

Chattogram Veterinary and Animal Sciences University, Chattogram
Faculty of Fisheries

B. Sc. Fisheries (Hons.) Year -1 Semester-2, Final Examination' 2019
Course No: **FWA-102 (T)**, Course Title: **Freshwater Aquaculture (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) Differentiate between aquaculture system and technique. 2
b) Briefly explain the present status of freshwater aquaculture practices in Bangladesh. 3
c) Discuss the options to improve the freshwater productions. 2
2. a) What are the main problems in fish hatchery? 2
b) Explain the economic importance of a backyard hatchery. 2
c) Differentiate among the quality of seeds from halda river, floodplain and hatchery. 3
3. a) Briefly describe the importance of the following factors in introducing new 'species' for aquaculture development: 7
i) source of water, ii) water temperature and iii) seed supply.
4. a) What are the roles of pond preparation and fertilization in pond ecosystem? 3
b) 'Intensification of fisheries for achieving food safety and nutritional security'- justify. 4
5. a) 'Suitable site-selection is half-done'- explain. 3
b) Describe the process of kuchia culture. 4
6. a) 'Polyculture of IMCs vs Carp fattening with prawn'- compare. 4
b) Discuss the challenges and opportunities of intensive aquaculture. 3
7. Write short notes on any 02 (two) of the following: 3.5 X 2 = 7
a) Bundh spawning; b) Non-conventional aquaculture candidate and c) Algal bloom and its control.

Section B

8. a) Why composite fish culture is more preferable to commercial fish farmers? 3
b) Give recent history of aquaculture development in Bangladesh. 4
9. a) Explain the prospects of ornamental fish business in Bangladesh. 2
b) Briefly explain the breeding and fry rearing technique of Goldfish in aquarium. 5
10. a) Draw a levelled diagram indicting different features of an aquaculture pond. 5
b) Write the characteristics of a typical pond dike. 2
11. a) Why the culture of catfish has increased dramatically in recent years? 3
b) Enlist the challenges of catfish culture with their possible solutions. 4
12. a) What are the reasons of controlling weed in a pond? 2
b) Describe the methods of controlling aquatic weeds. 5
13. a) Illustrate the process of packing for fry transportation. 2
b) How you will control mortality during transport of fish? 2
c) Explain the way of soft-shell crab transportation. 3
14. Write short notes on any 02 (two) of the following: 3.5 X 2 = 7
a) Bio-fouling in aquaculture; b) Small indigenous species and c) Pollutants in aquafarms

Chattogram Veterinary and Animal Sciences University, Chattogram
Faculty of Fisheries

B. Sc. Fisheries (Hons.) Year -01 Semester- 02, Final Examination' 2019

Course No: **ASS 102 (T)**, Course Title: **Aquatic Soil Science (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) Define soil and soil science. 3
b) Write down the importance of studying aquatic soil science in fisheries. 4
2. a) Differentiate between soil productivity and fertility. 3
b) What criteria you should consider for choosing a soil suitable for fish culture? 4
3. a) Write down the importance of soil-water interaction. 3
b) Describe sediments as a source of nutrients. 4
4. a) Compare oxic and anoxic conditions with examples. 2
b) How bio-turbators affect the overlying water and surrounding aquatic ecosystem. 5
5. a) What are probiotics? Mention their major groups. 2
b) Criticize and recommend common bottom mud management techniques in Bangladesh. 5
6. a) What is Acid Sulphate Soils (ASS)? 1
b) Why Acid Sulphate Soils (ASS) are concentrated in coastal basins? 2
c) Write down the chemistry of ASS. 4
7. a) What do you mean by biological properties of soil? 1
b) How microbes act as a soil forming agent? 2
c) Discuss the optimal conditions of microbial growth and reproduction in soils. 4

