

Chittagong Veterinary and Animal Sciences University, Chittagong

Faculty of Fisheries

B. Sc Fisheries (Hons.), Year -03, Semester-02 (July-December), Final Examination' 2016

Course Code: FGB 302 (T), Course Title: Fish Genetics and Biotechnology

Full Marks: 70, Time: 3 hours

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

Section-A

1. a. Define genetics and biotechnology. 2.0
b. What are the interrelationship between genetics and biotechnology? 2.0
c. Write down the importance of studying genetics and biotechnology in fisheries science. 3.0
2. a. Define cell and cell cycle. 2.0
b. How does a cell divide? 2.0
c. Write down the functions of the components of nucleus. 3.0
3. a. State the 'Law of Segregation'. How does it differ from 'Law of Independent Assortment'? 2.0
b. Explain the Law of 'Independent Assortment' with an example in Guppy. 5.0
4. a. What is epistasis? 1.0
b. Explain the phenotypic expression of dominant epistatic gene interaction observed in fish. 6.0
5. a. Define inbreeding with its consequences. 2.0
b. What are the uses of inbreeding? 3.0
c. 'Inbreeding' or 'Hybridization'- Which one is worse in fisheries and aquaculture? Justify your answer. 2.0
6. a. What is chromosome engineering? 1.0
b. How you will produce a triploid fish by chromosome manipulation? 4.0
c. What is an induced triploid? Is it better than diploid? - Justify your answer. 2.0
7. Write notes on **any 02 (Two)** of the following: 3.5×2=7.0
a) Sex linked gene b) Effective breeding number c) Ploidy

Section-B

8. a. What do you mean by DNA replication and DNA packaging? 2.0
b. Briefly describe the DNA replication process with diagram. 5.0
9. a. What is sexuality and mode of reproduction? 2.0
b. Discuss the secondary sexual characters observed in fish. 5.0
10. a. What do you mean by multiple allelism? 1.0
b. Briefly describe the multiple allelic interaction in platy fish with diagram. 6.0
11. a. Define heritability. 1.0
b. You want to initiate a breeding program of carp which population mean weight is 1.4 kg, average weight of male fish is 1.5 kg and average mean weight of female fish is 1.6 kg. What will be the predicted weight of F₁ generation? ($h^2 = 0.4$) 4.0
c. V_A is inherited-explain. 2.0
12. a. Define selection with its importance. 2.0
b. 'No selection is the best selection'- Justify your answer. 3.0
c. Differentiate between within family selection and between family selection 2.0
13. a. State the Mendal's law of segregation and why this law is called 'Law of purity of gametes'? 2.0
b. Explain the co-dominant gene action with an example from fish. 5.0
14. a. Define sex determination. 1.0
b. Briefly describe the different sex determination system in fish. 4.0
c. Which individual (sex) does determine the establishment of sex in fish? How? 2.0

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B. Sc Fisheries (Hons.), Year -03, Semester-02 (July-December), Final Examination, 2016

Course Code: ADC-302(T), Course Title: Aqua-farm Design and Construction

Full Marks: 70, Time: 3 hours

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

Section-A

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|----|----|--|---------|
| 1. | a. | Define aquaculture engineering. | 2 |
| | b. | Briefly describe the objectives and principles of aqua-farm design and construction. | 5 |
| 2. | a. | What are the main site selection criteria for aqua-farm? | 4 |
| | b. | Explain some important factors for site selection. | 3 |
| 3. | a. | What is the importance of design in aqua-farming? | 2 |
| | b. | Describe the construction of an ideal shrimp pond considering the following: | 5 |
| | | i. Size and shape of culture pond | |
| | | ii. Dike (height and slope) | |
| | | iii. Supply and drainage canal | |
| | | iv. Water control gate | |
| 4. | a. | What are the characteristics of earthen ponds for farming? | 2 |
| | b. | What are the reasons for booming of tilapia farming in Bangladesh? | 3 |
| | c. | Explain the importance of "Hapa" in Tilapia culture. | 2 |
| 5. | a. | What are the criteria for selecting small, medium and large scale hatcheries? | 3 |
| | b. | Draw the flow-chart for <i>P. monodon</i> hatchery operation. | 2 |
| | c. | What is the function of LRT? | 2 |
| 6. | a. | What is the importance of aeration in aquaculture? | 2 |
| | b. | Describe different types of aerators used in aquaculture. | 5 |
| 7. | | Write short notes on any <u>02 (two)</u> of the following: | 3.5X2=7 |
| | a. | Eye-stalk ablation | |
| | b. | Tender and bids | |
| | c. | Centrifugal pump | |

