

# BA PROVINCIAL FREE BIRD INSTITUTE

## YEAR 12 ANNUAL EXAMINATION 2020

### AGRICULTURAL SCIENCE

**Time Allowed: 3 hours**

*(An extra ten minutes is allowed for reading this paper.)*

#### INSTRUCTIONS

1. Write your **Index Number** on the front page of the **Answer Booklet**.
2. Write **all** your answers in the **Answer Booklet** provided.
3. If you use extra sheets of paper, be sure to show clearly the question number(s) being answered in your **Answer Booklet** at the appropriate place. Ensure that your **Index Number** is written on the extra sheets.
4. Answer **all** the questions with a blue or black ballpoint pen or ink pen. Do **not** use red ink. You may use a pencil **only** for drawing.
5. You may use a calculator, provided it is silent, battery-operated and non-programmable.
6. There are **three** sections in the paper. **Sections A and B are compulsory**. Note the options in **Section C**.

#### SUMMARY OF QUESTIONS

SECTION	QUESTION TYPE	MARK	SUGGESTED TIME
A	There are <b>twenty</b> multiple-choice questions. <b>All the questions are compulsory.</b>	20	36 minutes
B	There are <b>six short answer</b> questions. <b>All the questions are compulsory.</b>	60	108 minutes
C	There are <b>five essay</b> questions. <b>Answer any two questions.</b>	20	36 minutes
<b>TOTAL</b>		<b>100</b>	<b>180 minutes</b>

## SECTION A MULTIPLE CHOICE

[20 marks]

The multiple-choice questions in this section are **all** compulsory. Each question is worth **1** mark.

### INSTRUCTIONS FOR MULTIPLE-CHOICE QUESTIONS

1. In your Answer Book, 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:

6	(A)	<del>(B)</del>	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:

6	<del>(A)</del>	<del>(B)</del> ✓	C	D
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3. No mark will be given if you circle more than one letter for a question.

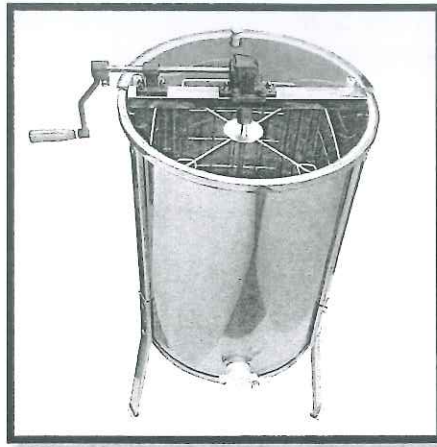
1. Climate change is also caused naturally, which is changes in the earth's orbit and changing albedo. The term **albedo** means

- A. Volcanic eruptions.
- B. Earth's warming acceleration.
- C. The natural changing phenomena of earth.
- D. The reflecting power of the surface of the earth.

2. Which of the following is an **advantage** of breeding **genetically modified organisms**?

- A. New products may be designed
- B. Commodity traits may be of lower quality
- C. Taint traditional species reducing biodiversity
- D. Tax placed on GMO crops causes price increases.

The diagram given below shows small machine used to carry out **husbandry practices**. Use it to answer Question 3.

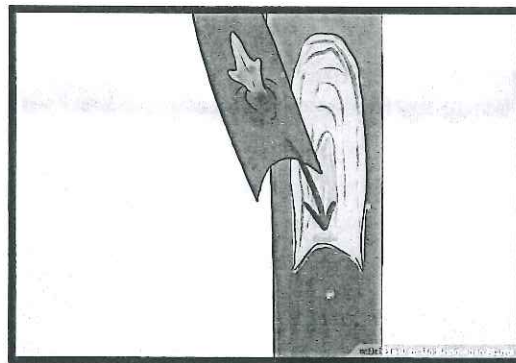


Source: <https://www.mydeal.com.au>

3. The above diagram best describes a
- A. Chaff cutter.
  - B. Mist blower.
  - C. Honey extractor.
  - D. Debeaking machine.
4. Partial farm budget is one of the budgets prepared on the farm. Which of the following is a **disadvantage** of **partial budget**?
- A. The technique is simple to perform.
  - B. It requires less data while performing budget.
  - C. It allows for conclusion about the adoptability.
  - D. The partial view of a farming system where the secondary characters are used.
5. Which of the following is an example of **budget report**?
- A. Enterprise budget.
  - B. Inventory budget.
  - C. Dead stock budget.
  - D. Tax calculation budget.

