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UG/II/AQM/H/III/17(New)

2017

AQUACULTURE MANAGEMENT

[Honours]

PAPER – III

Full Marks : 90

Time : 4 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

[NEW SYLLABUS]

1. Answer any *ten* questions from the following :

- (a) What do you mean by disease triangle
concept? 2 × 10

(Turn Over)

- (b) Differentiate virus from bacteria.
- (c) Define rancidity. What are the causes of rancidity ?
- (d) How would you calculate specific Growth Rate of fish ?
- (e) Mention the causative agent of white spot disease of shrimp.
- (f) State the functions of helper-T cell.
- (g) What is macrophages ? Mention its function.
- (h) Mention important properties of a ideal fish feed.
- (i) What do you mean by epidemiology ?
- (j) Calculate how many ATP are gain from 1 mole of glucose oxidation during Glycolysis.
- (k) Mention the name of two zooplankton and two phytoplankton available in freshwater pond of west Bengal.

- (l) State the role of vitamin 'B' complex in fish growth.
- (m) Cite names of 4 commercial feed probiotics used in West Bengal.
- (n) Mention two name of nitrogen fixing bacteria.
- (o) Write down the Michaelis-Menten equation.

GROUP – A

2. Answer any *two* questions from the following :

- (a) (i) State about chief components observed in feed ingredients. 10 × 2
- (ii) Discuss about different method of fish vaccination.
- (iii) Add a note on pigments present in feed ingredients. $3\frac{1}{2} + 4 + 2\frac{1}{2}$
- (b) (i) Define live food and supplementary feed.
- (ii) Enlist different fish feed ingredients used in fish feed formulation.

(iii) Add a note on feed attractants. 4 + 4 + 2

(c) (i) Give an idea about different parasite observed in IMC.

(ii) Discuss life cycle of any ectoparasite found in fish.

(iii) Add a note on parasitic disease management. 3 + 4 + 3

(d) (i) What do you mean by feed additives ?

(ii) Enlist different feed additives used in fish feed preparation.

(iii) Add a note on feed storage. 2 + 5 + 3

3. Answer any *one* from the following questions : 15 × 1

(a) (i) Discuss about the energy partitioning of feed energy in fish.

(ii) Enumerate the 'Pearson's Square Method' for fish feed formulation with example.

(iii) Explain 'FCR' and 'PER' are inversely proportional to each other. 6 + 6 + 3

(b) (i) State about non-infectious disease of fish.

(ii) Discuss about the different fungal disease of IMC in respect to causative agent, pathological sign and treatment.

(iii) Narrate the different bacterial disease of shrimp and mention their treatment method. 3 + 6 + 6

GROUP — B

4. Answer any *two* questions from the following :

10 × 2

(a) (i) State about chemical classification of carbohydrates with proper example.

(ii) Mention the structure and properties of glycogen and starch.

(iii) Add a note on enzyme involved in glycolytic pathway. 3 + 4 + 3

(b) (i) What do you mean by autotrophic bacteria and heterotrophic bacteria ?

- (ii) Discuss about Gram staining method of bacteria.
- (iii) State about synthetic and non-synthetic media used in bacteria culture. 3 + 4 + 3
- (c) (i) Define antigen and antibody.
- (ii) What do you mean by humoral immunity?
- (iii) Add a note on defence mechanism of a fish against disease infestation. 3 + 3 + 4
- (d) (i) Give the name of pathogenic organisms of each group related to fish.
- two protozoa
 - two algae
 - two bacteria.
- (ii) State about the ultra structure of a bacteria.
- (iii) Add a note on oxidative phosphorylation. 3 + 4 + 3

5. Answer any *one* questions from the following :

15 × 1

(a) (i) Enlist the different requirements in microbiology laboratory.

(ii) Discuss about the culture of bacteria by streak plate method.

(iii) Explain the different factors on bacterial growth.

(iv) Add a note on role of microbes in food chain.

$3 + 4 \frac{1}{2} + 4 \frac{1}{2} + 3$

(b) (i) Define co-enzyme with example.

(ii) State about essential amino acids.

(iii) Classify lipids.

(iv) Define autoxidant and antioxidant.

(v) Give details of how β -oxidation process takes place in lipid molecules.

$2 + 2 + 3 + 3 + 5$