as:

- A. Forestry transfer.
- B. Plant nutrient.
- C. Mixed farming.
- D. Crop rotation.

SL 1

22. The process where water and minerals are absorbed through root hairs which are in contact with soil water is called:

- A. Plant absorption.
- B. Photosynthesis in the leaves.
- C. Insects drinking.
- D. Transpiration in plants.

SL 1

23. The process of water movement through a plant and its evaporation from its aerial parts such as leaves, stems and flowers are known as:

- A. Xylem.
- B. Trunk.
- C. Transpiration.
- D. Transportation.

SL 1

24. The transport of soluble products of photosynthesis or food from leaves to other parts of the plant is called:

- A. Translocation.
- B. Transpiration.
- C. Transfer.
- D. Absorption.

SL 1

25. A measure of how many seeds are alive and could develop into plants which will reproduce themselves, given the appropriate conditions is known as:

- A. Plant nutrients.
- B. The Spongy mesophyll.
- C. Seed dormancy.
- D. Seed viability.

SL 1

26. The practice in which pistillate flowers are enclosed in bags to protect them from unwanted pollen, and then dusted with pollen of the required type is known as:

- A. Homozygous recessive
- B. Hybrid.
- C. Controlled pollination.
- D. Heterozygous dominant.

SL 1

Study the picture given below to answer Questions 27 and 28.



Source: Google search

27. Describe the mouth part of the insect shown on the diagram above and explain how it is used to eat its food.

SL 2

28. List THREE damages caused by the insect shown in the picture above.

(i).

(ii).

(iii).

SL 3

29. Explain THREE methods to prolong seed viability.

SL 3

30. Explain the reason why farmers carry out vegetative propagation on their fruit trees.

SL 3

31. Explain the functions of the phloem tubes and xylem vessels in plant stems.

SL 3

32. Discuss the nutrients movements in plant.

SL 4

For Questions 33 - 37, choose and write the letter of the correct answer in the box provided.

Study the picture given below and answer Question 33.



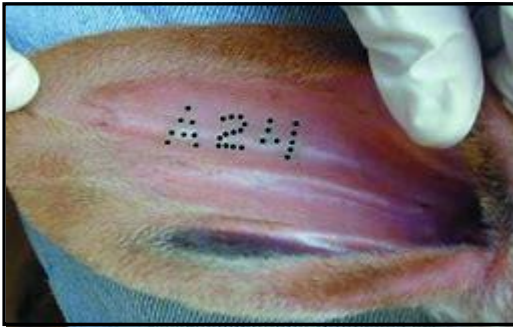
Source: Google search

33. Identify ONE characteristic of the beef cattle breed above.

- A. Tail
- B. Mouth
- C. Colour
- D. Hoofs

SL 1

Study the picture given below to answer Question 34.



Source: Google search

34. Name the identification method on the calf ear shown in the picture.

- A. Ear tagging.
- B. Ear branding.
- C. Ear notching.
- D. Ear tattooing.

SL 1

35. Name the Beef cattle breed shown in the picture in Question 33.

- A. Hereford.
- B. Holstein Friesian.
- C. Jersey.
- D. Drought master.

SL 1

Study the picture given below to answer Question 36.



Source: Google search

36. Name the husbandry practice shown in the picture.

- A. Hoofing of goats.
- B. Drenching of sheep.
- C. Tail docking.
- D. De-beaking.

SL 1

Study the picture given below to answer Question 37.



Source: Google search

37. Name the husbandry practice shown.

- A. Branding.
- B. Drenching.
- C. Hoof clipping.
- D. Nose ring.

SL 1

38. Describe what Bovine Tuberculosis is and state one of its common control methods.

SL 2

39. List TWO ruminant animals that you have studied.

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

SL 2

For Questions 46 to 48, choose and write the letter of the correct answer in the box provided.

Study the picture given below to answer Question 46.



Source: Google search

46. What is the purpose of the equipment shown above?

- A. Digging the soil.
- B. Pruning of stems and branches.
- C. Cutting grasses.
- D. Cutting hairs.

SL 1

47. The tool used to spray a mixture of water and an active ingredient then direct it on the crop to perform pesticides treatments or foliar fertilizer is called:

- A. The knapsack sprayer.
- B. The calibration.
- C. The mist blower.
- D. The lawn mower.

SL 1

Study the picture given below to answer Question 48.



Source: Google search

48. What is the function of the tool shown above?
- A. Uses a set of curved tines attached to a rotating shaft that is powered by your tractor's PTO.
 - B. Useful for treating large outdoor areas quickly and getting insecticide into areas of dense foliage using a two-cycle gasoline motor.
 - C. Is intended for trimming live shrubs and trees.
 - D. The process of comparing a reading on a piece of equipment or a system.

	SL 1

Study the picture given below to answer Question 49.



Source: Google search

49. List TWO functions of the tool shown.
- (i). _____
 - _____
 - (ii). _____
 - _____

SL 2

50. Briefly describe how to prepare tools and equipment before storage.

SL 3

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(For Scorers only)

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TOTAL		100			