Section B

8. a) What is soil textural class? What are the methods to determine soil textural class? 2
b) Discuss the suitability of different types of soil for aquaculture and fisheries management. 5
9. a) Why exchange capacity of cations is usually higher than that of anions? 1
b) Write down the importance of cation exchange capacity (CEC) in soils. 2
c) A 100g sample of soil is leached with 2N CaCl₂. The adsorbed Ca²⁺ is displaced in 1200mL of 2N NaOH solution. The Ca concentration in the leachate is 208 mg/L. 4
10. a) What is soluble salts? 1
b) Mention the general reclamation techniques of salt affected soils. 2
c) Recommend your suggestions to reclaim sodic and saline-sodic soils. 4
11. a) Classify soil microbes based on temperature. 2
b) Describe different processes of nutrient transformation by soil biota. 2
c) Write about the ways of controlling harmful soil microbes. 3
12. a) Differentiate between bulk density and particle density. 2
b) Discuss the physical properties of a soil. 5
13. a) Differentiate between absorption and adsorption. 2
b) Discuss the deficiency symptoms and fertilizer sources of the most three fertilizers for soil. 5
14. a) Classify bacteria based on methods of obtaining nutrition and energy. 2
b) Discuss the optimum conditions for microbial activity in soil. 5

Chattogram Veterinary and Animal Sciences University, Chattogram
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B. Sc. Fisheries (Hons.) Year -1 Semester-2, Final Examination' 2019

Course No: **ICH-102 (T)**, Course Title: **Ichthyology (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 ichthyology and pisces. | 1 |
| b) Enumerate the role of ichthyologists to enhance the fish production in Bangladesh. | 2 |
| c) Write the identifying characters of the followings (any 02): i) Cypriniformes; ii) Pleuronectiformes and iii) Hypotremata. | 4 |
| 2. a) What do you understand by stream lined body? | 1 |
| b) Discuss briefly the various body form found in fishes. | 3 |
| c) Show the location of different openings in a typical fish body. | 3 |
| 3. a) Draw and label structures found in a typical fish skin. | 2 |
| b) Describe briefly the derivatives of fish skin. | 3 |
| c) Give a brief account of the functions of fish skin. | 2 |
| 4. a) Illustrate the different dorsal and caudal fin patterns of fish with examples. | 3 |
| b) Explain the feeding adaptation found in gill, intestine and stomach of fish with figures. | 4 |
| 5. a) What is meant by hemostasis? | 1 |
| b) Draw a labeled diagram of teleost heart. | 2 |
| c) Describe the venous circulatory system of <i>Labeo rohita</i> . | 4 |
| 6. a) Define excretion. | 1 |
| b) Name the excretory organ found in fishes. | 1 |
| c) Briefly describe the osmoregulatory system of a typical fresh water fish. | 5 |
| 7. Write down short notes any 02 (TWO) on following: | 3.5 X 2 = 7 |
| i) Dipnoi; (ii) Bioluminescence in fish and (iii) Holocephali. | |

Section B

- | | |
|---|-------------|
| 8. a) Classify chondrichthyes upto Order. | 4 |
| b) Compare the evolutionary changes of ray finned fishes. | 3 |
| 9. a) Distinguish between central nervous system and peripheral nervous system. | 2 |
| b) Illustrate the cranial nerves with their function. | 5 |
| 10. a) Enumerate the challenges faced by fish for respiration in aquatic environment. | 1 |
| b) Discuss briefly the factors responsible for changes in the respiratory volume in fish. | 2 |
| c) Explain the differences in respiratory mechanism in lamprey and shark. | 4 |
| 11. a) Describe the anatomical features of pectoral girdle of bony fish. | 3 |
| b) Discuss the skeletal muscle of fish trunk. | 4 |
| 12. a) Differentiate between efferent and afferent arteries. | 2 |
| b) Give a generalized representation of the evolution of swim bladder in teleost. | 2 |
| c) Explain the swim bladder as a sound producing organ. | 3 |
| 13. a) Describe briefly the factors responsible for colouration in fishes. | 3 |
| b) Discuss briefly the significance of colouration in fishes. | 4 |
| 14. Write down short notes any 02 (TWO) on following: | 3.5 X 2 = 7 |
| i) Accessory respiratory organs in fishes; (ii) Mesonephric kidney and (iii) Primary sexual characters. | |

