

BA PROVINCIAL FREEBIRD INSTITUTE
AGRICULTURAL SCIENCE –YEAR 12
TERM ONE END EXAMINATION- 2021

TIME ALLOWED: Three Hours
(An extra ten minutes is allowed for reading this paper)

INSTRUCTIONS

1. Write **all** answers in the **space** provided.
2. Write your **Name** in the front page of the answer booklet.
3. If you use extra sheets of papers, be sure to show clearly the number of the question being answered and to staple the sheet securely.
4. There are **three** sections in the paper. Section A and B are compulsory.

Note the choices in Section C.

SUMMARY OF QUESTIONS

SECTION	GUIDELINES	MARKS	SUGGESTED TIME
A	There are 20 multiple choices questions All are compulsory.	20	36 minutes
B	There are six short answer questions. All are compulsory	60	108 minutes
C	There are five essay questions. Answer two questions only	20	36 minutes
TOTAL		100	180 minutes

INSTRUCTIONS FOR MULTIPLE-CHOICE QUESTIONS

1. In your **Answer Booklet**, circle the letter which represents the best answer. If you **change your mind**, put a line through your first choice and circle the letter of your next choice.

For example:

8	A	B	C	D
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2. If you **change your mind** again and like your first answer better, put a line through your second circle and tick (✓) your first answer.

For example:

8	A	B ✓	C	D
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3. **No mark** will be given if you circle more than one letter for a question.

1. The **excessive** use of fertilizing materials and **poor** effluent disposal on farms result in increased waterway
- A. Erosion.
 - B. Siltation.
 - C. Temperature.
 - D. Eutrophication.
2. **Food security** is a condition related to the supply of food. A risk to food security is
- A. water crisis
 - B. price setting
 - C. climate change
 - D. agricultural diseases
3. Which of the following is **not** classified as a pollution to the environment?
- A. Ice
 - B. Water
 - C. Farm chemical
 - D. Noise

4. Earth's climate is always changing so climate change is a natural phenomenon. Which of the factors does not contribute to climate change?
- A. Melting ice
 - B. Changing albedo
 - C. Change in the earth's orbit
 - D. Amount of energy from the sun
5. Food insecurity results in chronic nutritional deficiencies which in turn leads to
- A. Water crisis.
 - B. Climate change.
 - C. Land degradation.
 - D. Non-communicable diseases.
6. Zoonosis diseases are a worldwide **public health risk**. Which of the following is not a preventive measure?
- A. Vaccination
 - B. Removing all pets from house
 - C. Public and professional education
 - D. Surveillance, tracking and reporting activities
7. The machine / power tool that is used for removing tree stumps / roots by means of a rotating cutting disc that chips away the wood is known as
- A. Brush hog.
 - B. Tree chopper.
 - C. Stump grinder.
 - D. Brush grubber.
8. Planning, implementation, monitoring & evaluation are key dimensions to farm enterprises. Farm planning is defined as
- A. Checking the result.
 - B. Deciding what to do.
 - C. Putting an idea into action.
 - D. Forecasting what to be done.
9. Farm machines are expensive to replace so it needs to be maintained and stored properly. Putting safety guard before keeping the machine for a length of time is part of
- A. Selling machines.
 - B. Storing machines.
 - C. Buying machines.
 - D. Maintaining machines.

10. A disadvantage of yields in relation to GMOs is?
- A. Stability
 - B. Trait of commodity reduces
 - C. Higher yields from species
 - D. Less use of bio fuels
11. The husbandry machines that a farmer would use to cut the grass for animal feed is
- A. Chain saw
 - B. Chaff cutter
 - C. brush grubber
 - D. milk separator
12. Which of the following contaminant causes soil and water pollution
- A. Fuel
 - B. Smoke
 - C. Dust
 - D. Greenhouse gases
13. The device used on a poultry farm to sort eggs according to weight is an egg
- A. Feeding machine
 - B. Grading machine
 - C. Candling machine
 - D. Debeaking machine
14. The budget which shows if a farm can achieve its annual financial goal is the
- A. Partial budget
 - B. Enterprise budget
 - C. Cash flow budget
 - D. Whole farm budget
15. In the last 5 years, Fiji has suffered from intense rainfall and resulting floods caused by
- A. Use of bio-gas
 - B. Global warming
 - C. Organic farming
 - D. Conservation tillage

16. The development and severity of the injury or effect of pollution depends on
- A. The plant or animal that is affected
 - B. Concentration of the particular pollutant
 - C. The amount of rubbish in the surrounding
 - D. The place of storage
17. Which of the following is an example of budget report?
- A. Enterprise budget
 - B. Inventory budget
 - C. Dead stock budget
 - D. Tax calculation budget
18. Small machine that is used for mowing down thick brush and vegetation over large area is
- A. Brush grubber
 - B. Stump grinder
 - C. Brush hog
 - D. Chain saw
19. Which of the following methods can be employed by farmers to mitigate the rate of climate change caused by human activities?
- A. Controlling pests by using pesticides
 - B. Cultivation of land using mechanization
 - C. Producing commodities which suit the area
 - D. Addition of fertilizers to improve nutrient status of the soil
20. Which of the following machines would a farmer use for applying insecticides to trees in a citrus orchard?
- A. Mist blower
 - B. Rotary tiller
 - C. Hydro-mulcher
 - D. Knapsack sprayer

SECTION B

[60 marks]

The **six** questions in this section are **all compulsory**.
Each question is worth **10 marks**.

