

**Chittagong Veterinary and Animal Sciences University, Chittagong**  
**Faculty of Fisheries**

B. Sc. Fisheries (Hons.) Year -03 Semester-01, Final Examination' 2018  
**Course No: FPI-301 (T), Course Title: Fish Pathology and Immunology(Theory)**  
Total Marks: 70, Time: 3 hours

*Answer any 5 (five) questions from each section. Figures in the right margin indicate full mark. Use separate answer scri for each section.*

**Section-A**

- |  |         |
|--|---------|
| 1. a) Classify pathology.  | 2       |
| b) Describe the mechanism of cell death.                                       | 5       |
| 2. a) What do you know about degrees of infection?                             | 3       |
| b) Discuss SVC with its etiology, clinical signs, pathology and treatment.     | 4       |
| 3. a) What do you mean by antibiotic resistance and withdrawal period?         | 2       |
| b) Distinguish between chemical and drug.                                      | 2       |
| c) Explain two important nutritional diseases of fish.                         | 3       |
| 4. a) Give a comparison between innate immunity and acquired immunity.         | 3       |
| b) Illustrate the steps of phagocytosis process.                               | 4       |
| 5. a) Differentiate between antibiotic and probiotic.                          | 2       |
| b) What are the criteria for selection of a drug?                              | 2       |
| c) Name three antibacterial and three antiparasitic drugs used in aquaculture. | 3       |
| 6. a) Define active and passive immunization.                                  | 2       |
| b) What are the characteristics of an ideal fish vaccine?                      | 2       |
| c) Name some pathogens against commercial fish vaccines.                       | 3       |
| 7. Write short note on any two of the followings: - -                          | 3.5×2=7 |
| a) Aquatic pharmacology; b) Lymphoid organ; and c) Columnaris disease.         |         |

**Section B**

- |  |         |
|--|---------|
| 8. a) Distinguish between T and B lymphocytes.                             | 2       |
| b) What do you mean by complement and serology?                            | 2       |
| c) Describe the agglutination test.  | 3       |
| 9. a) Draw and label the different parts of a typical bacterial cell.      | 2       |
| b) Describe MAS with its etiology, clinical signs and pathology.           | 5       |
| 10. a) What do you mean by granuloma and septicemia?                       | 2       |
| b) Write down the renal pathology of fish.                                 | 5       |
| 11. a) What is haptan?   | 1       |
| b) Briefly describe two rapid immunodiagnostic techniques in aquaculture.  | 6       |
| 12. a) What is immunology?   | 1       |
| b) Write down the applications of immunology.                              | 2       |
| c) Elaborate the specific features of acquired immunity.                   | 4       |
| 13. a) Define antibody, antigen, epitope and antiserum.                    | 4       |
| b) What are the prerequisites of an immunogen?                             | 3       |
| 14. Write short notes on any two of the followings:                        | 3.5×2=7 |
| a) Antibiotic resistance; b) Dose and dosage; c) Immunoglobulin formation. |         |

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B. Sc. Fisheries (Hons.), Year -03, Semester-01, Final Examination' 2018

Course No: **FPR-301 (T)**, Course Title: **Fish Processing (Theory)**

Total Marks: 70, Time: 3 hours

Answer any 5 (five) questions from each section. Figures in the right margin indicate full mark. Use separate answer script for each section.

**Section-A**

1. a) Differentiate between fish processing and preservation. 2  
b) Write down prospects and constraints of establishing Fish Processing industry in Bangladesh. 3  
c) 'Prime quality raw materials ensure the best quality final products'-justify the statement in processing aspects. 2
2. a) Give a brief overview on fish processing techniques practiced in the world. 4  
b) Draw a schematic diagram on *Hilsa* fish marketing channel. 3
3. a) What is shelf life? How will you increase shelf life of newly caught *Tuna* fish? 3  
b) How does rigor mortis occur in fish? 'Quality of fish during in-rigor considered as excellent'-explain. 2+2
4. a) Write down the impacts of thaw-rigor, drip-loss and gapping in fish preservation and processing. 3  
c) How does chilling prevent fish spoilage? Suppose you have 1 (one) quintal of *Hilsa* fish with 24°C ambient temperature and you need to reduce its temperature at -30°C. Calculate the total energy required to do the job. 2+2
5. a) Write down basic differences between of chilling and freezing. Explain fish freezing curve. 4  
b) Write the factors affecting freezing time of fish. Why quick freezing is preferred to slow freezing? 3
6. a) Name the types of commercial freezers used for fish freezing. What is the fundamental difference between air-blast and contact plate freezer? 2+2  
b) Give a detail operational process on contact plate freezing. 3
7. Write short notes on any two of the followings: 3.5×2  
a) Post-mortem changes      b) Thawing; and      c) IQF

