



FACULTY OF FISHERIES AND MARINE SCIENCES & TECHNOLOGY

Academic Year 2023/2024

Bachelor of Science Honors in Fisheries and Marine Sciences Degree

Level II Semester I Examinations - October/November 2024

FAQ 2113: Fish Physiology

Time: 2 hours

Answer any four (04) questions.

1. a. Describe the structure of gastrointestinal tract in fish? (20 marks)
b. Explain how the structure of the gastrointestinal tract varies according to dietary habits. (80 marks)
2. a. Giving suitable examples, explain Osmoconformers. (10 marks)
b. Compare the key differences in osmotic challenges faced by freshwater and marine fish. (40 marks)
c. Discuss how marine fish maintain osmotic balance in a hypertonic environment. (50 marks)
3. a. Illustrate the main parts of the teleost eye in a fully labelled diagram. (20 marks)
b. "Teleost eye is well adapted to have a better vision in photic environments". Discuss this statement. (80 marks)
4. a. Compare the following.
 - i. Canal neuromast and superficial neuromast
 - ii. Open and closed circulatory systems
 - iii. Body and/or Caudal Fin and Median and/or Paired Fin Propulsion systems
 - iv. Single and double circulatory systems
 - v. White and red muscles of fish(25 marks)

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- b. Briefly explain the following
- Venous system of fish
 - Post gill arterial system of fish
 - Hearing of fish
 - Median and/or Paired Fin swimming modes
 - Basic electrocardiogram of fish

(75 marks)

5. a. Complete the following table after copying it on your answer booklet.

(15 marks)

Endocrine gland	Location in fish body	Hormones secreted from the gland	Main functions of the hormones
Thyroid gland			
Urophysis			
Pineal gland			
Corpuscles of Stannius			
Inter-renal tissue			

- b. List 02 internal and 08 external factors important to control fish reproduction. (10 marks)
- c. Draw and label the major parts of the fish pituitary gland. (15 marks)
- d. Discuss how the endocrine secretions of hypophysis are important to control the formation of fish eggs. (60 marks)

6. Write short accounts on the following.

- Ram gill ventilation (25 marks)
- The countercurrent exchange system contributes to efficient oxygen uptake and carbon dioxide removal from the gill lamella. (25 marks)
- Anguilliform and Thunniform swimming modes of fish. (25 marks)
- Olfaction in fish. (25 marks)

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