

Department of Aquaculture
Chittagong Veterinary and Animal Sciences University
M.S. in Aquaculture (January-June Semester) Final Examination, 2017
Course Code: APE-501(T), Course Title: Aquafarm Planning and Engineering
Full Marks: 40; Time: 2 hours

Answer all the questions. The figures in the right margin indicate full marks.

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| 1. | a) What do you mean by aquafarm planning and engineering? | 2 |
| | b) Develop a relationship between the significance and limitation of various aquafarm planning in Bangladesh. | 3 |
| 2. | a) How hydraulic aspects influence the design of aquaculture systems? | 1 |
| | b) Explain typical hydraulic circuit for any fish farm. | 2 |
| | c) Write in brief about water flow through pipes. | 2 |
| 3. | a) Mention the basic engineering activities regarding aquaculture practices. | 2 |
| | b) What are the pollution effects of waste discharges from aquatic farms over the surrounding environment? | 3 |
| 4. | a) Give your concept about cost-benefit analysis for an aquafarm. | 2 |
| | b) Interpret the application of farm management principles in aquaculture focusing operation and financing. | 3 |
| 5. | a) Compare submersible and floating cages in aquaculture. | 2 |
| | b) Briefly discuss about the advantages and disadvantages of pen and cage aquaculture. | 3 |
| 6. | a) Why aerators are generally used for aquaculture? | 1 |
| | b) Classify the water based aquaculture systems including specialized systems. | 4 |
| 7. | a) Define farm hygiene. | 1 |
| | b) What are the most common sterilization and disinfection techniques used for hatcheries and aquafarms? Describe in brief. | 4 |
| 8. | Write short notes: | 2.5 X 2= 5 |
| | a) Recycle systems; and | |
| | b) Agro-ecological features of aquaculture systems | |

Department of Aquaculture
Chittagong Veterinary and Animal Sciences University
M.S. in Aquaculture (January-June Semester) Final Examination, 2017
Course Code: AHM-501(T), Course Title: Aquatic Animal Health Management
Full Marks: 40; Time: 2 hours

Answer all the questions. The figures in the right margin indicate full marks.

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| 1. | a) Mention the main sources of stressors for aquatic organism. | 2 |
| | b) What is the general significance of stress and disease in aquaculture production? | 3 |
| 2. | a) Distinguish between prognosis and diagnosis. | 1 |
| | b) Write down the important aspects of aquatic animal health management. | 2 |
| | c) Explain the contribution of drugs and chemicals in aquaculture disease management. | 2 |
| 3. | a) What do you mean by withdrawal period? | 1 |
| | b) Which points should be considered to treat any disease of fish and shrimp through antibiotics? | 2 |
| | c) Briefly describe the drug resistance and residual effect created by indiscriminate usage of various aqua-drugs. | 2 |
| 4. | a) Why virus is termed as obligate pathogen? | 1 |
| | b) Describe white spot syndrome in coastal aquaculture of Bangladesh with its possible management strategies in farm and national level. | 4 |
| 5. | a) Give your concept about aquatic epidemiology. | 2 |
| | b) Which stages are needed to be followed for disease surveillance and surveys? | 3 |
| 6. | a) What are the basic principles of biosecurity in aquaculture? | 2 |
| | b) Discuss about biosecurity plans and its implementation in aqua-farm and hatcheries. | 3 |
| 7. | a) Interpret the importance of probiotic usage to boost the aquaculture production. | 2 |
| | b) Compare vaccination and chemotherapy. | 3 |
| 8. | Write short notes: | 2.5 X 2= |
| | a) Drug laws and regulations; and | |
| | b) Transboundary aquatic animal diseases | |

Chittagong Veterinary and Animal Sciences University

Faculty of Fisheries

MS in Aquaculture, Jan-Jun Semester, Final Examination 2017

Course Code: AQN-501, Course Title: Aquaculture Nutrition

Time 2 hour

Full Marks 40

Answer any 5 from the followings. Figure in the right margin indicate full mark.

