Papua New Guinea University of Technology

Department of Agriculture

AG 416 Introductions to Aquaculture Final Examination

Date: 25/10/2019

Time allowed: 3 hours

Instructions: No books allowed

: Allowed-calculators, pens etc.

Attempt all- Questions in the space provided; total of 100 marks

Question 1 (5marks)

 Define aquaculture?

Question 2 (5marks)

What is the estimated growth rate of aquaculture per year in the world? Circle the right answer.

a. 2.8 %

b. 8 .9%

c. 5.0%

d.9.3%

Question 3 (5 marks)

Show what were the reasons of introducing fish in the highlands of PNG? Circle the right answer.

a. To increase protein consumption in the diets of the people in the highlands

b. To provides means of for smallholder's farmers' cash

c. To develop a new commercial industry.

d. all of the above

Question 4 (5 marks)

Describe what are the main important characteristics of good aquaculture pond site?

Question 5 (5marks)

What are the main aquaculture origin theories? Briefly describe each theory and state how they started?

Question 6 (10 marks)

What is the water retention rate of seepage?

A hole is dug and filled with water at 3.17pm and left to settle. At 4.53 pm (96 minutes later) the level of water has dropped by 5mm

 1. Calculate the Rate of seepage?

2. State whether the soil is suitable for fish farming?

Question 7 (10 marks)

Why is it important that you must study and know the climate and the weather of the site you will be setting up your fish farm?

Question 8 (10 marks)
What are the main caustic agents in the aquaculture disease? Write 3 main ones and explain in details about them?

Question 9 (20 Marks)
The Pearson square can be used for three more protein sources.
Prepare 100kg ration containing 35% protein from a mixture of soya bean meal (SBM-44% protein), and blood meal (BM-60% protein) (3parts SBM and 1 part blood meal) with kaukau (4%CP). In this case SBM and BM ratio is 3:1 respectively.

Question 10 (25marks)
A farmer stocked 1000 fingerlings in his pond. He raised them in 3 periods of 21 days each.
1. First 21 days, ABW=3g and feeding rate of 10%, mortality 10 %=100 fingerlings died
2. Second 21days, ABW=5g and feeding rate of 5% mortality 5%=45 fingerlings died
3. Last 21 days, ABW=400g and feeding rate of 4%
Total weight gain (TWG) = (final ABW x Number of fish) - (initial ABW x Number of fish).
FCR =TFR/TWG. Calculate the following questions below:
a. The daily feeding rate of the 3 periods (DFR1, DFR2, and DFR3) (10marks).
b. The total feed requirement (TFR) (10marks).
c. The feed conversion ratio (FCR) and explain it (5Marks).