Section-B

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|-----|----|--|---------|
| 8. | a. | What are the criteria for selection of suitable site for cage culture? | 2 |
| | b. | Give the structural design of a cage. | 3 |
| | c. | Enumerate the environmental impact on cage culture. | 2 |
| 9. | a. | Differentiate between breeding of 'Golda' and 'Bagda'. | 2 |
| | b. | What are the ideal ranges of physical –chemical parameters for freshwater prawn culture? | 3 |
| | c. | Lay-out a map of freshwater prawn hatchery. | 2 |
| 10. | | Differentiate between the following: | 3.5X2=7 |
| | a. | Biofilter and Befouling ; b. Fluid statics and Fluid dynamics | |
| 11. | a. | What do you mean by survey technique? | 2 |
| | b. | What are the factors required for determination of an appropriate survey? | 2 |
| | c. | Mention the key steps used in survey process. | 3 |
| 12. | a. | What is the difference between capital expenditure and recurring expenditure? | 2 |
| | b. | Prepare a cost benefit analysis (CBA) for production of 20 lac seabass fry. | 5 |
| 13. | a. | Define successful project design. | 2 |
| | b. | Enlist the main factors those are essential for a successful project design. | 5 |
| 14. | | Write short notes on any <u>02 (two)</u> of the following: | 3.5X2=7 |
| | a. | Hormone treatment | |
| | b. | Specialized aquaculture systems | |
| | c. | RAS | |

Chittagong Veterinary and Animal Sciences University, Chittagong
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B. Sc Fisheries (Hons.), Year -01, Semester-02 (July-December), Final Examination, 2016

Course Code: SFD-302(T), Course Title: Shellfish Diseases

Full Marks: 70, Time: 3 hours

X

X

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

Section-A

1. a. Mention the importance and impact of shellfish diseases in aquaculture? 3
b. Briefly discuss disease producing factors of shellfish. 4
2. a. Define bacteria and mention its importance in shrimp disease. 2
b. Discuss the most important bacterial disease in shrimp with its etiology, clinical signs and pathology. 5
3. a. Write down general indication of shellfish health. 3
b. What is mycosis? Mention its importance in shrimp culture. 4
4. a. Differentiate between infectious and non-infectious diseases with examples. 2
b. What do you know about nutritional diseases of shrimp and prawn? 5
5. Describe two important mycotic diseases of shrimp and prawn with their clinical sign, pathology, epizootiology, diagnosis and preventive measure. 7
6. a. Enlist some important diseases of lobster with their etiology. 2
b. Describe one bacterial and one parasitic disease of lobster with etiology, pathology, diagnosis and control measures. 5
7. Write short notes on any 02 (two) of the following: 3.5X2=7
 - a. Vibriosis in shrimp
 - b. White spot syndrome virus
 - c. Clinical sign

