



GOVERNMENT OF SAMOA

STUDENT EDUCATION NUMBER									

Samoa National Junior Secondary Certificate

AGRICULTURAL SCIENCE

2023

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 to the appropriate places in this booklet.

STRANDS		Pages	Time (min)	Weighting
STRAND 1	AGRICULTURE	2 – 3	14	8
STRAND 2	SOIL	4 – 5	18	10
STRAND 3	FARM MANAGEMENT, ECONOMICS AND MARKETING	6 – 9	36	20
STRAND 4	CROP PRODUCTION	10 – 14	43	24
STRAND 5	ANIMAL PRODUCTION	15 – 20	54	30
STRAND 6	TOOLS, EQUIPMENT AND FACILITIES	21 – 23	15	8
TOTAL			180	100

Check that this booklet contains pages 2 - 24 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.

1. What is shifting cultivation?

- A. It's reliance on science to guide decisions and set boundaries.
- B. A biological community of interacting organisms and their physical environment.
- C. An area of land that has been cultivated for a few years and then left abandoned for a new area until its fertility has been naturally restored.
- D. The interaction of agriculture trees, including the agricultural use of trees.

SL 1

2. The word **genotype** refers to:

- A. the type of genes of a living thing.
- B. the alleles or variant an individual carries in a particular gene.
- C. whether the animal or plant is a male or female.
- D. a flowering plant.

SL 1

3. Explain **TWO** influences of **Climate Change** in agriculture.

SL 2

4. Describe **FOUR** benefits of genetically modified organism in agriculture.

SL 4

For Question 5, choose and write the LETTER of the correct answer in the box provided.



Source: Google search

Study the picture given and answer Question 5.

5. The **slow growth and uniform yellowing of older leaves** are usually the first symptoms of nutrient deficiency in:

- A. Potassium.
- B. Magnesium.
- C. Iron.
- D. Nitrogen.

SL 1

6. Describe what is the purpose of magnesium in plants.

SL 2

7. Explain the effects of the micro-nutrients on plant growth and development.

SL 3

8. Discuss the main **FOUR** elements that the plants receive from the soil for growth and development.

SL 4

For Questions 9 and 10, choose and write the LETTER of the correct answer in the box provided.

9. Select the correct definition for partial budgeting.
- A. To plan the use of resources such as land, labour, capital and technology in order to produce an agricultural product needed to meet cultural commitments.
 - B. Used to calculate the financial effect of a proposed change to one aspect of your business.
 - C. To provide farm management training for member of the farm household.
 - D. To plan the use of resources such as land, labour, capital and technology in order to produce an agricultural product that can be sold at the market in order to make a profit.

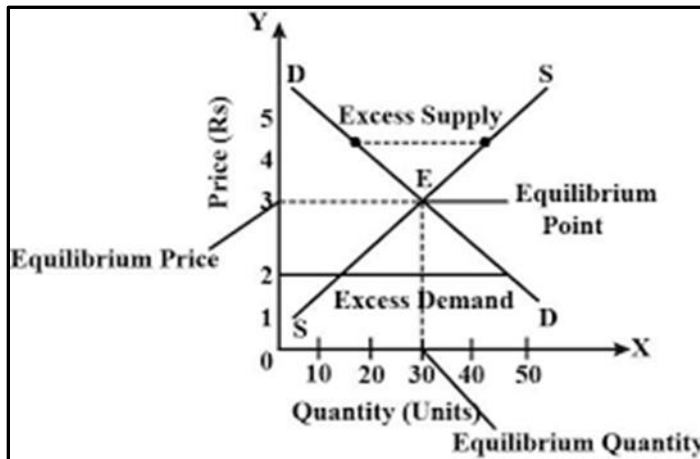
SL 1

10. A company's net sales revenue, minus its cost of goods sold is referred to as a:

- A. gross margin.
- B. unit cost.
- C. place where sellers and buyers of goods and services meet.
- D. place where you can save money.

SL 1

Study the picture given and answer Questions 11 and 12.



Source: Google search

11. Briefly explain a demand curve.

SL 2

12. With the help of the diagram given, explain the supply curve.

SL 2

13. Explain the relationship between equilibrium price and equilibrium quantity.

SL 2

14. List **TWO** ways or processes of promoting coconut cream to consumers.

SL 2

15. Explain how marketing of a farm produce (e.g banana), benefits from going through a market channel.

SL 3

16. Briefly describe what a budget is.

SL 3

17. Discuss **FOUR** importance of gross margin analysis in decision making of a profitable farm.

SL 4

For Questions 18 to 20, choose and write the LETTER of the correct answer in the box provided.

18. There are several factors that help improve crop production. Pests are one of these factors. How do pests affect crop production?

- A. They increase the temperature of the soil.
- B. They increase the amount of air in the soil.
- C. They borrow into leaves, roots and leaves of plants.
- D. They provide energy for the crop plant to make its food.

SL 1

Study the picture given below and answer Question 19.

The management practice commonly used by local farmers which can be considered an appropriate organic farming method is shown in the diagram below.



Source: Google search

19. A multiple cropping practice that involves growing two or more crops in proximity is called:

- A. Mixed farming.
- B. Crop rotation.
- C. Intercropping.
- D. Soil building.

SL 1

Study the picture given below and answer Question 20.



Source: Google search

20. The group of plants the above tree belongs to is:

- A. flowering plants.
- B. corn bearing plants.
- C. tree crops.
- D. ferns.

