

UNIVERSITY OF RUHUNA
BACHELOR OF SCIENCE IN FISHERIES AND MARINE SCIENCES DEGREE
Level II Semester II Examination
Dec. 2015/ Jan. 2016

FAQ 1213 – Fish Histology, Embryology & Genetics

Time: 02 hours

Answer **Four (04)** questions selecting at least **one (01)** from each section

Part I

- 01) Briefly describe the typical histological arrangement of integumentary system in fish. (50 marks)

- 02) “Different regions of the alimentary canal of a fish are histologically different from the common basic plan” Justify this statement. (50 marks)

- 03)
 - (a) Explain the histological structure and adaptations of fish gills. (30 marks)
 - (b) Briefly describe the importance of above structure and its adaptations for a successful aquatic life. (20 marks)

- 04) Write short notes on **any three** of the followings (50 marks)
 - a) Spinal cord
 - b) Nephron
 - c) Skeletal and cardiac muscles of fish
 - d) Gastrula stage of fish egg
 - e) Histological changes within the thyroid gland of fish during ovarian maturation

- 05) Briefly describe the cytological changes that occur within oocytes and histological changes that occur within the ovarian tissue when oocytes at late perinucleolar stage enter the vitellogenic stage and develop until maturation. (50 marks)

Part II

- 06) (i) State the Mendel's law of Independent Assortment. (5 marks)
- (ii) Briefly describe the tool used in genetics for determining unknown genotypes. (10 marks)
- (iii) List out different kinds of gene interactions that produce modified 9:3:3:1 ratio. (05 marks)
- (iv) Briefly describe **any three of the part (iii)** above. (30 marks)
- 07) Write short accounts on the following (50 marks)
- (a) Discuss the applications of genetics in aquaculture and fisheries.
- (b) Inbreeding
- (c) Incomplete dominance and co-dominance

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