Section-B

8. a. Why environmental factors are important in aquaculture? 2
b. Illustrate the environmental diseases of shrimp and prawn. 5
9. a. What is crayfish? 2
b. Discuss "crayfish plague" with its causative agent, clinical signs and control measures. 5
10. a. Give a list of viral diseases of crab with causative agents. 2
b. What do you know about non-infectious diseases of crab? 5
11. a. Enlist important infectious diseases of mollusks. 2
b. Discuss one prevalent diseases of clam with their etiology, clinical sign and epizootiology. 5
12. a. "Viral diseases are sometimes curse to shrimp aquaculture"- justify your answer. 3
b. Discuss yellow head disease in shrimp and prawn. 4
13. a. Name important diseases of oyster. 1
b. Briefly discuss two diseases of oyster with their etiology, signs, pathology, diagnosis and control measures. 6
14. Write short notes on any 02 (two) of the following: 3.5X2=7
 - a. External fouling in shrimp
 - b. Cestode infection in shellfish
 - c. Host, pathogen and environmental interaction

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Faculty of Fisheries

B. Sc Fisheries (Hons.), Year -03, Semester-02 (July-December), Final Examination' 2016

Course Code: ABC 102 (T), Course Title: Aquatic Biodiversity and Conservation

Full Marks: 70, Time: 3 hours

Figure in the right margin indicates the full mark. Answer any 05 (five) questions for each section. Use separate answer script for each section.

Section-A

1. a. Define genetic, species and ecosystem biodiversity. 3
b. What are the factors responsible for determination of biodiversity? 4
2. a. Discuss the value of biodiversity. 2
b. Explain the causes of loss of biodiversity. 3
c. Why is biological diversity important? 2
3. a. Define Small Indigenous Species (SIS). 2
b. What do you know about the nutritional value of SIS? 2
c. Describe the reasons behind SIS degradation and loss. 3
4. a. What do you mean by haor? 1
b. Enlist the life supporting plants of Hakaluki haor along with their uses. 2
c. Describe in brief about the fish biodiversity of Hakaluki haor. 4
5. a. What do you mean by exotic and alien species? 2
b. Do you think introducing exotic species could destroy a local biodiversity? - Explain. 2
c. What are the precautionary measures needed to be taken to introduce an exotic species into local variety? 3
6. a. What do you mean by conservation? 1
b. Define ex-situ and in-situ conservation. 2
c. Discuss the various approaches of conservation. 4
7. Write short note on any 02 (two) of the following: 3.5x2=7
a) Ramsar Convention; b) Biodiversity and civilization; c) Significance of Sundarbans mangrove biodiversity.

Section-B

8. a. Describe the IUCN management categories of protected areas. 3
b. Show the notified protected areas of Bangladesh in a map. 4
9. a. What is red list? Mention its goals. 2
b. Differentiate vulnerable and critically endangered species. 2
c. Enlist critically endangered fishes of Bangladesh. 3
10. a. Differentiate survey and surveillance. 2
b. "Keystone species play the most vital role in regulating an ecosystem." – Justify the statement. 3
c. Mention the role of ADAMs in conservation of local biodiversity. 2
11. a. What do you understand by Ecologically Critical Areas (ECA's) and Protected Areas (PAs)? 3
b. What are the guidelines for establishing a Protected Area and Management of its biodiversity? 4
12. a. What is cryopreservation? 1
b. How natural breeding can be enhanced through restoration of habitats? 4
c. Enlist the SIS culture technologies developed by research organizations of Bangladesh. 2
13. a. Name the scientific names of four major coral species of St. Martin island. 2
b. Point out the UN global concern regarding marine environment degradation. 5
14. Write short note on any 02 (two) of the following: 3.5x2=7
a) Blue Growth Initiative; b) Cryogenic gene bank; c) Ecological values of biodiversity.

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B. Sc Fisheries (Hons.), Year -03, Semester-02 (July-December), Final Examination, 2016
Course Code: MFM-302 (T), Course Title: Marine Fisheries Management
Full Marks: 70, Time: 3 hours

Figure in the right margin indicates the full mark. Answer any 05 (five) questions from each section. Use separate answer script of each section.

