



FIJI NATIONAL UNIVERSITY
College of Agriculture, Fisheries & Forestry
School of Veterinary Science and Animal Husbandry
Department of Fisheries
Certificate III in Commercial Agriculture
Trimester I Final Examination - 2017
AFA 301: Aquaponics

Time Allowed: 3.00 hours plus (10 minutes reading time) Total Marks:
50

INSTRUCTIONS:

1. This paper consists of five pages including two pages Answer Sheet.
2. Please check to see that your paper is complete.
3. Answer all the Objective Type Questions on the Answer Sheet and Descriptive Type Question in the Answer Booklet only.
4. The Answer sheet of the objective Type Questions will be collected **45 Minutes** after the start of Examination.
5. **No** written or printed material and mobile phones are allowed in the examination hall
6. Marks allocated for each question appears at the side of each question so allocate your time accordingly.
7. This paper is divided into Two Parts. First Part contains Objective Type Questions which has four Sections – A, B, C, and D. All questions of this part are compulsory. Second part is Descriptive Type which is having eight (8) questions. Attempt only any six questions from this part.

I. OBJECTIVE TYPE QUESTIONS (20 Marks)

To be answered only on the Answer Sheet.

Section A: Fill in the blanks. (5 Marks)

Section B: Multiple choice Questions. (5 Marks)

Section C: Matching type. (5 Marks)

Section D: Write True or False. (5 Marks)

II. DESCRIPTIVE TYPE QUESTIONS (30 marks)

There are **eight (8)** descriptive type questions provided, please attempt any **Six (6) questions only** and write on the Answer Booklet. Answer every question from a new page to facilitate evaluation.

Student ID No.:

Date.....

I. OBJECTIVE TYPE QUESTIONS

Note: Answer only on the Answer Sheet and return 45 minutes after the start of Examination.

Time: 45 Minutes

Total Marks: 20

A. Fill in the blanks.

(10x0.5=5 Marks)

01. The "ponics" in "Aquaponics" comes from.....
02. An Aquaponics system necessarily produces food that is free of.....
03.give you total control over your growing environment.
04. "There is nothingin Aquaponics. If you used chemicals on the plants it would kill the fish. And any chemicals used on the fish would kill the plants.
05. The total volume of all the grow beds that you connect to a single fish tank should be at leastto the volume of the fish tank, in order to provide adequate filtration for your fish tank.
06. Besides being a source for your food, your Aquaponics system will be home for many.....: fish, plants, bacteria and worms.
07.must not change the pH of your water.
08. Thefor your fish environment should enter your Aquaponics system as close to pure as possible.
09.are generally described with two parameters: flow rate and head pressure.
10. Even in a greenhouse, you might choose to supplement the shortened natural daylight of the winter months withthat come on for part of the evening.

B. Multiple choice questions: Select the correct answer. (10x0.5=5 Marks)

11. What is the ratio of grow bed volume and fish tank volume.

A.	1:1	B.	1:2
C.	1:3	D.	2:3

12. Which spectrum of light is absorbed by plant?

A.	red	B.	blue
C.	green	D.	Both A & B

13. In a Basic Flood and Drain design, the grow beds are the fish tank.

A.	below	B.	beside
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C.	above	D.	beneath
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14. Efficient Oxygen uptake is vital to fish because of it'swater solubility

A.	high	B.	low
C.	moderate	D.	floating

15.is a method for cultivating plants without soil, using only water and chemical nutrients.

A.	Aquaculture	B.	Aquaponic
C.	horticulture	D.	Hydroponics

16. Aquaponic uses how much water when compared with dirt gardening?

A.	One-tenth	B.	Two-third
C.	Five - tenth	D.	Three-tenth

17. T5 lighting bulbs reach through how many inches of canopy?

A.	50	B.	18
C.	30	D.	40

18. Which one of the following type of light gives out excessive heat?

A.	HID	B.	LED
C.	T5	D.	None of the above

19. Which one from the following explains the type of seal utilized in Aquaponics plumbing?

A.	Marine-grade silicone	B.	Uniseals®
C.	Bulkhead fitting	D.	All of the above

20. The "just right" size for aquaponic media is about half to three-quarters of an inch (.....) in diameter.

A.	19-25 mm	B.	10-20 mm
C.	12-18 mm	D.	5-15 mm

C. Match the following:

(10x0.5=5 Marks)

21. T5 bulbs	A. is best because the motor is in its own sealed compartment and should never leak any oil out into the fish tank water.
22.HID	B. chlorinated polyvinyl chloride

23. LED lights	C. polyvinyl chloride
24. Male slip fit	D. Threads are interior, made to receive male threaded pipe fittings.
25. Female slip fit	E. Threads are exterior, made to screw into the inside of a larger diameter pipe end with internal threading.
26. Male threaded fitting	F. No threads, made to receive a narrower male slip fit.
27. Female threaded fitting	G. No threads, made to slip into a slightly larger female sleeve.
28. PVC	H. use solid-state light-emitting diodes
29. CPVC	I. High-intensity discharge lighting
30. Magnetic drive (or mag-drive) pumps	J. Fluorescent lighting

D. Write 'True' or 'False'.

(10x0.5=5 Marks)

31.	Aquaponics has the potential to be an important part of our future global food producing system.	
32.	An Aquaponics system does not necessarily produce food that is free of chemicals.	
33.	Under- and over-fertilizing is the only cause of plant death and poor performance.	
34.	Aquaponics gardens can be grown anywhere there is light, whether natural or artificial.	
35.	Certain plants can be difficult to establish during short, warm months.	
36.	How long you run your lights will depend on the day-length requirements of your plants.	
37.	A mature tomato plant has a very similar canopy depth than a lettuce plant.	
38.	Basic flood and drain works well for any beginning system using a 1:1 grow bed volume to fish tank volume.	
39.	Grow beds take up least space in Aquaponics setup.	
40.	In male-threaded pipe fitting threads are interior, made to receive female threaded pipe fittings.	

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II. Descriptive type Questions

(30 Marks)

Note: Attempt Any SIX Questions Only. All carries equal FIVE (5) marks.

1.	State the five benefits of having a greenhouse?	(5)
2.	State five reasons for referring to Aquaponics as earth smart gardening?	(5)
3.	How is Aquaponics convenient gardening? State five reasons.	(5)
4.	Discuss the 5 purposes served by growing media in an Aquaponics system?	(5)
5.	Enlist 5 commonly used product or material for fish tank and growbeds?	(5)
6.	Discuss using diagram the bacterial cycle in an aquaponics system?	(5)
7.	Discuss 2 advantages and 3 disadvantages of storage barrel or drums?	(5)
8.	State the 5 consideration when you select and run lights for your plants in Aquaponics?	(5)

The End

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Date:

Marks obtained:

.....
Name:

Student I D No.:

.....

Certificate III in Commercial Agriculture
Trimester I Final Examination-2017
Course No. & Title: AFA 301: Aquaponics

I. Objective Type Questions - Answer Sheet

Time: 45 Minutes

Total Marks:

20

A.	1.		
	2.		
	3.		
	4.		
	5.		
	6.		
	7.		
	8.		
	9.		
	10.		
B.	11.		
	12.		
	13.		
	14.		
	15.		
	16.		
	17.		
	18.		
	19.		

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	20.		
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C.	21.		
	22.		
	23.		
	24.		
	25.		
	26.		
	27.		
	28.		
	29.		
	30.		
D.	31.		
	32.		
	33.		
	34.		
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	36.		
	37.		
	38.		
	39.		
	40.		

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