M.Sc. 2nd Semester Examination, 2011

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 blunt end ligation ?

(*b*) What is PCR ?

(*c*) State the functions of DNA ligase.

(*d*) Compare endonucleases with exonucleases.

(*e*) What is the 'labile period' in fish development?

(*f*) Mention the advantages of using biofilter wastewater treatment in aquaculture.

(*g*) How would you prepare cell suspension for tissue culture?

(*h*) State the application of biofermentation.

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

(*a*) What are basic requirements for an ideal cloning vector?

(*b*) Why restriction endonucleases are called molecular scissors? Explain.

(*c*) State the different steps adopted for sex manipulation in fishes.

(*d*) Contrast between genomic DNA library and cDNA library.

(*e*) Mention the role of steroid hormone in sex reversal.

(*f*) Highlight the benefits out of culture of transgenic fishes with example.

(*g*) Write brief on reverse transcriptase and polynucleotide-kinase.

(*h*) What is sex reversal? Explain with examples.

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

(*a*) What is gynogenesis? Give an account on the process of gynogenesis. State the advantages of gynogenesis. 2 + 4 + 2

(*b*) Define DNA sequencing. Briefly describe the chain termination method of DNA sequencing. Add a note on recombinant vaccine. 2 + 3 + 3

(*c*) Briefly discuss the application of biotechnology in aquaculture and fisheries management. What are the precautions to be taken in maintaining fish cell line? 5 + 3

(*d*) What is andogenesis? Mention advantages of andogenesis. Add a note on vectors. 2 + 4 + 2
