2019

Part – II

AQUACULTURE MANAGEMENT

(Honours)

Paper – III

Full Marks – 90

Time : 4 Hours

The Questions are of equal value for any group / half.
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.

GROUP – A

1. Answer any **ten** questions from the following : 2×10=20

a) Give an idea about disease triangle concept.

b) What do you mean by Digestible a Metabolizable energy ?

c) Classify bacteria on the basis of their oxygen requirement.

d) Differentiate virus from bacteria on the basis of genetic material.

e) State the role of temperature on pH.

f) What is biogeochemical cycle?

g) How many ATP are formed from 1 molecule of glucose in glycolysis?

h) Define antigen and antibody.

i) How would you calculate fish growth?

j) What do you mean by denitrification?

k) State the importance of prophylactic measures in fish disease control.

l) What is mancidity?

m) State about food pigments. Mention its importance.

n) Name two protozoan disease of IMC with their causative agent.

o) State the role of macrophages.

Group – A

2. Answer **two** questions from the following : 10×2=20

a) i) Define gastric and agastric fish with example.

ii) Discuss the process of digestion and assimilation of nutrients in fish.

ii) Add a note on antioxident used in fish feed. 2+5+3

b) i) Discuss the nutritional deficiency diseases of any fish.

ii) State about different feed additive used in aquafeed.

iii) Enlist protein digestion enzyme in fish. 5+3+2

c) i) Enlish different fungal diseases observed in shrimp culture.

ii) How to control fungal diseases in fish?

iii) State the life cycle of Augulus. 4+3+3

d) i) State the specific defence mechanising in finfish.

ii) Classify different types of fish vaccine.

iii) Add a note on the process of application of fish vaccine. 4+3+3

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

a) (i) How to understand that the fish is sick?

(ii) Discuss different types of stressors.

(iii) Write down the different factors responsible for outgrowth of fish disease.

(iv) State two bacterial direares of IMC with their causetive agent, sympotoms and probable treatment. 3+3+3+6

b) (i) What do you mean by microencapsulated feed?

(ii) Discuss the role of probiotics in fish nutrition.

(iii) State the role of vitamin in fish nutrition.

(iv) Add a note on role of pyloric caeca.

3+6+4+2

Group – B

4. Answer *Two* questions from the following :

10×2 = 20

a) (i) Classify carbohydrate in different ways with proper example.

(ii) State about structural properties of glycogen and pectin.

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

b) (i) Discuss the Handerson-Hasselbelch equation in enzyme kinetics.

(ii) State about β-oxidation process.

(iii) Add a note on non-protein nitrogen.

5+3+2

c) (i) Define autrophic and hetertrophic bacteria with example.

(ii) Give an idea about different culture media of bacteria.

(iii) Give example of Gram+ve and Gram–ve bacteria. 3+5+2

d) (i) State the biological characters of fungi.

(ii) State the structure of any bacteria.

(iii) Discuss different factors responsible for bacterial growth in nature. 2+4+4

5. Answer any ***one*** question from the following : 15×1=15

a) (i) State the role of microbes in nitrogen fixation.

(ii) Discuss about the different growth phase of bacteria.

(iii) Write down the plate count method of bacterial culture.

(iv) Add a note on importance of microbes in food industry. 3+4+5+3

b) (i) Discuss about cell mediated immunity in fish.

(ii) State the process of antigen-antibody interaction.

(iii) Why shrimp are more susceptable to different diseases? 6+5+4