

KOLEJ UNIVERSITI TUNKU ABDUL RAHMAN

FACULTY OF APPLIED SCIENCES

ACADEMIC YEAR 2019/2020

SEPTEMBER EXAMINATION

AAAQ2014 FEED AND NUTRITION

TUESDAY, 10 SEPTEMBER 2019

TIME: 9.00 AM – 11.00 AM (2 HOURS)

DIPLOMA IN AQUACULTURE

Instructions to Candidates:

Answer **ALL** questions. All questions carry equal marks.
Write your answers in the booklet provided.

AAAQ2014 FEED AND NUTRITION**Question 1**

- a) Give **TWO (2)** points on the functions of digestive tract in fish. (4 marks)
- b) Based on **Figure 1.0**, describe the **FOUR (4)** different digestive systems in fish. Give **ONE (1)** example of fish to support each of your answers. (12 marks)

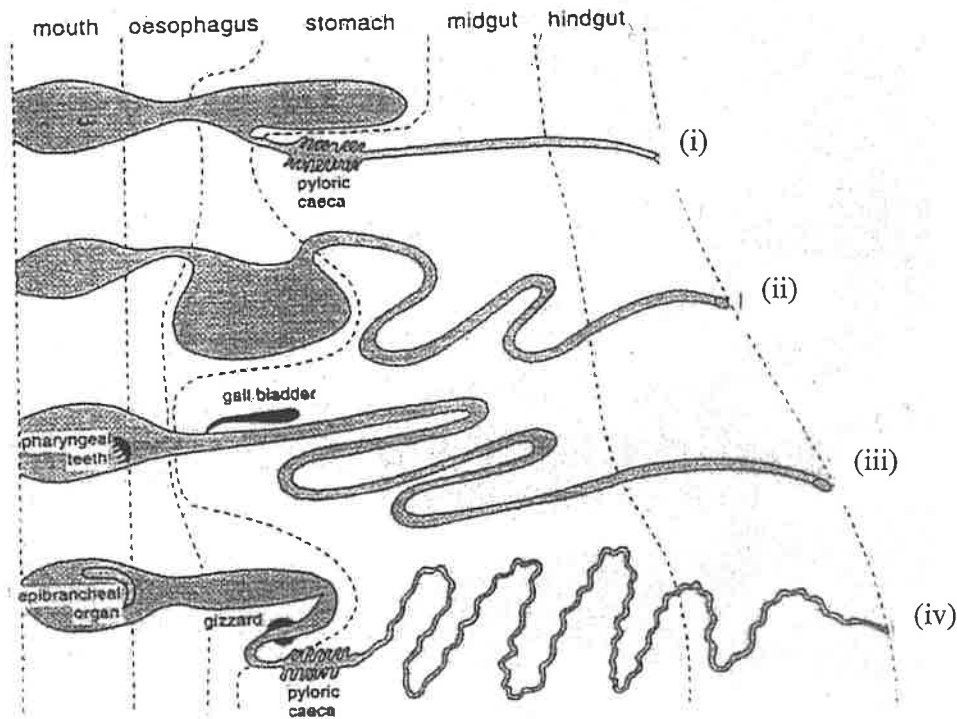


Figure 1.0 Diagram of fish stomach vs gut length.

- c) Draw a diagram showing **SIX (6)** organs involved in the whole digestion processes in fish. (9 marks)
- [Total: 25 marks]

Question 2

- a) If you are culturing tilapia, what would be the major nutrient requirements at each of the following stage: early juvenile fish, sub-adult fish and adult fish? (6 marks)
- b) Give **FOUR (4)** criteria on how to select feeds for prawn. (10 marks)
- c) List **TWO (2)** impacts of wasted feed on the cultured fish. (3 marks)
- d) Provide **THREE (3)** factors that lead to the development of nutritional diseases in fish. (6 marks)
- [Total: 25 marks]

AAAQ2014 FEED AND NUTRITION**Question 3**

- a) Define the following terms:
- (i) Trash fish (3 marks)
 - (ii) Fish meal (3 marks)
- b) In your opinion, briefly describe **THREE (3)** possible usages in utilizing trash fish to get higher gain. (6 marks)
- c) (i) Name **FOUR (4)** major processes involved in fish meal production. (4 marks)
- (ii) Provide **SIX (6)** explanation for the activities involved in Question 3 c) (i). (9 marks)
- [Total: 25 marks]

Question 4

- a) Define the term “vitamins” in aquaculture. (3 marks)
- b) State **TWO (2)** reasons why vitamins are essential in aquaculture. (4 marks)
- c) Give **THREE (3)** general functions of minerals for fish. (6 marks)
- d) Both vitamins and minerals can be further classified into two groups. Name the **TWO (2)** groups for each vitamins and minerals. (8 marks)
- e) Provide **ONE (1)** example for vitamins and **ONE (1)** for minerals with their major biological function in aquaculture. (4 marks)
- [Total: 25 marks]