**TURN OVER**

6. The term **vermiculture** when applied to soil organism can refer to
- A. Materials Mixed Into The Soil.
  - B. Materials Placed On The Surface Of The Soil.
  - C. Raising And Production Of Earthworms And Their By-Products.
  - D. Raising and production of all soil organisms and their by-products.
7. The **genetic material** of a plant and animal species or other related group of organisms collected for the study purpose is called
- A. Heterosis.
  - B. Germplasm.
  - C. Tissue culture.
  - D. Gene redundancy.
8. Agroforestry system in which kava is planted with cows grazing underneath coconut trees and mahogany is called?
- A. Alley cropping.
  - B. Agro-industrial system
  - C. Agro-silvicultural system
  - D. Agro-silvopastoral system
9. The diagram given below illustrates a form of **plant propagation**.



Source: <https://picswe.net>

The plant propagation method shown is

- A. Budding.
- B. Grafting.
- C. Layering.
- D. Marcotting.

10. Miss. Marama had been advised by a botanist to **add a lot of water** to her pot plants. This should be done to
- A. Replace nutrients.
  - B. Avoid dehydration.
  - C. Avoid leaching of nutrients.
  - D. Prevent plant from flowering.
11. Plants which are used to improve the **aesthetic value** is named as
- A. Lawn plant.
  - B. Horticulture.
  - C. Foliage plant.
  - D. Landscape plant.
12. Which one of the following is importance of **seasoning** of lumber?
- A. Upgrade the value.
  - B. Remove dirt and debris.
  - C. Extract water vapor from the wood.
  - D. Reduce attack from insects, fungi and marine borer.
13. Which of the following is an **endemic hardwood** tree to Fiji?
- A. Vesi.
  - B. Yaka.
  - C. Rosawa.
  - D. Dakua makadre.
14. Re-planting of imported timber tree species soon after logging has an **economic significance** because they
- A. Are resistant to cyclones.
  - B. Take long time to mature.
  - C. Take short time to mature.
  - D. Make good quality wood chips.



15. The name given to sexually developed **male bees** in a hive is

- A. Drones.
- B. Workers.
- C. Adult bees.
- D. Queen bee.

16. Which of the following bee **diseases** is caused by **bacteria**?

- A. Sac brood.
- B. Stone brood.
- C. Chalk brood.
- D. European foul brood.

17. The product of beehives that supplies the bees with **nutrients** for brood rearing and adult growth and development is called

- A. Pollen.
- B. Propolis.
- C. Bee brood.
- D. Royal jelly.

18. **Lowered fertility** in cows and bulls are caused by lack of \_\_\_\_\_ in their body.

- A. calcium
- B. vitamin A
- C. vitamin B
- D. vitamin E

19. The term given when a cow faces a **delay or difficult birth** is known as

- A. Culling.
- B. Calving.
- C. Dystocia.
- D. Parturition.

20. The **placenta** which is expelled from the uterus **after the delivery** of a calf is called

- A. Calf.
- B. Heifer.
- C. Foetus.
- D. After Birth.

### END OF SECTION A

## SECTION B

## SHORT ANSWERS

[60 marks]

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

### QUESTION 1

(10 marks)

(a) Describe **one** effect of **soil salination** on crop production.

(2 marks)

(b) State **one** contaminant added to air by agriculture.

(1 mark)

(c) Distinguish between **introduced species** and **biological species** in Terms of other pollutants.

(2 marks)

(d) Zoonosis is a disease that is naturally transmitted between vertebrate animals and humans.

Identify **one precaution** a person can take to protect themselves.

(1 mark)

(e) Identify **one factor** that should be considered when using small machines.

(1 mark)

(f) Differentiate between a **mist blower** and **knapsack sprayer**.

(2 marks)

- (g) State **one** importance of **farm planning**. (1 mark)

**QUESTION 2** (10 marks)

- (a) Distinguish between **soil flora** and **soil fauna** in relation to its features. (2 marks)

- (b) Explain the following ways of **classifying** horticultural plants:

i. Xerophytes (1 mark)

ii. Hydrophyte (1 mark)

iii. Mesophyte (1 mark)

- (c) The table below shows the income and input costs of two enterprises on a farm. Use this table to answer the questions which follow.

		<b>Dalo</b>	<b>Yam</b>
<b>Income</b>		4500	6000
<b>Variable cost/ ha</b>			
	Cultivation	100	70
	Planting material	650	250
	Chemicals	190	150
	Trellising	-	270
	Transport and marketing	170	120
<b>Fixed cost</b>		1000	

Calculate the following and **show all working**:

i. Gross margin for the farm. (2 marks)

ii. Net profit for the farm. (1 mark)

- (d) State **one** limitation of a gross margin. (1 mark)