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**UNIVERSITY OF RUHUNA**  
**Bachelor of Science in Fisheries & Marine Sciences Degree Examination**  
**Level I - Semester II, Dec. 2016/Jan. 2017**

**FAQ 1213 – Fish Histology, Embryology and Genetics**

**Time – 2 hours**

**Answer only Four (04) questions selecting at least one from each section**

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**SECTION I**

**01. Either**

(A) Write a detailed account on the histological structure of the fish skin, its derivatives and their role as a mechanism for providing protection to the fish.

**or**

- (B) i. Write an account on the histological structure of the intestine of fish and explain how it varies from the typical digestive plan. Provide appropriate diagrams if necessary.
- ii. Briefly describe the histological structure of a pancreas of fish.

02. i. Write an account on the histological structure of the functional unit of a kidney.  
ii. Describe the basic histological structure of a fish blood vessel.

03. Write short notes on **any three** of the following.

- i. Cleavage stage of fish eggs
- ii. Histological structure of fish spleen
- iii. Histological changes in thyroid gland of fish under its normal functioning
- iv. Histological structure of the cartilage tissue of fish
- v. Stages of spermatogenesis in fish

04. i Briefly describe the three major patterns of ovarian development found in fish  
ii With the help of suitable drawings, briefly describe the cytological changes that occur in the oocytes of oviparous fish from the beginning of vitellogenic phase until ovulation.

## SECTION II

05. Giving suitable examples from the aquaculture traits, describe the difference between the following pairs

- i. Incomplete dominance and co-dominance (10 marks)
- ii. Sex-limited traits and sex- influenced factors (10 marks)
- iii. Dominance and Epistasis (05 marks)

06.

- a. List out the modified dihybrid ratios resulted from gene interactions. Provide a suitable example for each modified ratio from aquaculture traits. (05 marks)
- b. What is meant by sex linked traits?
  - i. Briefly explain why X-linked recessive traits are more likely to appear in males than in females? (10 marks)
- c. Write a short account on lethal genes (10marks)

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