

Roll No.

Total Pages : 03

CMDQ/M-20

5640

FISH FISHERIES AND AQUACULTURE-II
Z-407 (Elective)

Time : Three Hours]

[Maximum Marks : 80

Note : Attempt *Five* questions in all. Q. No. **1** is compulsory.
Select *two* questions each from Part A and Part B. Draw
diagrams wherever necessary.

1. Compulsory Question :

2×4=8

(a) Give differences between the following :

- (i) Pisciculture and Aquaculture
- (ii) Finfish and Shellfish
- (iii) Intensive and extensive aquaculture
- (iv) *Ex situ* and *In situ* conservation.

(b) Define the following :

1×4=4

- (i) Genetic engineering
- (ii) Transgene
- (iii) Gene bank
- (iv) Gonochoristic

(c) Write notes on the following :

2×2=4

- (i) Antinutritional factors
- (ii) Supplementary diets.

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Part A

2. (a) Describe the phenomenon of sex reversal in fishes and write its role in enhancing aquaculture production.
- (b) Why mostly male sex is preferred for aquaculture and how are they obtained ? **10+6=16**
3. Describe the following in detail and write their importance in aquaculture : **8+8=16**
- (a) Androgenesis
- (b) Gynogenesis.
4. (a) What is transgenesis ? Explain in detail how transgenic organisms are produced through microinjection ?
- (b) Explain briefly, how transgenic organisms are useful ? Give some examples of transgenic animals. **10+6=16**
5. (a) What are Polyploid organisms and how polyploidy can be induced in fishes ?
- (b) How different types of polyploids are formed ?
- (c) Explain with suitable examples the commercial benefits of polyploidy. **8+4+4=16**

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Part B

6. (a) Define and explain how the values for the following are obtained :
- (i) Growth per cent gain in body weight
 - (ii) Growth per day in percentage body weight
 - (iii) Specific growth rate
 - (iv) Food conversion ratio.
- (b) Explain the principle and importance of polyculture in aquaculture. **8+8=16**
7. (a) Explain briefly integrated farming of fish and livestock.
- (b) Write in brief the criteria for selection of a finfish species for aquaculture. **10+6=16**
8. (a) Give a brief account and discuss the role of cage culture system in aquaculture and its related environmental conditions.
- (b) Explain advantages and disadvantages of Aquaculture.
- (c) Add a note on fishing nets. **8+4+4=16**
9. Describe the methodology of farming of the following. Write the zoological names of *two* important cultivable/edible species of each : **8×2=16**
- (a) Mussel farming
 - (b) Culture methods of pearl oyster.