QUESTION 1

10 marks



- a) State **one adaptation** method recommended for farms affected by raising sea levels. (1 mark)
- b) Explain **one** reaction of the farming community to pollution. (2 marks)
- c) Genetically modified organism are those plant, animal or micro=organism whose genes have been altered using genetic engineering techniques.
 - i. State **two** advantages of genetically modified organisms. (2 marks)
 - ii. State **two** disadvantages of genetically modified organisms. (2 marks)
- d) Differentiate between a Whole Farm Budget and a Partial Budget in relation to the number of farming enterprises involved. (2 marks)
- e) State **one** importance of food security in Fiji. (1 mark)

QUESTION 2

10 marks

- a) Explain **one** way in which zoonotic diseases spread from animals to humans. (2 marks)
- b) Define the following terms correctly:
 - i. GMO. (1 mark)
 - ii. Mitigation. (1 mark)
- c) Discuss **one** factor to be considered when using small farm machines (2 marks)
- d) State two advantages of using machines on farms in Fiji. (2 marks)

e) State the name and uses of the diagrams illustrate below.

	Name	Function
	-	-
	-	-

(2 marks)

QUESTION 3

10 marks

(a) The table below shows the income and input costs of two enterprises on a farm.

		Dalo	Yams
Income		4660	6000
Variable cost/ha			
	Cultivation	100	70
	Planting material	680	250
	Fertilizer and pesticides	180	180
	Trellising	-	271
	Transport and marketing	150	150
Labour (man day)		100	120

Use this table to answer the questions which follow.

Calculate the following and show all working:

- (i) Gross margin for this farm. (2 marks)
 - (ii) returns to capital for each crop (2 marks)
 - (iii) returns to labour for each crop (2 marks)
- b) Explain **one** importance of farm planning. (1 mark)
- c) Explain one importance of preparing enterprise budget on a farm. (2 marks)
- d) Write one limitation of using gross margin analysis. (1 mark)

QUESTION 4

10 marks

- a) List two common types of budget reports (2 marks)
- b) State and explain one component of whole farm budgets. (2 marks)
- c) Differentiate between return to labour and return to capital (2 marks)
- d) Discuss one factors to consider when choosing small machines for farms (2 marks)
- e) Differentiate between milk separator and egg grading machines. (2 marks)

QUESTION 5

10 marks

- a) Enlist two disadvantages of farm machines. (2 marks)
- b) Define the following (2 marks)
 - i. Machines
 - ii. Soil and water pollution
- c) Briefly explain one application of agro-biotechnology (2 marks)
- d) Discuss one challenge in achieving food security (2 marks)
- e) State two initiatives done by World Health Organization to reduce the transmission of zoonosis (2 marks)

QUESTION 6

10 marks

- a. Define the following terms:
 - i. Albedo
 - ii. Pollution
 - iii. Eutrophication (3 marks)
- b. List two effects of pollution (2 marks)
- c. State one advantage of pollution (1 mark)

- d. Explain the functions of the following machines:
- i. Brush hog
 - ii. Stump grinder (2 marks)
- e) . Define the term budgeting (1 mark)
- f. State one importance of cash flow budget (1 mark)

SECTION C

ESSAY

[20marks]

There are **two** essay questions in this section. Answer **any one** question. Write an essay of approximately **200 – 250** words to answer each question.

Please note that the allocation of marks for the content has been included for each question and **1 mark** is allocated to the structure of the essay. Each question is worth **10 marks**.

In this section, you are given an opportunity to show that you can

- i. Select ideas relevant to the topic
- ii. Use appropriate examples
- iii. Communicate information clearly and logically

QUESTION 1

Pollution is one reason for decline in agriculture production

With reference to the statements above discuss **three**:-

- Types of pollution (3 marks)
- Effects of pollution (3 marks)
- Reaction of farmers to pollution (3 marks)

QUESTION 2

Agricultural biotechnology is the way forward for agricultural industry

- Define Biotechnology. (2 marks)
- Discuss five applications of agro-biotechnology. (7 marks)

QUESTION 3

“Food security is a condition related to the supply of food and individuals access to it”

Discuss following in relation to food security in your country:

- Three risks to food security. (6 marks)
- Two effects of food insecurity (2 marks)
- One dimension of food security (1 marks)

QUESTION 4

“Financial management in farm management is very important aspect concerning the profitability of the farm”.

- Identify and discuss the **three** types of budgets. (6 marks)
- Discuss 2 importance of budgeting. (2 marks)
- Discuss one component of the whole farm budget. (1 mark)

QUESTION 5

Farm machines help in making a farmers work easier.

With reference to the statement above discuss **three**

- Disadvantages of machines (3 marks)
- Tilling machine and its uses (3 marks)
- Factors to consider when buying machines (3 marks)

..... The End.....