**Section B**

8. a) Write down principles of drying. What do you mean by drying and dehydration? 3  
b) Write the factors influencing drying rate of fish. Give a brief overview on 'Bombay duck' drying in Bangladesh. 4
9. a) Differentiate salt curing and smoking of fish. What are the advantages of salting over many other methods of fish processing? 4  
b) Write down spoilage occurs in salt and smoke cured fish products. 3
10. a) 'Canning is the best processing method among all other methods' -justify the statement. Write down principles of canning. 3  
b) Give a brief outline on canning operation of tuna fish. 4
11. a) Give the features of an ideal container used in fish canning. Write the functions of packaging. 3  
b) Describe briefly the common problems associated with canned fishery products. 4
12. a) What is modified atmosphere packaging (MAP)? Write down gas ratio for MAP packaging of lean fish and shrimp. 4  
c) Explain the terms: (i) Pink spoilage, (ii) Dun Spoilage, and (iii) Salt burn. 3
13. a) Describe the method of preparation dry salted *Hilsa* in Bangladesh. 3  
b) Write down the ripening mechanism of salted fish. Differentiate between dry salted and salted dehydrated fish. 4
14. Write short notes on any two of the followings: 3.5×2  
a) Irradiation      b) *I2D* concept; and      c) Fermentation.

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B. Sc. Fisheries (Hons.) Year -03 Semester-01, Final Examination' 2018

Course No: **301 (T)**, Course Title: **Rural Sociology (Theory)**

Total Marks: 70, Time: 3 hours

*Answer any 5 (five) questions from each section. Figures in the right margin indicate full mark. Use separate answer script for each section.*

**Section-A**

- |    |  |   |
|----|--|---|
| 1. | a) Define rural Sociology.   | 1 |
|    | b) Write down the advantage of Sociology.  | 3 |
|    | c) Discuss the role of rural sociologist to fishermen community development.     | 3 |
| 2. | a) Define personality.   | 1 |
|    | b) Illustrate the psychological behaviour.                                       | 3 |
|    | c) Narrate the factors of human development.                                     | 3 |
| 3. | a) What is culture?  | 1 |
|    | b) Write down the characteristics of culture.                                    | 3 |
|    | c) What is cultural lag? Explain it.   | 3 |
| 4. | a) What is social change?  | 3 |
|    | b) Write the main indicators of social change.                                   | 4 |
| 5. | a) Write the difference between livelihood and sustainable livelihood.           | 2 |
|    | b) What are the objectives of sustainable livelihood?                            | 2 |
|    | c) Explain the core principles of livelihood.                                    | 3 |
| 6. | a) What is rural and urban society?  | 3 |
|    | b) Discuss the social and economic difference between rural and urban societies. | 4 |

**Section B**

- |     |   |   |
|-----|---|---|
| 7.  | a) Define research methodology.   | 1 |
|     | b) What are the objectives of social survey?  | 3 |
|     | c) What are the various types of survey? Name the different kinds of research methodology? Which social research methodologies are important for fisheries? | 3 |
| 8.  | a) What do you mean by migration? What are the categories of migration?   | 3 |
|     | b) Explain the causes of migration?   | 4 |
| 9.  | a) Define social control.   | 1 |
|     | b) What are the agencies that control the society?  | 3 |
|     | c) Write down the formal and informal agencies of social control in democratic society.   | 3 |
| 10. | a) What is social structure?  | 1 |
|     | b) List the elements of social structure.   | 3 |
|     | c) Discuss the types of social stratification.  | 3 |
| 11. | a) Define social problem.   | 1 |
|     | b) Discuss different kinds of social problems.  | 2 |
|     | c) Briefly discuss any two of the social problems in Bangladesh with their possible solutions.  | 4 |
| 12. | a) What do you understand the inter-relationship among poverty, fisheries and food security?  | 3 |
|     | b) Write the history of fisheries development of Bangladesh.  | 4 |

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**Chittagong Veterinary and Animal Sciences University, Chittagong**  
**Faculty of Fisheries**  
B. Sc. Fisheries (Hons.) Year -03 Semester-01, Final Examination' 2018  
Course No: CCF-301 (T), Course Title: **Climate Change and Fisheries (Theory)**  
Total Marks: 70, Time: 3 hours

Answer any **5 (five)** questions from each section. Figures in the right margin indicate full mark. Use separate answer script for each section.