Chattogram Veterinary and Animal Sciences University, Chattogram
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B. Sc. Fisheries (Hons.) Year -01 Semester- 02, Final Examination' 2019
Course No: **WQM 102 (T)**, Course Title: **Water Quality Management (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 understand by water quality variable? | 1.5 |
| | b) | How can you classify and characterize the water quality variables? | 3 |
| | c) | What is the importance of the study of different water quality variables? | 2.5 |
| 2. | a) | What is eutrophication? | 2 |
| | b) | What do you know about the probable causes and effects of eutrophication? | 3 |
| | c) | Why eutrophication is harmful for pond environment? | 2 |
| 3. | a) | Explain the major sources of DO in a culture pond. | 2 |
| | b) | How can you enhance the concentration of DO of a culture pond? | 3 |
| | c) | Why anoxic condition is harmful for aquatic organisms? | 2 |
| 4. | a) | How will you manage turbidity problem in your pond? | 5 |
| | b) | Write down the impact of turbidity on fish. | 2 |
| 5. | a) | Explain the effects of pH and temperature on ammonia toxicity. | 3 |
| | b) | Write down the forms and toxicity of Total Ammonia Nitrogen (TAN)? | 2 |
| | c) | What are the sources of ammonia in fish pond? | 2 |
| 6. | a) | Write down the characteristics of POPs. | 3 |
| | b) | How does polluted water disrupt food chain? | 2 |
| | c) | What are the differences between bioaccumulation and biomagnifications? | 2 |
| 7. | a) | How will you maintain ideal pH in aquaculture? | 4 |
| | b) | Explain the relationship of pH and alkalinity in waterbody. | 3 |

Section B

- | | | | |
|-----|---|---|---------|
| 8. | a) | What do you understand by water quality management? | 1 |
| | b) | Why water quality management is so important for ensuring sustainable production of aquaculture pond? | 3 |
| | c) | What do you know about the water quality management practices in semi-intensive culture systems? | 3 |
| 9. | a) | What is pond fertilization? | 1 |
| | b) | Write down the advantage of fertilizing the grow-out ponds with cow dung and lime. | 4 |
| | c) | Discuss the effects of over fertilization on pond water quality. | 2 |
| 10. | a) | What are the effects of clay turbidity on water quality parameters? | 3 |
| | b) | Explain flocculation and coagulation. | 2 |
| | c) | "Alum is the most effective coagulant" – justify. | 2 |
| 11. | a) | How will you manage ammonia problem in fish pond? | 5 |
| | b) | "Ammonia concentration tends to be greater during winter than during summer" – justify. | 2 |
| 12. | a) | Briefly describe different water pollution. | 3 |
| | b) | "Among liming materials limestone is recommended for aquaculture" – justify. | 2 |
| | c) | "Lime is considered more than fertilizer in aquaculture" – explain. | 2 |
| 13. | a) | How does over feeding create water quality problem in aquaculture? | 3 |
| | b) | "Nitrogen fertilizers are less important than phosphorus fertilizers" – justify. | 2 |
| | c) | Write down the effects of aquatic vascular plants related to water quality in fish pond. | 2 |
| 14. | Write short note on any 02 (two) of the following: | | 3.5x2=7 |
| | a) Phytoplankton bloom; b) Fertilization management; c) Water pollutants; d) bio-fouling in aquaculture | | |

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B. Sc. Fisheries (Hons.) Year -1 Semester-2, Final Examination' 2019

Course No: **HPF 102 (T)**, Course Title: **Handling and Preservation of Fish (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) Briefly describe the physical structure of a demersal and pelagic fish. 2
b) Explain the properties of white and dark muscle of fish. 2
c) Discuss briefly the principles of fish preservation. 3
2. a) How lipid content contribute to palatability and perishability of fish? 2
b) Briefly describe the fish protein on the basis of solubility in salt solution. 3
c) How would you differentiate between dark muscle and white muscle? 2
3. a) Explain briefly good icing practices for fresh fish on the deck of a fishing vessel. 3.5
b) Show the flow diagram of post-mortem changes in fish. 3.5
4. a) Write in brief the major minerals and vitamins available in fish. 2
b) Write in brief non-protein nitrogenous compounds in fish. 2
c) What is rigor-mortis in fish? Explain the major physical changes in fish during rigor-mortis. 3
5. a) What is lipid? Write down the chemical structure of a lipid. 2
b) Explain the changes in chemical composition of fish. 2
c) What are EPA and DHA? Explain human health benefit of EPA and DHA of fish. 3
6. a) Draw a layout of fish processing plant. 5
b) "Fish muscle is more easily digestible than other meat muscle"- Justify the statement. 2
7. Write short notes **any 2 (TWO)** on following: 3.5 X 2 = 7
i) Nutritive value of fish; (ii) Air freight packaging and (iii) CSW and RSW.

