

M.Sc.

2016

4th Semester Examination

FISHERIES SCIENCE

PAPER—FSC-403

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.

Unit—I

(Aquaculture Engineering)

1. Answer any *two* questions from the following : 2×2
- (a) What is bio-filter ?
 - (b) Distinguish between feeder canal and drainage canal.
 - (c) State the functions of restriction endo-nuclease.
 - (d) Define vector with example.

(Turn Over)

2. Answer any *two* questions from the following : 2×4

- (a) Briefly explain the *in-vivo* and *in-vitro* cloning.
- (b) Describe the steps followed in the construction of pond dyke in a typical fish-farm.
- (c) Briefly discuss the functions of DNA ligase with proper illustration.
- (d) Pointout the characteristic features of an ideal bio-filter.

3. Answer any *one* questions of the following : 1×8

- (a) What is PCR? Discuss the application of PCR in aquaculture. Write a note on isoschizomers and neoschizomers.

2+3+3

- (b) What is an aerator? How many type of aerators are used in aquaculture? Describe the different criteria to be considered before selection of a site for construction of an aquafarm.

2+2+4

Unit—II**(Aquaculture Biotechnology)**

4. Answer any *two* questions from the following : 2×2

- (a) Describe natural gynogenesis.
- (b) Point out the problems associated with cryopreservation of female gamete.
- (c) How does fish sterility help in achieving aquaculture production ?
- (d) Write a short note on bio-fertilization.

5. Answer any *two* questions from the following : 2×4

- (a) What is transgenic fish? Explain its importance in aquaculture development.
- (b) Differentiate between mitotic gynogen and meiotic gynogen.
- (c) Briefly discuss fish hybridization with suitable examples.
- (d) Write, in brief, about the polyploidy in fish and its utility in aquaculture.

6. Answer any *one* questions of the following : 1×8

(a) (i) What do you mean by Sex reversal ?

(ii) Describe the method followed in the production of all female population by a combination of hormonal and genomic means. 2+6

(b) (i) What is extender ?

(ii) Describe the steps of cryopreservation of Male gametes of fish.

(iii) Add a note on its Significance. 2+4+2