



Centre Number	Candidate Number

MINISTRY OF EDUCATION AND HUMAN RESOURCE DEVELOPMENT

SOLOMON ISLANDS SCHOOL CERTIFICATE 2018

AGRICULTURE

FRIDAY 16TH NOVEMBER 9.00 AM

**TIME: 3 Hours Plus 10 Minutes
Reading Time.**

<u>SECTION</u>	<u>CONTENT</u>	<u>MARKS</u>
A	20 - Multiple Choice Questions	20
B	12 - Short Answer Questions	77
C	1 - Long Answer Question	29

	TOTAL	126

INSTRUCTIONS TO CANDIDATES

1. DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO.
2. MAKE SURE BOTH YOUR CENTRE NUMBER AND CANDIDATE NUMBER ARE WRITTEN IN THE SPACES PROVIDED AT THE TOP RIGHT HAND CORNER AND ALSO ON THE BACK FLAP AT THE BACK OF THIS BOOKLET.
3. WRITE YOUR ANSWERS ON THE SPACES PROVIDED IN THIS BOOKLET.
4. DO **NOT** USE CORRECTION FLUID.
5. MOBILE PHONES ARE **NOT** ALLOWED IN THE EXAMINATION ROOM.

**YOU MUST HAND THIS BOOKLET TO THE SUPERVISOR AT THE END OF THE
EXAMINATION.**

THIS BOOKLET CONTAINS 19 NUMBERED PAGES.

SECTION A: MULTIPLE CHOICE QUESTIONS

20 MARKS

**THIS SECTION CONSISTS OF 20 MULTIPLE CHOICE QUESTIONS WORTH ONE (1) MARK EACH.
WRITE THE LETTER OF THE BEST CORRECT ANSWER IN THE BOX PROVIDED IN THE FOLD OUT FLAP
IN THIS BOOKLET.**

1. Which of the following best describes “**shifting cultivation**”?
 - A. Animals and crops are grown under a dense forest.
 - B. Crops are grown in an area of land for a long period time.
 - C. People move from one place to another to make a garden.
 - D. Animals and crops are grown and raised together in a plot of land.

2. A **sandy loam soil** texture contains at least;
 - A. 20% of loam particles.
 - B. 30% of loam particles.
 - C. 40% of sand particles.
 - D. 50% of sand particles.

3. Which of the following statements best describes **horizon A** of a soil profile?
 - A. Low in silt particles.
 - B. High in clay particles.
 - C. High in humus content.
 - D. High in organic matter.

4. What is the function of the **micropyle** in seeds?
 - A. Attach the seed to the pod.
 - B. Stores food for the young plant.
 - C. Protects the inner parts of the seeds.
 - D. A passage way for water to enter the seed.

5. Which of the following indicates **Nitrogen deficiency** in plants?
 - A. Early flowering and fruiting.
 - B. Abnormal discoloration of plants.
 - C. Leaves are pale green or yellow.
 - D. Brown scorching and curling of leaf tips.

6. Why is it important to harvest vegetables at the right time?
- A. For quality and best sales.
 - B. Good growth and development.
 - C. To keep the crops fresh and healthy.
 - D. To avoid spread of pest and diseases.

Study the diagram of a nut below and answer question 7.



7. Name ONE (1) **main use** of the part that is labelled with an arrow.
- A. Low in oil content.
 - B. Low in fibre content.
 - C. Good feed for ruminant animals.
 - D. Good feed for monogastric animals.

8. ONE (1) **advantage** of the local tall coconut variety is;
- A. early fruiting.
 - B. high yielding.
 - C. large nut size.
 - D. early germinating.

9. Study the diagram of a cocoa pod below and identify one (1) control method that can be used to control the disease.

- A. Do pruning.
- B. Use herbicide.
- C. Use pesticide.
- D. Harvest quickly.



10. ONE (1) way to prevent **Coccidiosis** in poultry is;
- A. vaccination of chickens.
 - B. heat a brooder regularly.
 - C. give enough protein feed daily.
 - D. allow overcrowding in the poultry shed.
11. Which of the following is **not** a characteristic of improving village pigs?
- A. Build suitable housing.
 - B. Use a local boar to get a cross-breed.
 - C. Prevention of parasites and diseases.
 - D. Feed with correct type and amount of food.
12. Which of the following is an important management of a pig before she farrows?
- A. Warming.
 - B. Deworming.
 - C. Weaning.
 - D. Iron Injection.