**Section-A**

1. a) What do mean by 'Climate change'? 1  
b) What are the basic factors responsible for climate change? 2  
c) Describe the aquatic ecosystem impacts of climate change. 4
2. a) What are the causes of greenhouse effect in Bangladesh? 3  
b) How Bangladesh is preparing to face the challenges of global warming? 4
3. a) What are the physical effects of climate change and sea level rise on the coastal areas of Bangladesh? 5  
b) Name the agents of climate change and sea level rise for Bangladesh. 2
4. a) What does the term 'ocean acidification' mean? 2  
b) What are the effects of ocean acidification on fisheries? 2  
c) Describe the potential impacts of temperature on inland waters. 3
5. a) 'New challenges are emerging from current context of climate change on fisheries governance' – explain. 2  
b) Differentiate between artisanal fisheries and large scale fisheries. 2  
c) How large scale fisheries become vulnerable due to the exposure of negative climate? 3
6. a) What is phenology? 2  
b) Describe the potential impacts of climate change on species invasion and disease. 5
7. a) What is global negotiation? 2  
b) Point out the main challenges and opportunities in international negotiation on climate change. 5

**Section B**

8. a) 'Supply of different feed ingredients for preparing fish feed are decreased by climate change' – explain. 3  
b) What type of adaptation measures are needed for aquaculture due to negative climate? 4
9. a) What do you know about climate diplomacy? 2  
b) What does ODS stand for? 1  
c) Briefly describe 'Montreal Protocol'. 4
10. a) How ocean salinity, density and stratification are interlinked? 4  
b) Do you think global warming brings changes on climate pattern? If so why? 3
11. a) Discuss about 'Fish recruitment and climate change'. 2  
b) Mention the hypothesis related to fish recruitment process. Briefly describe the Optimal Environmental Window Hypothesis. 5
12. a) What is 'social-ecological' resilience? 2  
b) Describe vulnerabilities of Saint Martin's island in the light of climate change. 5
13. a) Are there any positive impacts of climate change on global fisheries production? 3  
b) Describe the role of institution in adaptation process due to vulnerability to climate change. 4
14. Write short notes (any two): 3.5x2=7  
a) Coral bleach b) Costal upwelling c) IPCC d) Food web

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B. Sc. Fisheries (Hons.) Year -03 Semester-01, Final Examination' 2018

Course No: **SFB-301 (T)**, Course Title: **Shellfish Biology(Theory)**

Total Marks: 70, Time: 3 hours

*Answer any 5 (five) questions from each section. Figures in the right margin indicate full mark. Use separate answer scribble for each section.*

**Section-A**

1. a) What do you mean by shellfish and shellfish biology? 2  
b) How will you differentiate shellfish from fin fish? 2  
c) Justify the importance of studying shellfish biology in context of Bangladesh. 3
2. a) Illustrate general morphology of a crustacean. 3  
b) Draw and label the anatomy of a typical mollusk. 2  
c) Compare the major differences between gastropods and bivalves. 2
3. a) Write the morphological features, food and feeding habit of oyster (*Crassostrea sp.*). 3  
b) Describe the life cycle of oyster (*Crassostrea sp.*). 4
4. a) What do you know about the morphology, food and feeding habits of *Perna viridis*? 2  
b) Briefly describe about the reproduction and development of *P. viridis*. 5
5. a) Differentiate between male and a female prawn. 2  
b) Describe the life cycle of freshwater giant prawn (*Macrobrachium rosenbergii*). 5
6. a) Mention the anatomical differences between *Pila* and *Meritrix*. 2  
b) Briefly describe the shell formation and reproduction of *M. meritrix*. 5
7. a) Define biodiversity. Mention the causes of loss of shellfish biodiversity in Bangladesh. 3  
b) Describe how such biodiversity loss can be mitigated. 4

