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PG/IIS/AMT-204/14

M.Sc. 2nd Semester Examination, 2014

**AQUACULTURE MANAGEMENT AND
TECHNOLOGY**

(Aquaculture Biotechnology)

PAPER – AMT - 204

Full Marks : 40

Time : 2 hours

*The figures in the right-hand margin indicate marks
Candidates are required to give their answers in their
own words as far as practicable*

Illustrate the answers wherever necessary

1. Answer any *four* of the following : 2 × 4
- (a) What is monosex fish culture ?
 - (b) Write briefly on bio-fertilization.
 - (c) Describe the use of Extender.
 - (d) Mention the properties of an ideal vector.

(Turn Over)

(2)

- (e) State the functions of DNA ligase.
- (f) Write short notes on fish cell line.
- (g) Briefly write on natural androgenesis.
- (h) What do you understand by recombinant DNA?

2. Answer any *four* of the following : 4 × 4

- (a) What is sex reversal ? Explain with suitable examples.
- (b) Give an account on the different steps of PCR.
- (c) Mention the steroids used in masculinization and the dose required.
- (d) Sterility through genome manipulation— Explain.
- (e) What do you mean by embryonic stem cells ?
- (f) What is transgenic fish ? Explain its importance in aquaculture development.

(3)

(g) Write a note on polyploidy in fish and its utility in aquaculture.

(h) Briefly discuss types of cloning vectors.

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

(a) What is cryopreservation ? Describe the steps of cryopreservation of fish gametes. Mention its significance. $2 + 4 + 2$

(b) What is tissue culture ? What are the precautions to be taken for the preparation of fish cell lines ? Add a note on its application. $2 + 4 + 2$

(c) Define gynogenesis. Give an account of induced gynogenesis in fish. Add a note on its importance. $2 + 4 + 2$

(d) Give an account of the application of biotechnology in fisheries and aquaculture development. 8