

**2010**

**M.Sc.**

**3rd Semester Examination**

**AQUACULTURE MANAGEMENT & TECHNOLOGY**

**PAPER—AMT-3004**

*Full Marks : 40*

*Time : 2 Hours*

*The figures in the right-hand margin indicate full marks.*

*Candidates are required to give their answers in their own words as far as practicable.*

*Illustrate the answers wherever necessary.*

**(Immunology, Vaccination and  
Diagnostic equipments)**

1. Write in brief four of the following : 2×4
- a) What do you mean by immunogen? What are the criteria of immunogenic compound?
  - b) Mention four commercially available immunostimulants used in shrimp farming in West Bengal.

- c) Distinguish between Phase Contrast Microscope and Electron Microscope.
- d) Define Sanitizer. Mention the name of two sanitizers commonly used in fish pond of West Bengal.
- e) What is N. K. Cell? Mention its function.
- f) Define phagocytosis & pinocytosis.
- g) How would you calculate  $R_f$  value?
- h) Explain adjuvants with example.

2. Answer any *four* of the following :

4×4

- a) Define epitope. Distinguish between sequential and conformational epitope.
- b) Discuss fish disease and human health.
- c) Describe protective barrier of fish against infection.
- d) Discuss briefly the structure of an immunoglobulin molecule.
- e) Discuss Sandwich ELISA with application.
- f) Explain fish health certification.
- g) Discuss the use of antibiotics in aquaculture farm — rules and regulations.

h) State the general principles of fish vaccination.

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

- a) i) What do you mean by traditional and commercial aquaculture medicine ?
- ii) Define probiotics. Name some probiotics used in shrimp culture pond in India.
- iii) Discuss the role and working mode of probiotics in aquaculture. 2+3+3
- b) i) Discuss the principle and application of PCR in aquaculture.
- ii) Explain in detail the principle and procedure of SDS-PAGE. 4+4
- c) (i) Mention the name and dosage of two zeolites and two dolomites which are commercially used in aquafarming in India.
- ii) Discuss oxygenerator components used in shrimp farming.
- iii) Add a note on use of aquaculture medicine and aquatic pollution. 2+3+3

- d) (i) What do you mean by Haematopoiesis ?
- ii) Make a schematic chart of haematopoiesis process.
- iii) "Haematopoietic stem cells are designated as multipotent cells" — Explain.
- iv) Add a note on Antigen-antibody interaction through crosslinking.

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

---