**Section B**

8. a) Write the common names, scientific names and habitats of each of 5 commercially important crustaceans and molluscan species available in Bangladesh. 2  
b) Describe the economic importance of Mollusca and Crustacea in context of Bangladesh. 5
9. a) Compare the morphological and anatomical differences between *Loligo* and *Octopus*. 3  
b) Discuss the developmental changes of *Loligo* life cycle. 4
10. a) Write the taxonomic position of mud crab with its common name. 2  
b) Describe the larval development of mud crab (*Scylla serrata*). 5
11. a) How will you distinguish between shrimp and prawn? 2  
b) Describe the mating process of *Penaeus monodon* with figure. 2  
c) Diagrammatically show the larval developmental stages of shrimp (*Penaeus monodon*). 3
12. a) What do is the differences habit and habitat of an animal? 2  
b) Describe the properties of the habitats required for sustaining abundance and reproduction of shellfish. 5
13. a) Enlist the factors that affect health and abundance of shellfish. 2  
b) Describe the physical and chemical factors affecting the abundance and biodiversity of shellfish. 5
14. Write short notes on **any 02 (Two)** of the followings: 3.5×2=7  
a) Trocophore; b) Biology of pearl formation; c) Cray fish

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B. Sc. Fisheries (Hons.) Year -03 Semester-01, Final Examination' 2018

**Course No: IOA-301 (T), Course Title: Integrated and Organic Aquafarming(Theory)**

Total Marks: 70, Time: 3 hours

*Answer any 5 (five) questions from each section. Figures in the right margin indicate full mark. Use separate answer script for each section.*

**Section-A**

1. a) Differentiate between IMTA and IFCAS. 2  
b) Draw a design of IMTA for a large community pond of a locality. 3  
c) IFCAS is a good solution against climate change – explain the statement. 2
2. a) Aquaponics is an organic aquaculture – do you agree with this statement? 2  
b) Why marketing of organic product is challenging in Bangladesh? 3  
c) Write down the potentiality of organic aquaculture in aspect of Bangladesh. 2
3. a) Differentiate among different types of aquaponics system. 2  
b) Draw the layout of different types of complex integrated aquafarm. 3  
c) Develop a model of traditional household use integrated farm. 2
4. a) Write down the threats of integration. 2  
b) Illustrate the threats of waste-fish-animal integration with the possible solution. 3  
c) Write down the disadvantages of night soil in integration. 2
5. a) What do you mean by 'IFOAM'? 2  
b) Describe the present status and future prospect of 'IFOAM'. 5
6. a) Why 'Organic Aquaculture' is very popular in developed countries? 2  
b) Describe the importance of 'certification' in organic aquaculture? 5
7. Write short note on any two of the followings: 3.5×2=7  
a) Kyoto declaration; b) Action of wastes on fish pond; and c) Waste management in Aquaculture.

**Section B**

8. a) Differentiate between organic and conventional aquaculture on the basis of environmental issues. 4  
b) How organic product is better than inorganic once? 3
9. a) What are the different types of integrated fish farming systems? 2  
b) Describe the farming system of fish integrated with Horticulture. 5
10. a) Ducks are called as "Biological Aerator"..... justify. 2  
b) Give an account of a duckery farm integrated with fish. 5
11. a) What type of land is suitable for rice field? 2  
b) Mention the characteristics of fishes suitable for rice field. 2  
c) Prepare a cost benefit analysis for culture of fishes with rice in one hectare area. 3
12. a) What is integrated planning? 2  
b) Enlist the steps of planning for an integrated farm. 3  
c) Mention some challenges with integrated planning. 2
13. a) How monsoon flooding can bring blessing in integrated fish farm? 4  
b) Summarize your plan and management for a 'Channa-Heteropneustes-Hydroponics' farm. 3
14. Write short notes on any two of the followings: 3.5×2=7  
a) Biosecurity in integrated aquafarm; b) Rotational culture; c) Organic shrimp.

