PG/IIS/AMT-204/13

M.Sc. 2nd Semester Examination, 2013

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* questions of the following : 2 × 4

(*a*) What is cryoprotectant ? Name four of this.

(*b*) Point out the problems associated with cryopreservation of female gamete.

(*c*) Describe natural gynogenesis.

(*d*) How does fish sterility help in aquaculture ?

(*e*) Write short notes on *Taq* polymerase.

(*f*) What are the different types of vaccines ?

(*g*) What is cell line ? How are they developed ?

(*h*) Compare between primary cell and secondary cell.

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

(*a*) Give an account on the current application of biotechnology in aquaculture.

(*b*) What is an extender ? How does it help in milt preservation of teleost ?

(*c*) Differentiate between mitotic gynogen and meiotic gynogen.

(*d*) Write a note on fish vaccination.

(*e*) Write in brief on DNA-fingerprinting.

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

(*g*) Sterility caused through genome manipulation. —Explain.

(*h*) Briefly discuss about the application of biofilter.

3. Answer any *two* : 8 × 2

(*a*) Define transgenesis. What are the different methods currently followed for the production of transgenic fishes ? 2 + 6

(*b*) Write down the principle of PCR. Elaborate different steps of PCR. Add a note on its importance in aquaculture. 2 + 4 + 2

(*c*) What do you mean by sex reversal ? Describe the method followed in the production of all female population by a combination of hormonal and genomic means. 2 + 3 + 3

(*d*) What do you mean by recombinant DNA ? Discuss its application in fish biology. 4 + 4
