PG/IIIS/AMT - 304/14

M.Sc. 3rd Semester Examination, 2014

AQUACULTURE MANAGEMENT AND TECHNOLOGY

(Immunology, Vaccination and Diagnostic Equipment)

PAPER – AMT - 304

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. Write in brief on *four* of the following : 2 × 4

   (*a*) Define toxoid and hapten.

   (*b*) Define RCF and RPM.

(*c*) Mention the importance of fish health certification.

(*d*) Mention use of Acrylamide, Bis-acrylamide in SDS-PAGE.

(*e*) Mention four common therapeutic chemicals used in aquaculture field.

(*f*) Mention the disadvantages of killed vaccine.

(*g*) Define probiotics. Mention two commercially available probiotics used in aquaculture

(*h*) Define epitope and adjuvent.

2. Answer any *four* of the following : 4 × 4

(*a*) Discuss the resolving power of a microscope.

(*b*) Briefly explain the different types of aquaculture chemicals used in West Bengal.

(*c*) Briefly differentiate between SEM and TEM.

(*d*) Discuss in detail paper chromatography.

(*e*) Briefly explain 'hematopoietic stem cell produce different types of cells'.

(*f*) Enumerate the cell-mediated defence mechanism in bony fishes.

(*g*) Discuss briefly on the impact and fate of antibiotics used in shrimp farming pond.

(*h*) Discuss in brief on fish disease in relation to human health.

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

(*a*) (*i*) Define immunostimulant.

(*ii*) Mention different natural sources of immunostimulant.

(*iii*) Mention the names of two commercially available immunostimulants that are used in aquaculture with their brand name, dosage and mode of action. $1\frac{1}{2} + 2\frac{1}{2} + 4$

(*b*) (*i*) Compare the immune systems among cyclostomes, Elasmobranchs and Teleosts.

(*ii*) Discuss cellular immune response in shrimp.

(*iii*) Add a note on organs involved in fish immunity. $1\frac{1}{2} + 4 + 2\frac{1}{2}$

(*c*) (*i*) Write general principles of fish vaccination.

(*ii*) Discuss briefly different types of vaccine used in fish.

(*iii*) Mention advantages and disadvantages of attenuated vaccines. 2 + 4 + 2

(*d*) (*i*) What is the principle of centrifugation ?

(*ii*) Write down the principle of Isoelectric focusing and its application.

(*iii*) Add a note on the uses of Fluorescent microscope. 2 + 4 + 2