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B. Sc. Fisheries (Hons.) Year -03 Semester-01, Final Examination' 2018  
Course No: **IFM-301 (T)**, Course Title: **Inland Fisheries Management (Theory)**  
Total Marks: 70, Time: 3 hours

*Answer any **5 (five)** questions from each section. Figures in the right margin indicate full mark. Use separate answer script for each section.*

**Section-A**

- |    |    |  |   |
|----|----|--|---|
| 1. | a) | Define Fisheries Management and explain its statement.                                 | 3 |
|    | b) | 'Life history data are important management tool' – Elaborate.                         | 4 |
| 2. | a) | How does fish classification help fisheries management?                                | 3 |
|    | b) | Classify fish species on the basis of various ecological aspect.                       | 4 |
| 3. | a) | How do you enforce regulation for fisheries management?                                | 3 |
|    | b) | Classify and discuss fisheries regulation.   | 4 |
| 4. | a) | What are the objectives of fisheries cooperatives?                                     | 3 |
|    | b) | How does government help in fisheries cooperatives?                                    | 4 |
| 5. | a) | Write down the important life history features of Hilsha fish required for management. | 3 |
|    | b) | Describe the current government policy for the management of Hilsha fisheries.         | 4 |
| 6. | a) | What are the general principles of recreational fisheries management?                  | 3 |
|    | b) | How does recreational fisheries can be a successful tourism business in Bangladesh?    | 4 |
| 7. | a) | 'Habitat improvement is called habitat alteration' – justify.                          | 3 |
|    | b) | Describe habitat improvement as management tool in closed waterbody.                   | 4 |

**Section B**

- |     |    |  |   |
|-----|----|--|---|
| 8.  | a) | What are the basic requirements of a fish way?   | 3 |
|     | b) | Write down the general types of fish ways.   | 4 |
| 9.  | a) | Distinguish among rule, law and act.   | 2 |
|     | b) | What do you know about the government policy of the management of <i>khas</i> waterbodies in Bangladesh? | 5 |
| 10. | a) | How does fisheries cooperative support fisheries management?   | 2 |
|     | b) | Justify CBFM as sustainable, equitable and efficient management strategy.                                | 5 |
| 11. | a) | Show the major spawning grounds of Hilsha in Bangladesh territory.                                       | 2 |
|     | b) | What are the challenges of managing Hilsha fisheries in Bangladesh?                                      | 5 |
| 12. |    | Analyze SWOT to develop a cooperative society of FoF 4 <sup>th</sup> batch to do fisheries business.     | 7 |
| 13. | a) | Distinguish between fish pass and fish sanctuary.  | 3 |
|     | b) | Write down the geographical locations of Hilsha sanctuaries in Bangladesh.                               | 4 |
| 14. | a) | What are the key indicators to assess the achievement of sustainable livelihoods?                        | 3 |
|     | b) | Briefly describe the sustainable livelihood framework for managing fisheries.                            | 4 |

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B. Sc. Fisheries (Hons.) Year -03 Semester-01, Final Examination' 2018

Course No: **APT-301 (T)**, Course Title: **Aquatic Pollution and Toxicology (Theory)**

Total Marks: 70, Time: 3 hours

*Answer any **5 (five)** questions from each section. Figures in the right margin indicate full mark. Use separate answer script for each section.*

**Section-A**

1. a) Differentiate between pollution and contamination with example. 2.0  
b) Briefly describe the point and non-point sources of pollution. 3.0  
c) How point and non-point sources of pollution can be controlled? 2.0
2. a) What is sludge? Differentiate between sewage and sludge. 2.0  
b) 'Oxygen demanding wastes are the major concern in an aquatic ecosystem' - Justify the statement. 2.0  
c) Discuss one eco-friendly method used for the treatment of sludge in our country. 3.0
3. a) What is Heavy metal? Why is it toxic for the aquatic environment? 2.0  
b) Differentiate between bioaccumulation and bio-magnification of heavy metals. 2.0  
c) Describe the accumulation pattern of toxic metals in an aquatic food chain. 3.0
4. a) What is the ultimate fate of spilled oil in marine environment? 2.0  
b) How the spilled oil affect the aquatic ecosystem? 2.0  
c) Give a brief outline of oil spill management framework in the context of Bangladesh. 3.0
5. a) What is meant by pollution indicator? 1.0  
b) How can you understand the pollution status of a waterbody by the presence or absence of bio-indicator species? 2.0  
c) Differentiate between (i) BOD and COD and (ii) POM and DOM. 4.0
6. a) What do you know about Bioremediation? 1.0  
b) Write about the various applications of bioremediation for controlling aquatic pollution. 3.0  
c) Discuss about the role of microbial populations in bioremediation process. 3.0
7. Write short notes on the following topics (Any two): 3.5×2  
a) PAH      b) PCB      c) Halogenated Hydrocarbons      d) Carbon-buffer system

