

2009

M.Sc.

2nd Semester Examination

AQUACULTURE MANAGEMENT AND TECHNOLOGY

PAPER—AMT-2003

Full Marks : 40

Time : 2 Hours

The figures in the right-hand margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

Illustrate the answers wherever necessary.

(Fish Breeding and Hatchery Management)

1. Write briefly on any *four* of the following : 2×4
- (a) What do you mean by Selective breeding?
 - (b) Define point mutation.
 - (c) State the merits and demerits of cross breeding.
 - (d) What do you mean by dry and wet methods of stripping?

(Turn Over)

- (e) Mention the merits and demerits of Glass Jar Hatchery.
- (f) "All test crosses are back crosses but all back crosses are not test crosses." — Explain.
- (g) Mention two Synthetic hormones used for fish breeding.
- (h) What do you mean by avarian and actual fecundity ?

2. Write notes on any four of the following : 4×4

- (a) Find out the percentage of heterosis out of the following data :

Group	Average wt. (g)
<i>Labeo rohita</i>	540
<i>Labeo calbasu</i>	520
Male <i>L. rohita</i> X-female <i>L. calbasu</i>	620
Male <i>L. calbasu</i> X-female <i>L. rohita</i>	510

- (b) Discuss sex determination procedure in Indian and Chinese major carps.
- (c) Discuss the use of chemicals and drugs for safe transport of fish seed.
- (d) Explain multiple breeding and its utility.

- (e) Explain the neuro-endocrine regulation of Gonadotropin secretion in Fish.
- (f) Discuss the breeding in dry Bundh in West Bengal.
- (g) Discuss about translocation mutation.
- (h) Discuss stress management practices while handling brood fish.

3. Answer any *two* of the following : 2×8

- (a) (i) Define Selection and Progeny testing.
- (ii) Suppose in a population, frequency of allele 'A' be 'p' and that of 'a' be 'q', now if 's' is the selection coefficient that reduces the fitness of deleterious allele 'a', then find out the gene frequencies after one generation, when 's' is < 1 .
- (iii) Distinguish between mild line breeding and intense line breeding. 2+4+2
- (b) (i) Enlist the different units of Eco-hatchery.
- (ii) Discuss in detail the design of a carp seed Hatchery complex and state the expenditure involved.
- (iii) Add a note on physico-chemical parameters of a carp hatchery. $2\frac{1}{2}+3+2\frac{1}{2}$

- (c) (i) Mention the selection criteria of IMC brood stock.
(ii) Discuss briefly health management of Carp brood stock.
(iii) Add a note on need of genetically improved stock in fish. 2+4+2
- (d) (i) Define hybridization in fish.
(ii) Write down types of hybridization with example.
(iii) Add a note on naturally occurring hybrids of fish. 2+3 $\frac{1}{2}$ +2 $\frac{1}{2}$
-