Use the diagram below to answer Question 13.

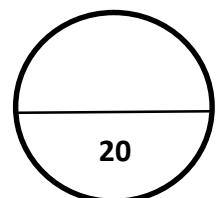


13. Name the pasture in the diagram;
- A. carpet grass.
 - B. elephant grass.
 - C. koronivia grass.
 - D. batiki blue grass.

14. Which of the following is a suitable **planting material** for yam?
- A. Corm, stem cuttings, middles and tubers.
 - B. Tuber sprouts, heads, middles tail of tubers.
 - C. Stem cuttings, tubers, tuber sprout and corm.
 - D. Whole tubers, heads, middles and tail of tubers.
15. ONE (1) reason why pineapples survive very dry conditions is;
- A. most water is stored in root hairs.
 - B. water is trapped at the growing point.
 - C. moisture trapped and absorbed at the leaf base.
 - D. moisture absorbed at the base of mature leaves.
16. **Bell** in bananas is referred to;
- A. individual fruits in a hand.
 - B. cluster of the fruit at the node.
 - C. cluster of the fruit on one stem.
 - D. end of fruiting stems with male flowers.
17. Why cattle industry is slow to progress after its introduction by the early missionaries?
- A. Export of meats was increased in the country.
 - B. More land space is available for cattle industry.
 - C. Low labour demand to work in the cattle industry.
 - D. High social pressure demands such as killing for feasts.
18. Which of the following is an example of a **fixed cost** in a cocoa farm?
- A. Seeds.
 - B. Fertilizer.
 - C. Casual labour.
 - D. Permanent labour.
19. Which of the following factors may influence the **birth weight** of a young calf?
- A. Nutrition.
 - B. Weaning.
 - C. Castration.
 - D. Iron injection.

20. What phenotype expression would result from the **second crossing** between two water melon varieties with 'T' for red flesh and recessive 't' for yellow flesh?
- A. All red flesh.
 - B. All yellow flesh.
 - C. 75% red flesh and 25% yellow flesh.
 - D. 50% red flesh and 50% yellow flesh.

Total marks for Section A: Q.1-20.



SECTION B: SHORT ANSWER QUESTIONS

(77 MARKS)

THIS SECTION CONSISTS OF QUESTIONS WHICH WORTH 77 MARKS. ENSURE THAT YOU ANSWER ALL QUESTIONS BRIEFLY BUT CLEARLY IN THE SPACES PROVIDED.

21. Soils

a) Describe the structure of **clay** soil.

(2 marks)

b) Explain ONE (1) importance of a good soil structure.

(2 marks)

c) Describe how reduction of organic matter can damage the structure of a soil?

(2 marks)

22. Vegetables

a) State the function of these parts in seeds.

i) Embryo _____

ii) Cotyledon _____

(2 marks)

b) Explain why soil type selection is an important factor when making a vegetable garden?

(2 marks)

c) Explain how trench digging can improve soil aeration in vegetable gardens.

(2 marks)

23. **Coconuts**

Study the picture of insect pest of coconut palms below and answer Questions a) and b).



a) Describe ONE (1) main **damage** this pest causes to coconut palms.

(2 marks)

b) Explain ONE (1) way of **controlling** this insect pest.

(2 marks)

24. **Root crops.**

a) Explain ONE (1) reason why it is important to plant root crops correctly?

(2 marks)

b) Discuss ONE (1) way a farmer can sustain a **continuous supply** of root crop in a year.

(3 marks)

25. **Fruits**

a) Pineapple

i) Describe ONE (1) advantage of **vegetative propagation** in pineapples.

(2 marks)

ii) Explain how **ratoon crop** is done in pineapples.

(2 marks)

b) Banana

i) Describe how **contour sites** can be prepared to plant bananas.

(2 marks)

ii) Describe the importance of **propping** to banana plants.

(2 marks)

26. Cocoa

a) Explain ONE (1) main **importance** of growing cocoa in the Solomon Islands.