1. a) How proteins and amino acids are utilized by fish? 4
b) What do you know about carbohydrate digestibility? 4
2. a) The quality of broodfish and larvae depends on better nutrition – explain the statement. 5
b) The excessive use of antibiotics may be harmful, why? 3
3. Discuss specific nutrient requirements of any two shellfish species. 8
4. a) What do you know about the nutritional requirement of *Lates calcarifer* at different stage? 4
b) How can you reduce feed waste? 4
5. a) What do you know about nutrient specification of carps? 5
b) Discuss the energy utilization in fish. 3
6. a) What is specific dynamic action? 2
b) How can you reduce feed cost in aquaculture? 6

Chittagong Veterinary and Animal Sciences University

Faculty of Fisheries

MS in Aquaculture, Jan-Jun Semester, Final Examination 2017

Course Code: APA-501, Course Title: Aquatic Parasitology

Time 2 hour

Full Marks 40

Answer any 5 from the followings. Figure in right margin indicate full mark.

1. a) Parasites can be used as biological indicator- explain the statement. 3
b) Illustrate the morphological features of digenea and cestode. 5
2. a) Differentiate between prevalence and mean intensity. 1
b) Discuss the life cycle of a digenean fish parasite. 4
c) Explain the environmental influence on parasite populations. 3
3. a) What are the influences of aquaculture on parasitic fauna of fish? 3
b) Describe any two important parasitic diseases in cultured fish of Bangladesh with their control measures. 5
4. a) Categorize the immunological reactions of hosts infested by parasites. 3
b) Discuss the parasite's reactions to the host fishes. 5
5. a) Classify public health hazards associated with fish culture. 1
b) Describe one common fish borne zoonotic disease. 4
c) How can you reduce public health problems associated with fish consumption? 3
6. a) Discuss the total process for the preservation of any parasite species after collection. 6
b) Enumerate the general preventive measures of parasitic diseases. 2

Chittagong Veterinary and Animal Sciences University

Faculty of Fisheries

MS in Aquaculture, Jan-Jun Semester, Final Examination 2017

Course Code: APA-501, Course Title: Advanced Freshwater Aquaculture

Time 2 hour

Full Marks 40

Answer any 5 from the followings. Figure in the right margin indicates the marks.

1. a) Interpret an overview of the present status of world aquaculture. 5
b) Summarize the national aquaculture policy and other laws and regulations. 3
2. a) Discuss the potentiality of cuchia culture as a non-conventional species in Bangladesh. 4
b) What are the problems associated with the culture of non-conventional species? 2
c) Give some recommendations to overcome these problems? 2
3. a) Enumerate the production trend of freshwater prawn in Bangladesh. 4
b) How can you conserve the threatened species? 4
4. a) Briefly describe the culture technique of freshwater pearl species. 5
b) What are the suitable environmental conditions for crab culture? 3
5. a) Discuss the importance of exotic fishes in aquaculture in Bangladesh. 4
b) Identify the major problems in the fish farms and hatcheries of Bangladesh. 4
6. a) What are the improved water based farming practices in Bangladesh? 4
b) Give a comparison between culture practices in freshwater and coastal region. 4

Department of Aquaculture
Chittagong Veterinary and Animal Sciences University
M.S. in Aquaculture (January-June Semester) Final Examination, 2017
Course Code: APH-501(T), Course Title: Aquatic Pharmacology
Full Marks: 40; Time: 2 hours

Answer all the questions. The figures in the right margin indicate full marks.

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| 1. | a) What do you mean by pharmacology? | 2 |
| | b) Write down the significance of pharmacology in aquaculture. | 3 |
| 2. | a) Mention various sources of aqua-drugs. | 2 |
| | b) Give your concept about the mode of action of antibacterial drugs. | 3 |
| 3. | a) Which factors should be considered for drug prescription and administration? | 2 |
| | b) Briefly describe different methods of drug administration in aquaculture. | 3 |
| 4. | a) What are the basic principles of pharmacology? | 2 |
| | b) Compare the following terms: | 1.5X2=3 |
| | i. Drug and medicine; | |
| | ii. Antibiotic and probiotic | |
| 5. | a) Discuss about safety issues of drug laws in Bangladesh aquaculture. | 3 |
| | b) What would be the mitigation measures regarding indiscriminate usage of antimicrobials against fish and shrimp diseases? | 2 |
| 6. | a) Explain the action of drugs in case of drug metabolism in fish. Relate this metabolism with pharmacokinetics. | 3 |
| | b) Distinguish between pharmacokinetics and pharmacodynamics. | 2 |
| 7. | a) How the anesthetics contribute fish handling in health management and research work? | 2 |
| | b) Write down the common application of anesthetics in aquaculture from production to marketing. | 3 |
| 8. | Write short notes: | 2.5 X 2= |
| | a) Agonist and Antagonist; and | |
| | b) Effects of aqua-drugs on aquatic environment | |