

Uva Wellassa University of Sri Lanka
Faculty of Animal Science & Export Agriculture



Uva Wellassa
University

Aquatic Resources Technology Degree Programme
Year II Semester I

End Semester Examination – August / September 2014

AQT 214-2 Fish Genetics –Essay - (Section III)

Instructions

Answer all questions in Section III in the booklet provided

- No. of questions : Two (02)
No. of pages : Two (02)
Time : One hour (1hr.)
Total marks allocated : 60%



1.

“Reduced number of rays in dorsal fin” in platy fish is a defective recessive condition controlled by a single recessive gene ‘b’. The Dominant allele ‘B’ is normal. Among the progeny fry of a platy population of 10,000, there were 1024 fish (bb) with defective condition.

- a. Calculate genotype [f (BB), f (Bb) and f (bb)] and gene [f (B) / p and f (b)/q] frequencies with regard to reduced number of rays in dorsal fin defective condition in the present population.

(20 Marks)

- b. In another population, it was estimated that frequency of ‘b’ allele was 0.5 and a breeder wants to reduce it to 0.1.

Calculate the number of generations that the farmer has to select totally against ‘b’ gene to reduce the frequency of ‘b’ from 0.5 to 0.1?

$$n = (1/q_n) - (1/q_0)$$

(10 Marks)

- c. Comment on the efficiency of selection against ‘a recessive gene’.

(20 Marks)

2.

I. Briefly propose methods to improve heritability (h^2) in for body weight in fish breeding.

(20 Marks)

II. Write short notes on,

a) Quantitative characters

(15 Marks)

b) Breeding value

(15 Marks)

[End of section III]