(2 marks)

b) Explain why **Trinitario** cocoa variety is NOT recommended for cocoa farmers in Solomon Islands.

(2 marks)

27. Introduction to Animal Husbandry.

a) Describe ONE (1) reason why **proper housing** is important in the modern system of animal production.

(2 marks)

b) Discuss with examples why allowing our animals to **roam around** the village is not a very good practice.

(3 marks)

28. Pig Production

OPTION 1

a) Describe the importance of the **creep area** in the pig pen.

(2 marks)

b) Explain the importance of **iron injection** to the piglets during the first week.

(2 marks)

c) Explain why it is important to **wean** piglets.

(2 marks)

29. Poultry Production

OPTION 2

a) Describe the importance of a **brooder** in poultry production.

(2 marks)

b) Explain how to **manage** a brooder.

(2 marks)

c) Describe how an increase in temperature can affect **egg production** on a layer bird?

(2 marks)

30. Cattle and pastures

a) Describe ONE (1) characteristic of a **natural grassland**.

(2 marks)

b) Explain why para grass is a good form of feed for ruminant animals in the Solomon Islands.

(2 marks)

c) Explain the importance of planting legumes with pastures.

(2 marks)

d) Explain below the **oestrus cycle** of a cow. In your discussion include the Follicle Stimulating Hormone (FSH), Oestrogen, Luteinizing Hormone (LH) and Corpus Luteum (CL).

(4 marks)

31. Farm Management.

a) Explain why **planning** is an important process in farm management?

(2 marks)

b) Explain ONE (1) importance of **gross margins** in farm management.

(2 marks)

32. Animal Nutrition and development.

a) Explain why **monogastric animals** need to be fed at regular intervals?

(2 marks)

b) Explain the **feed requirement** for the stage of development in young animals.

(3 marks)

33. Genetics

a) Explain ONE (1) importance of **progeny testing** in animal breeding.

(2 marks)

- b) Illustrate with the help of a diagram **cross breeding** system between a Native pig and a Large White in animal production.

(2 marks)

- c) Complete the punnet square if a bull heterozygous polled (Tt.) mated with a cow homozygous horned (tt).

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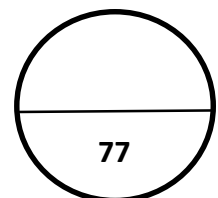
- i. What would be the genotypic ratio of the crossing?

(2 marks)

- ii) What would be the **percentage phenotypic ratio** of the third crossing?

(2 marks)

Total marks for Section B: Q.21-33.



SECTION C: LONG ANSWER QUESTIONS**29 MARKS**

THIS SECTION IS WORTH 29 MARKS. YOU MUST ANSWER ALL QUESTIONS CLEARLY ON THE SPACES PROVIDED.

34. VEGETABLES INTEGRATED WITH FARM MANAGEMENT STUDIES.

Maryland community has decided to start a community vegetable project and they are going to employ John to help them manage the project. John was a graduate of the Solomon Islands National University – School of Agriculture and he is going to use his knowledge and experience to help the community manage the project.

The table below describe the activities that John has taken in the farm. Study the table and answer the following questions.

Table: 1. Site General Features

Available area (ha)	Soil Type	Soil PH	Climate Condition
5 ha	Alluvial soil with high soil nutrient.	6.0 – 8.5	Sunshine and rainfall throughout the year except for excessive flooding in August.

Table: 2. Establishment Information.

- Hand tools are used for cultivation.
- 1 knapsack sprayer.
- 5 packets of Chinese cabbage seeds are bought at \$20/packet.
- 4 packet of beans at \$30/pkt.
- 3 packet of corn at \$15 each.
- Bigger seeds are directly sown while small seeds are raised in the nursery.
- 2 watering cans at \$100.
- Watering is done once a week on the nursery and on the farm.
- Seedlings are overcrowding in the nursery.
- Sign of damping off fungus are obvious on the nursery.
- Crop rotation.
- 2 permanent labours are employed.
- 3 Casual labours are paid at a rate of \$50 each/day for 8 days.
- 2 litres of fungicide bought at \$160/litre.
- 5 litres of Insecticide bought at S180/litre.