Section-A

1. a. "Marine Fisheries Management is an integral process of information"-explain the statement. 2.0
b. What are the operational objectives of Marine Fisheries Management? 2.0
c. Briefly discuss the pelagic fisheries resources of the Bay of Bengal. 3.0
2. a. Differentiate between artisanal fisheries and industrial fisheries. 2.0
b. What are the modern technologies used to detect new fishing ground? 2.0
c. Describe briefly the principal fishing ground of the Bay of Bengal. 3.0
3. a. "Human activities and environmental impacts are responsible for mangrove destruction"-clarify the statement. 2.0
b. What are the major issues of sustainable management of Sundarban mangrove forest? 2.0
c. Discuss briefly your management strategies for developing sustainable fisheries management at Sundarban mangrove forest. 3.0
4. a. What do you understand by fish stock assessment? 2.0
b. What is the basic assumption for yield per recruit model? 2.0
c. Discuss the yield per recruit model for stock assessment prediction. 3.0
5. a. What do you know about input control and output control in marine fisheries management? 2.0
b. What are the importance of controlling system in marine fisheries management? 2.0
c. What do you know about MSY? Why MSY is extensively used for fisheries management? 3.0
6. a. Write down the basic principles of mortality? 3.0
b. How you will calculate the total mortality using length converted catch curve. 4.0
7. Write notes on any 02 (Two) of the following: 3.5×2
a) Traditional fishing gears b) Sustainable livelihood approach c) Market assessment

Section-B

8. a. "Fisheries output control measures are the prime regulator in coastal fisheries management of Bangladesh"- explain the statement. 3.0
b. Sketch an informative model of EBFM which include various dimension of fisheries management. 4.0
9. a. What do you understand by gear selectivity? 3.0
b. Why implementation of gear selectivity is so crucial for marine fisheries management? 4.0
10. a. Define exploration and exploitation. 2.0
b. Mention the marine water fisheries resources of Bangladesh. 2.0
c. Discuss the interdependence of stock and recruitment. 3.0
11. a. What do you understand by length frequency analysis? 3.0
b. Briefly discuss the Von Bertalanffy Growth Formula (VBGF) used in fisheries. 4.0
12. a. Define EEZ limit and international water in fisheries management. 3.0
b. Briefly discuss various types of gear operated in coastal water of Bangladesh. 4.0
13. a. What do you know about marine protected area? What are the benefits of marine protected area in marine fisheries management? 4.0
b. Specify the mesh size for trawling by CCRF, especially shrimp and fish collected from the coast. 3.0
14. Write short notes on any Two (02) of the following: 3.5×2
a) Fishing efficiency b) Over exploitation c) Condition factor

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B.Sc. Fisheries (Hons.), Year-03, Semester-02 (July – December), Final Examination' 2016

Course Code: FPT-302 (T); Course Title: Fishery Products Technology (Theory)

Full Marks: 70; Time: 3 hours

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

Section –A

1. a) Briefly discuss present status of seaweed in Bangladesh. 3
b) Differentiate among different types of seaweed 3
c) Why seaweed are not categorized as plant? 1
2. a) What is cured fishery products? 1
b) Differentiate between drying and dehydration. 2
c) Mention some important marine fish species used for drying in Bangladesh. 1
d) Briefly describe the procedure for production of dried fish products in Bangladesh with flow chart. 3
3. a) What is fish maws? Write down production procedure of isinglass from fish maws. 2.5
b) How do you produce FPC from fishery by-products? 2.5
c) Discuss wet rendering method and dry rendering method with their advantages and disadvantages. 2.0
4. a) What is canning? What kind of materials are suitable for a can? 2
b) Describe briefly fish canning procedure. 2
c) Describe briefly quality problem of canned products. 3
5. a) Mention the types of smoking with a brief description 2
b) Briefly describe procedure of hot smoking. 2
c) Describe briefly quality problem of smoked fishery products. 3
6. a) Differentiate between mince and surimi. 1
b) Why gel forming ability of fish muscle protein is important for producing surimi? Justify. 2
c) What are the factors influence the gel forming ability of a product? Justify. 2
d) How do you evaluate the quality of Surimi? 2
7. a) What do you mean by CSW and RSW? 2
b) Write short note on BFFEA. 2
c) Discuss the problems may happen in frozen storage. 3

