

**M.Sc. 2nd Semester Examination, 2013**

**AQUACULTURE MANAGEMENT AND  
TECHNOLOGY**

*( Fish Nutrition, Informatics and ornamental fish )*

PAPER—AMT - 202

*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 : 2 × 4
- (a) Define prebiotics and probiotics.
  - (b) What do you mean by ornament objects used in home aquarium ? Enlist them.
  - (c) Mention the favourable water condition for hatching of *Artemia* cysts.

*( Turn Over )*

- (d) What do you mean by feed additives ?
  - (e) Enlist Scientific name and common name of two marine ornamental fishes.
  - (f) Mention the criteria for a suitable artificial fish feed.
  - (g) Enlist the different types of fish feed.
  - (h) Mention the preferred live feed of *catla catla* and *ctenopharyngodon idella*.
2. Answer any *four* of the following : 4 × 4
- (a) Design an ornamental fish farm guided by the MPEDA.
  - (b) Discuss about the aquarium management through aquascaping.
  - (c) Describe the non-conventional fish feed resources.
  - (d) Give an idea of ornamental fish marketing with special emphasis on kolkata market.

- (e) Discuss about the life cycle of *Artemia* sp.
- (f) Enumerate the process of fish feed storage.
- (g) Discuss the process of crude protein estimation through Kjeldahl method.
- (h) Importance of *Tubifex* for feeding of ornamental fishes.

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

- (a) (i) Define NPU.
  - (ii) What do you mean by Gross energy and Digestible energy ?
  - (iii) Describe the Laboratory procedure for crude fibre estimation from feed ingredients.  $1\frac{1}{2} + 3 + 3\frac{1}{2}$
- (b) (i) How would you calculate FCR and PER ?
  - (ii) Discuss about the feeding management of the *Penacus monodon* farming pond.

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(iii) Add a note on antinutritional factors in fish feeds.  $2 + 4 + 2$

(c) (i) Mention the scientific name of four indigenous ornamental fishes.

(ii) What do you mean by Oviparous and viviparous ornamental fishes? Cite examples of each.

(iii) Briefly explain the hybridization of ornamental fishes.  $2 + 3 + 3$

(d) (i) Discuss about the role of live feed for larval development of fin fishes.

(ii) Enumerate the laboratory culture process of *Spirulina* sp.

(iii) Add a note on the use of *Spirulina*.

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