Section B

8. a) What are the principal issues to be considered for a fish working premise? 2
b) Write in brief the steps of cleaning program practiced in fish processing plant. 3
c) Proper washing and sorting increase the quality of fish and fishery product-Explain 2
9. a) Differentiate between quick freezing and slow freezing. Why fish is frozen at -40 °C but stored at -18 °C. 3
b) Draw and explain the temperature profile of freezing fish. Write down the importance of "thermal arrest time" in the freezing curve. 4
10. a) Explain briefly different live fish transportation methods. 3.5
b) Differentiate between slow and quick freezing? Explain briefly what kind of quality problems occur in fish during freezing and subsequent storage. 3.5
11. a) Define fish packaging. Write down the function of fish packaging. 3
b) Describe briefly different types of packaging materials used during fish preservation and transportation. 4
12. a) Write down briefly quality problems of shrimps occur at different stages of handling and transportation 2.5
b) What are the important aspects need to consider for designing a building in a fish working premises? 2.5
c) Write in brief different types of packaging materials are in use in the fish processing, preservation, transportation and retailing. 2
13. a) Write down some important methods of fish preservation. 2.5
b) What are the major causes of fish spoilage? Explain. 2
c) What chilling? Write down the different methods of chilling. 2.5
14. Write down short notes **any 2 (TWO)** on following: 3.5 X 2 = 7
i) Physical structure of fish; (ii) Thaw rigor; (iii) Fish supply chain .

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B. Sc. Fisheries (Hons.) Year -1 Semester-2, Final Examination 2019
Course No: LAN 102 (T), Course Title: **Communicative English (Theory)**
Total Marks: 35, Time: 2 hours

*Answer **ALL** the questions from both sections. Figures in the right margin indicate full mark. Use separate answer script for each section.*

Section: A

1. Correct the following sentences if they are incorrect. If a sentence is correct, just copy it. 5
 - a. If he would have revised his first draft, he would have received a better grade.
 - b. Many students are now get used to go to bed late at night.
 - c. Do you know that these gloves have lay on the desk all week?
 - d. Only ten percent of people believe that the issue is serious.
 - e. He was talking in way as if he was a doctor.

2. Complete the following sentences. 5
 - a. If you had met me, _____.
 - b. Don't forget to wait until _____.
 - c. _____ we would have solved this problem.
 - d. It is about five years since _____.
 - e. Be fast and _____.

3. Ornamental fish keeping in aquariums can be an easy and stress relieving hobby. Not only that, it could also be taken as an income generator for many people. Suppose, you would like to encourage people to take up ornamental fish keeping as a hobby, or possibly, as a business too. Now, write a letter to the editor of an English daily in this regard. 7

Section: B

4. Change the following sentences as directed. 5
 - a. The ship was wrecked. (Change voice.)
 - b. Can a dictionary teach us English? (Change voice.)
 - c. I always carry an extra pen. My intention is to avoid trouble if I lose my regular pen. (Join the sentences into a complex one.)
 - d. "It is you who are responsible for the failure", said the teacher to the student. (Change the speech.)
 - e. My mother wanted to know from me whether I was feeling sick. (Change the voice.)

5. Write a paragraph on **Bangladesh is on the way to development.** 5

6. Read the passage carefully and answer the questions that follow. 8

Sea monsters are the stuff of legend - lurking not just in the depths of the oceans, but also the darker corners of our minds. What is it that draws us to these creatures?

"This inhuman place makes human monsters," wrote Stephen King in his novel *The Shining*. Many academics agree that monsters lurk in the deepest recesses, they prowl through our ancestral minds appearing in the half-light, under the bed - or at the bottom of the sea.

"They don't really exist, but they play a huge role in our mindscapes, in our dreams, stories, nightmares, myths and so on," says Matthias Classen, assistant professor of literature and media at Aarhus University in Denmark, who studies monsters in literature. "Monsters say something about human psychology, not the world."

One Norse legend talks of the Kraken, a deep sea creature that was the curse of fishermen. If sailors found a place with many fish, most likely it was the monster that was driving them to the surface. If it saw the ship it would pluck the hapless sailors from the boat and drag them to a watery grave.