Section B

8. a) Why fish insulin is better than cattle insulin? 3
b) Give production procedure of fish insulin from fish entrails. 4
9. a) Write down processing method of canned Tuna in oil. 4
b) Briefly discuss the preparation of fish sauce. 3
10. a) Write down economic importance of seaweed. 2
b) Briefly discuss extraction procedure of carrageenan from seaweed. 3
c) Write short note on mannitol. 2
11. a) What is agar? Discuss agar production process from red seaweed. 3.5
b) Briefly discuss algin extraction process from seaweed. 2.5
c) Write short note on funoran. 1.0
12. a) Write down production procedure of pearl essence. 2.5
b) What is fish silage? How do you prepare fish silage from trash fish? 3.0
c) What is the procedure of manufacturing Fish Protein Hydrolysates (FPH) from fish waste. 1.5
13. a) What is freezing? 1
b) Differentiate between quick freezing and slow freezing. 2
c) Write in brief the scientific and technological problems associated with chilling. 4
14. (a) Write down the names of four traditional products of Bangladesh with a brief description. 2
(b) Write the name of five value added products with a brief description. 2
(c) Write down the English and Local names of five commercially important marine fish species of Bangladesh. 3

Chittagong Veterinary and Animal Sciences University, Chittagong
Faculty of Fisheries
B.Sc. Fisheries (Hons.), Year-03, Semester-2 (July – December), Final Examination' 2016
Course Code: ABM-302 (T); Course Title: Agribusiness and Marketing
Full Marks: 70; Time: 3 hours

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

Section -A

1. a) State the concept of agribusiness with different types of agribusiness. 2
b) How do you like to compare different agribusiness with aqua-business? 2
c) Write a note on scenarios of aqua-business in Bangladesh. 3
2. a) State the role of laws and governance in agri-business. 2
b) Show different legal structures of business. 2
c) Make a comparative study between limited partnership and limited liability partnerships. 3
3. a) State the concept of management and importance of management in aqua-business. 2
b) Enumerate different types of manager in aqua-business and marketing. 2
c) What type of management do you like from the view point of types of managers and why? 3
4. a) What do you mean by agri-business? Show diagrammatically the agribusiness process in aquaculture. 3
b) Write a short note on processing manufacture in aqua-business. 4
5. a) Define the concept of Entrepreneurship Development. 2
b) Show the process of entrepreneurship development. Write a short note on Idea Generation and Innovations. 5
6. a) Distinguish between business and administration. Write the characteristics of a good management. 3
b) Briefly discuss the functions of business management in context of Bangladesh. 4

Section B

7. a) Define market and marketing. Distinguish between marketing and shopping. 2
b) Why marketing is called the delivery of standard of life? Write the characteristics of a good market. 5
8. a) Define marketing functions? Why marketing functions are essentials in marketing? 3
b) Briefly discuss the market functions of fish marketing in context of Bangladesh. 4
9. a) Define marketing channel. Write the elements of fish marketing channels. 3
b) What factors govern the choice of marketing channels in context of Bangladesh? 4
10. a) Distinguish between whole seller and retailer. 2
b) Discuss the importance of whole seller in regard to fish and fish products marketing system in Bangladesh. 5
11. a) Define financing. Distinguish between shares and debentures. 2
b) Discuss the factors for determining the capital structures of a food enterprise in context of Bangladesh. 5
12. Write short notes on any two (2) of the following: 3.5X2=7
 - i) Standardization and Grading
 - ii) Economic Ordering Quantity (EOQ)
 - iii) Plant layout and Product Design