

2008

**AQUACULTURE MAN. & TECH.**

PAPER—AMT-2002

*Full Marks : 40*

*Time : 2 hours*

Answer Q.No.1 and any three from the rest

*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 whenever necessary*

1. Answer any *five* of the following : 2 x 5

(a) What do you mean by “Nitrogen free extract (NFE)” and “Non-protein Nitrogen (NPN)” ?

(b) Explain “Digestible energy (DE)” and “Metabolisable energy (ME)” ?

(c) Mention the feeding behaviour and natural food for Indian major carps (*Catla catla*, *Labeo rohita* and *Cirrhimes mrigals*).

(d) “Feed efficiency” and “Nutrient balance” ?

(Turn Over)

- (e) Mention the composition of "Halver's Synthetic diet (H 440)".
- (f) What are the characteristics features of a good feed pellet?
- (g) How would you calculate the growth of a fish?
- (h) Mention the scientific name of four ornamental plants used in aquarium.
- (i) Enlist the ornamental objects used in home aquarium.
- (j) What do you mean by feed additives?
2. (a) Calculate to compare the cost of supplying a particular ingredient using 'least cost' technology, when cotton seed meal (54% protein) costs INR 50.00 kg<sup>-1</sup> and groundnut meal (44% protein) costs INR 36.00 kg<sup>-1</sup>.
- (b) Enlist the anti-nutritional factors, their effect and probable preventive measures of the following fish feed stuffs:
- (i) Soybean meal
- (ii) Cotton seed cake/meal.

- (c) Calculate the Growth, FCR and PER and comment on your results when—

Number of fish = 15

Average initial weight of each fish = 10g

Duration of experimental trial = 60 days

Feed given to the fish = @ 6% bwd<sup>-1</sup>

Protein percentage in the formulated feed = 30%

Total Final weight of fishes = 450g.      3 + 3 + 4

3. (a) How would you prepare a home aquarium ?
- (b) Enlist common name and scientific name of 2 live bearer and 2 egg layer ornamental fishes cultured in West Bengal.
- (c) Discuss on the breeding and culture method of Goldfish.      3 + 2 + 5
4. (a) What do you mean by probiotic feed ?
- (b) Enlist different probiotic feed used in West Bengal.
- (c) Add a note on role of probiotics in aquafarming.      2 + 3 + 5
5. (a) Mention the composition of Bristol's Solution used in phytoplankton culture.

(b) Describe the mass culture technology of *Daphnia* sp.

(c) Add a note on *Tubifex* culture. 2 + 5 + 3

6. Write short notes on any *two* of the following : 5 × 2

(i) Feed attractants and their role in Aquaculture

(ii) Problems and prospects of ornamental fish marketing in West Bengal

(iii) Non-conventional fish feed resources and their availability in West Bengal

(iv) Write about the effect of processing on nutritional quality of fish.