**Section-B**

8. a) Depending upon the nature of the pollutants and their interaction to environment, how would you find out the pollution sources? Explain with appropriate examples. 3.0  
b) What measure you can recommend for the prevention and clean-up of coastal water pollution in the context of Bangladesh? 4.0
9. a) Define LD<sub>50</sub> and LC<sub>50</sub>. 2.0  
b) What are the major effects of aquatic pollution on public health. 2.0  
c) Discuss the common methods of ecotoxicology testing. 3.0
10. a) Illustrate the mechanism of dead zone formation in the marine environment. 3.0  
b) Discuss the impact, chemical reactions, adaptation and remediation related with anoxia in an oceanic environment. 4.0
11. a) Specify the major environmental impacts of aquaculture in respect of inland and coastal aquatic pollution in Bangladesh. 3.0  
b) Formulate your own plan to mitigate aquaculture related pollution in inland water and coastal belt of Bangladesh. 4.0
12. a) What are the major sources of waste water? 1.0  
b) Briefly discuss the waste water management system in the context of Bangladesh. 3.0  
c) Discuss the potential impacts of waste water on aquatic ecosystem. 3.0
13. a) What are the major classes of algal toxins? 2.0  
b) "Heavy metals have specific toxic actions in the human body." Explain this statement. 2.0  
c) Illustrate the biomagnification of DDT in an ecosystem. 3.0
14. Write short notes on the following topics (Any two): 3.5×2  
a) Agrochemical fertilizer      b) Alien Species      c) Organochlorine insecticides      d) HAB



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Course No: **FPI-301(T)**, Course Title: **Fish Pathology and Immunology (Theory)**  
Total Marks: 70, Time: 3 hours

*Answer any 05 (five) questions from each section. Figures in the right margin indicate full mark. Use separate answer script for each section.*

**Section A**

- |    |    |   |         |
|----|----|---|---------|
| 1. | a) | What do you mean by fish pathology?                                 | 2       |
|    | b) | Describe the factors producing diseases in fish.                    | 5       |
| 2. | a) | Distinguish between drug and chemical.                              | 2       |
|    | b) | What are the criteria for selection of a drug?                      | 2       |
|    | c) | Describe the role of commercial aqua drugs in aquaculture.          | 3       |
| 3. | a) | Which stages are mainly followed for effective vaccine development? | 3       |
|    | b) | Interpret the method of vaccine administration.                     | 4       |
| 4. | a) | Distinguish immune response between fish and shrimp.                | 2       |
|    | b) | Discuss the humoral factors of innate immunity in fish.             | 5       |
| 5. | a) | What do you know about aquatic pharmacology?                        | 2       |
|    | b) | Which factors should be considered before applying any drug?        | 5       |
| 6. | a) | What do you mean by immune response and immunity?                   | 2       |
|    | b) | Describe the lymphoid organs in fish.                               | 5       |
| 7. |    | Write short notes on any <b>02 (two)</b> of the following:          | 3.5X2=7 |
|    | a) | MMC;  |         |
|    | b) | Opsonization; and   |         |
|    | c) | ELISA   |         |

**Section B**

- |     |    |  |         |
|-----|----|--|---------|
| 8.  | a) | Define lymphoid organ, lymph and lymph nodes.  | 2       |
|     | b) | What are the main differences between specific and non-specific immunity in fish?          | 5       |
| 9.  | a) | What are the characteristics of an ideal immunostimulant?                                  | 3       |
|     | b) | Describe $\beta$ -glucan as an immunostimulant in fish.                                    | 4       |
| 10. | a) | Evaluate the pathogenesis of fish virus and bacteria.                                      | 2       |
|     | b) | Describe MAS in fish with its etiology, sign, symptom and control measures.                | 5       |
| 11. | a) | What are the functions of fish immunoglobulin?   | 2       |
|     | b) | Discuss the mechanism of immunoglobulin formation in fish.                                 | 5       |
| 12. | a) | Classify basic pharmacology.   | 2       |
|     | b) | Elaborate drug-body interaction in case of drug action.                                    | 5       |
| 13. | a) | Distinguish between active and passive immunization.                                       | 2       |
|     | b) | Give a comparison between chemotherapy and vaccination for disease prevention and control. | 5       |
| 14. |    | Write short notes on any <b>02 (two)</b> of the following:                                 | 3.5X2=7 |
|     | a) | T-Lymphocyte;  |         |
|     | b) | Monoclonal antibody; and   |         |
|     | c) | SVC  |         |