SL 1

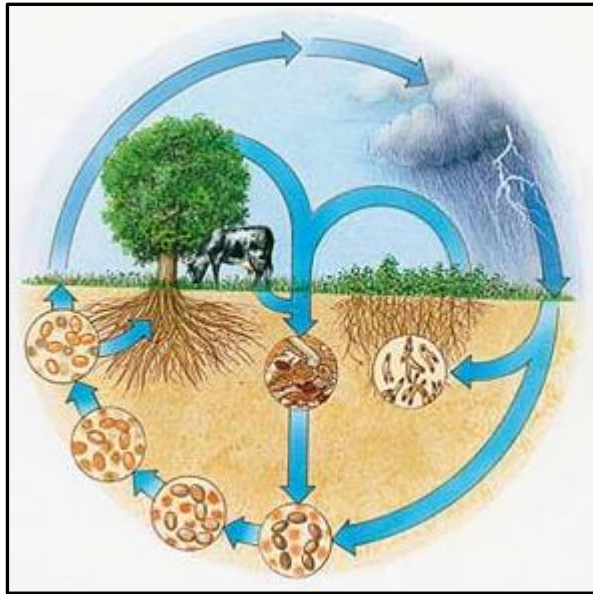
21. Describe what happens in the process of pollination in a crop plant such as eggplants.

SL 2

22. Describe what happens in the function process o fertilization in a crop plant such as pumpkins.

SL 2

Study the picture given below and answer Questions 23 and 24.



Source: Google search

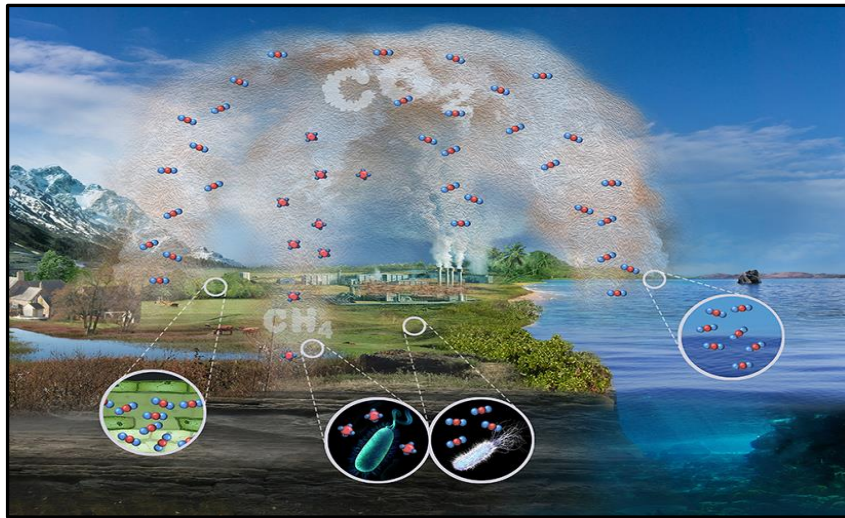
23. Briefly explain the nitrogen cycle.

SL 2

24. Explain how do nitrogen fixing bacteria help crops to grow and develop.

SL 3

Study the picture given below and answer Questions 25 and 26.



Source: Google search

25. Explain how carbon promotes plant growth.

SL 3

26. Briefly describe how plants use carbon dioxide, and their affects in responding to climate change.

SL 3

27. Discuss how a flower structure relates to pollination.

SL 3

Study the picture given below and answer Question 28.



Source: Google search

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

SL 3

For Questions 29 to 31, choose and write the LETTER of the correct answer in the box provided.

Study the picture given below and answer Question 29.



Source: Google search

29. Name the pig breed shown in the diagram above.

- A. Duroc
- B. Hampshire
- C. Landrace
- D. Large White

SL 1

30. Identify a disadvantage of the free-range system of pig farming from the list below.

- A. The pigs will grow faster as they have more time to rest
- B. They tend to have lower levels of both reproductive and growing efficiency.
- C. Money will be saved as pigs will not eat very much.
- D. Pigs will grow faster as they will not be able to move around so much.

SL 1

Study the picture given below and answer Question 31.



Source: Google search

31. Name the disease shown on the cattle above.

- A. Mange
- B. Lameness
- C. Brucellosis
- D. Tuberculosis

SL 1

32. There are many different characteristics of pigs. Discuss **TWO** main characteristic features of a local pig.

SL 2

33. Describe why colostrum is very important to piglets.

SL 2

34. Why is it that we need to identify the welfare methods in restraining pigs?

SL 2

35. Explain the importance of pigs to a village community in Samoa in **THREE** different types of occasions.

SL 3

36. Explain the disadvantages of intensive system in rearing pigs.

SL 3

37. Explain the effects of climate change in raising pigs.

SL 3

Study the picture given below and answer Question 38.



Source: Google search

38. Describe the process to properly slaughter and dress a pig in a commercial pig farming operation so that it is fit for human consumption.

SL 4

For Question 41, choose and write the LETTER of the correct answer in the box provided.

41. What is the purpose of using oil on tools after cleaning?

- A. To keep the tools new.
- B. To keep the tools shiny.
- C. To keep the tools sharp.
- D. To stop the tools from rusting.

SL 1

Study the picture given below and answer Question 42.



Source: Google search

42. Briefly explain the correct usage of the tool shown above.

SL 2

Study the picture given below and answer Question 43.



Source: Google search

43. Agricultural chemicals are poisonous to human and animal health. Briefly explain the important **safety precautions** when handling these chemicals.

SL 2

Study the picture given below and answer Question 44.



Source: Google search

44. Describe the correct and safe usage of the equipment shown above.

SL 3

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SNJSC AGRICULTURAL SCIENCE

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(For Scorers only)

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STRAND 6	TOOLS, EQUIPMENT AND FACILITIES	8			
TOTAL		100			