

M.Sc. 2nd Semester Examination, 2010

**AQUACULTURE MANAGEMENT &
TECHNOLOGY**

(Fish Nutrition, Informatics & Ornamental Fish)

PAPER—AMT-1202

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 questions : 2×4

(a) State the function of 'binder'. Give example of two binders commonly used for fish feed preparation.

(b) Mention different factors influencing storage of formulated feed.

- (c) What do you mean by “Nitrogen Free Extract (NFE)” and “Non-protein Nitrogen (NPN)” ?
- (d) Define true NPU (%).
- (e) Write down the composition of Halver’s synthetic diet.
- (f) What do you mean by colouration of fish feed ?
- (g) Explain ‘Digestible energy’ and ‘Metabolisable energy’.
- (h) Mention the steps for fish feed formulation.

2. Write on *four* of the following : 4 × 4

- (a) Discuss on the use of feed attractants with special reference to India.
- (b) Write down the method of estimation of Moisture and Crude lipid present in fish feed ingredients.

- (c) Enlist the non-conventional fish feed ingredients used for feed preparation.
- (d) Classify different types of feed used in aquaculture industry.
- (e) Discuss the process of algal culture in the laboratory condition.
- (f) Explain the role of SHG's for ornamental fish production in West Bengal.
- (g) Describe the different ornamental objects used for home aquaria.
- (h) Enumerate the use of micronutrients used for fish feed formulation.

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

- (a) (i) Calculate to compare the cost of supplying a particular ingredient by using 'least cost/best buy technology', when soy bean, meal (54% protein) cost is Rs. 18.00 kg⁻¹ and groundnut meal (44% protein) cost is Rs. 22.00 kg⁻¹.

- (ii) Enlist the antinutritional factors present in different non-conventional plant ingredients used for fish feed formulation.
- (iii) Calculate the Growth, FCR & PER and comment on your results when

Number of fish = 20

Average initial weight = 11g

Duration of experimental trial = 45 days

Feed given to fish = @ 4% bwd⁻¹

Protein percentage in the formulated
feed = 38%

Total final weight of fish = 560 g.

$$2\frac{1}{2} + 1\frac{1}{2} + 4$$

(b) (i) What is live feed ?

(ii) "Live feed alone is not sufficient for semiintensive aquaculture practices." Explain.

(iii) Discuss the culture of brine shrimp in the laboratory.

$$1\frac{1}{2} + 2\frac{1}{2} + 4$$

(c) (i) Define probiotics.

(ii) Write down four different types of feed probiotic species used in aquaculture.

(iii) Add a note on the future of probiotics in aquafarming.

(iv) Mention the name of four feed probiotics commercially used for shrimp farming.

$$1\frac{1}{2} + 2 + 2\frac{1}{2} + 2$$

(d) (i) Make a list of different components used for home aquarium construction.

(ii) Define 'live bearer' and 'egg layer' ornamental fishes.

(iii) Discuss on the breeding and culture of Guppy.

$$2\frac{1}{2} + 2 + 3\frac{1}{2}$$