Table: 3. Management and Harvesting

<p>Management</p> <ul style="list-style-type: none">• More weeds are growing with the crops.• Flooding problem during the rainy season• No proper record kept for farm activities.• In organic fertilisers are used.• Poor handling and storage <p>Harvesting/Sales</p> <ul style="list-style-type: none">• Vegetables are overgrown.• Transportation of sales to market is once a week.• Current yield is 6 tons with a sale of \$2,500.• Potential yield is 12 tons.

a) Explain how **seedling overcrowding** can be managed on Maryland vegetable farm.

(2 marks)

b) Explain how **damping-off fungus** can be controlled in the nursery.

(2 marks)

c) Suggest TWO (2) ways in which Maryland farm can use to control the weeds.

- i. _____
- ii. _____

(2 marks)

d) Discuss with examples how **physical record** can be kept on Maryland farm.

(3 marks)

e) Describe ONE (1) crop rotation method using examples that is used on Maryland's farm.

(2 marks)

f) List THREE (3) advices to Maryland farm on ways to minimise the potential damage during the rainy season.

(i) _____

(ii) _____

(iii) _____

(3 marks)

g) Explain with ONE (1) example a farm plan that Maryland farm can revise after its first cycle of vegetables.

(3 marks)

h) Discuss ONE (1) way in which Maryland can reach the potential yield of the farm.

(3 marks)

i) Calculate how much the Maryland farm will earn if it reaches the full potential yield.

(3 marks)

j) Discuss ONE (1) advice you would give to Maryland farm on how handling and storage can be improved.

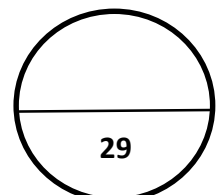
(3 marks)

k) Discuss with examples how variable costs fluctuate to farm's size and capacity.

(3 marks)

Total marks for Section C: Q. 34.

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**SECTION A: MULTIPLE CHOICE
(20 MARKS)**

Write the letter of the correct answer in the box provided. Make sure your answer is put alongside the right question number.

Example: If you consider A is the correct answer, write it like this:



To change your answer from A to C, cross out A and write the new answer C in the box, like this:



<p>1 <input style="width: 40px; height: 25px;" type="text"/></p> <p>2 <input style="width: 40px; height: 25px;" type="text"/></p> <p>3 <input style="width: 40px; height: 25px;" type="text"/></p> <p>4 <input style="width: 40px; height: 25px;" type="text"/></p> <p>5 <input style="width: 40px; height: 25px;" type="text"/></p> <p>6 <input style="width: 40px; height: 25px;" type="text"/></p> <p>7 <input style="width: 40px; height: 25px;" type="text"/></p> <p>8 <input style="width: 40px; height: 25px;" type="text"/></p> <p>9 <input style="width: 40px; height: 25px;" type="text"/></p> <p>10 <input style="width: 40px; height: 25px;" type="text"/></p>	<p>11 <input style="width: 40px; height: 25px;" type="text"/></p> <p>12 <input style="width: 40px; height: 25px;" type="text"/></p> <p>13 <input style="width: 40px; height: 25px;" type="text"/></p> <p>14 <input style="width: 40px; height: 25px;" type="text"/></p> <p>15 <input style="width: 40px; height: 25px;" type="text"/></p> <p>16 <input style="width: 40px; height: 25px;" type="text"/></p> <p>17 <input style="width: 40px; height: 25px;" type="text"/></p> <p>18 <input style="width: 40px; height: 25px;" type="text"/></p> <p>19 <input style="width: 40px; height: 25px;" type="text"/></p> <p>20 <input style="width: 40px; height: 25px;" type="text"/></p>
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FOR MARKERS USE ONLY

SECTION	MARK	MARKER	SCRIPT CHECKER
A	Q.1-20	20	
B.	Q.21	6	
	Q.22	6	
	Q.23	4	
	Q.24	5	
	Q.25	8	
	Q.26	4	
	Q.27	5	
	Q.28	6	
	Q.29	6	
	Q.30	10	
	Q.31	4	
	Q.32	5	
	Q.33	8	
C.	Q.34	29	
TOTAL		126	
Marker / Checker Initials			