



UNIVERSITY OF RUHUNA
FACULTY OF FISHERIES AND MARINE SCIENCES & TECHNOLOGY

Academic Year 2023/2024

Bachelor of Science Honours in Fisheries and Marine Sciences Degree/
Bachelor of Science Honours in Marine and Freshwater Sciences Degree

Level I Semester II Examinations Apr/May 2025

FAQ 1222: Fundamentals of fish genetics

Time: 1 hour and 30 minutes

Answer question 1 and any two (02) other questions only

1. i. Define the following terms.

- a. Homozygous genotype
- b. Heterozygous genotype
- c. Phenotype
- d. Test cross
- e. Locus
- f. Allele

(30 marks)

ii. Giving suitable examples from the fish traits, explain the difference between additive gene action and non additive gene action.

(30 marks)

iii. Write a short account on "Mendel's experiments with garden pea plants."

(40 marks)

2. Write an essay on "Gene interaction and modifies dihybrid ratio."

(100 marks)

3. i. Write a short account on pedigree analysis.

(40 marks)

ii. Using suitable pedigree charts, briefly explain the characteristics of autosomal recessive pedigree and X- linked recessive pedigree.

(60 marks)

4. Write short notes on **any four (04)** of the following.

- i. Lethal genes
- ii. Multiple alleles
- iii. Sex determining systems in fish
- iv. Inheritance of sex-limited trait
- v. Pleiotropy

(100 marks)

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