

M.Sc. Examination, 2019
Semester-IV
Zoology
Paper – MZOT-402(iv)
(Fisheries and Aquaculture)

Time: 4Hours

Full Marks: 80

Questions are of value as indicated in the margin.

Answer **any eight** questions taking at least **four** from each group.

Group-A

1. Write down the ecological principles of composite fish farming. Provide a suitable composition of fish species for carrying out an ideal competitive culture. What is the rationale for selection of those species in the composition you prepared? Highlight the merits and demerits of this farming process. Add a note on prestocking management of rearing pond. 2+2+2+2=10
2. Compare and contrast semi intensive and intensive fish farming. State the reasons for integration of other animal farming system with fish culture. Describe the method for duck cum fish culture. 3+2+5=10
3. Give a schematic representation for the endocrine cascade related to maturation of fish. How can this cascade be manipulated at different levels for induced spawning of fish? Briefly describe the method of hypophysation. 3+3+4=10
4. Write an account of semi-intensive shrimp farming giving emphasis on criteria of site selection, farm construction, pond preparation, stocking management, post-stocking water quality monitoring and feeding management. 1+3+2+2+2=10
5. Outline the growth of marine fisheries in India. What is the present status and fisheries potentiality of Indian EEZ? Elaborate the strategies to enhance the fisheries production from marine capture fisheries resources of India. 3+3+4=10
6. Write notes on **any two** questions: 5×2=10
 - (a) Pokkali fish culture.
 - (b) Carp hatchery systems.
 - (c) Fishery potentiality of Hooghly-Matlah estuary.
 - (d) Comparison between semi intensive and intensive farming.

Group-B

7. Critically discuss that gonadal maturation of fish is advantageous as well as disadvantageous for fish production. How would triploidy be induced in fish? Briefly describe the procedures for production of all female fish stock. 2+4+4=10

P.T.O.

(2)

8. How is an infection manifested as a disease in fish? Write down the causes, consequences and remedies of dropsy and gill rot disease. Give a schematic representation of the lifecycle of *Diplostomum pigmentata* and *Ligula intestinalis*.

2+3+5=10

9. What are the reasons for fish spoilage? Which different measures should you suggest for fish preservation? Write brief notes on fish meal and ising glass.

3+4+3=10

10. State the dietary requirement of different macronutrients for carp. What are the criterion to be considered during preparation of a formulated fish diet? Formulate the combination of a mixed diet to obtain 30% protein and 5% lipid in the diet from the following ingredients keeping fishmeal 10% in the diet.

Ingredients	Protein (%)	Lipid (%)
Fishmeal	55%	6%
Mustard Oil Cake	35%	12%
Soybean	40%	4%
Rice bran	15%	3%

How do you assess the feed quality?

1+2+5+2=10

11. What is aquatic weed? Classify weeds according to their habitats. Write the disadvantages of aquatic weeds in respect to pisciculture. Elaborate different weed control methods and comment on merits and demerits of the methods.

1+2+2+5=10

12. Write notes on **any two**:

5×2=10

- (a) Pearl nucleus implantation
 - (b) Transgene constructs preparation
 - (c) Microinjection and Lipofection methods of transgene delivery in fish oocyte.
 - (d) Epizootic ulcerative syndrome.
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