This terrifying legend occupied the mind and pen of the poet Alfred Lord Tennyson too. In his short 1830 poem *The Kraken* he wrote: "Below the thunders of the upper deep, / Far far beneath in the abysmal sea, / His ancient, dreamless, uninvaded sleep / The Kraken sleepeth."

The deeper we travel into the ocean, the deeper we delve into our own psyche. And when we can go no further - there lurks the Kraken.

Most likely the Kraken is based on a real creature - the giant squid. The huge mollusc takes pride of place as the personification of the terrors of the deep sea. Sailors would have encountered it at the surface, dying, and probably thrashing about. It would have made a weird sight, "about the most alien thing you can imagine," says Edith Widder, CEO at the Ocean Research and Conservation Association.

"It has eight lashing arms and two slashing tentacles growing straight out of its head and it's got serrated suckers that can latch on to the slimiest of prey and it's got a parrot beak that can rip flesh. It's got an eye the size of your head, it's got a jet propulsion system and three hearts that pump blue blood."

The giant squid continued to dominate stories of sea monsters with the famous 1870 novel, *Twenty Thousand Leagues Under the Sea*, by Jules Verne. Verne's submarine fantasy is a classic story of puny man against a gigantic squid.

The monster needed no embellishment - this creature was scary enough, and Verne incorporated as much fact as possible into the story, says Emily Alder from Edinburgh Napier University. "*Twenty Thousand Leagues Under the Sea* and another contemporaneous book, Victor Hugo's *Toilers of the Sea*, both tried to represent the giant squid as they might have been actual zoological animals, much more taking the squid as a biological creature than a mythical creature." It was a given that the squid was vicious and would readily attack humans given the chance.

That myth wasn't busted until 2012, when Edith Widder and her colleagues were the first people to successfully film giant squid under water and see first-hand the true character of the monster of the deep. They realised previous attempts to film squid had failed because the bright lights and noisy thrusters on submersibles had frightened them away.

By quietening down the engines and using bioluminescence to attract it, they managed to see this most extraordinary animal in its natural habitat. It serenely glided into view, its body rippled with metallic colours of bronze and silver. Its huge, intelligent eye watched the submarine warily as it delicately picked at the bait with its beak. It was balletic and mesmeric. It could not have been further from the gnashing, human-destroying creature of myth and literature. In reality this is a gentle giant that is easily scared and pecks at its food.

Another giant squid lies peacefully in the Natural History Museum in London, in the Spirit Room, where it is preserved in a huge glass case. In 2004 it was caught in a fishing net off the Falkland Islands and died at the surface. The crew immediately froze its body and it was sent to be preserved in the museum by the Curator of Molluscs, Jon Ablett. It is called Archie, an affectionate short version of its Latin name *Architeuthis dux*. It is the longest preserved specimen of a giant squid in the world.

"It really has brought science to life for many people," says Ablett. "Sometimes I feel a bit overshadowed by Archie, most of my work is on slugs and snails but unfortunately most people don't want to talk about that!"

And so today we can watch Archie's graceful relative on film and stare Archie herself (she is a female) eye-to-eye in a museum. But have we finally slain the monster of the deep? Now we know there is nothing to be afraid of, can the Kraken finally be laid to rest? Probably not says Classen. "We humans are afraid of the strangest things. They don't need to be realistic. There's no indication that enlightenment and scientific progress has banished the monsters from the shadows of our imaginations. We will continue to be afraid of very strange things, including probably sea monsters."

Indeed we are. The Kraken made a fearsome appearance in the blockbuster series *Pirates of the Caribbean*. It forced Captain Jack Sparrow to face his demons in a terrifying face-to-face encounter. Pirates needed the

monstrous Kraken, nothing else would do. Or, as the German film director Werner Herzog put it, "What would an ocean be without a monster lurking in the dark? It would be like sleep without dreams."

Do the following statements agree with the information given in the passage? Write:

TRUE: if the statement agrees with the information

FALSE: if the statement contradicts the information

NOT GIVEN: if there is no information on this

- a) Matthias Classen is unsure about the possibility of monster's existence.
- b) Kraken is probably based on an imaginary animal.
- c) Jon Ablett admits that he likes Archie.
- d) According to Classen, people can be scared both by imaginary and real monsters.

- e) What of the featuring body parts mollusc **DOESN'T** have?
 - i. Two tentacles
 - ii. Serrated suckers
 - iii. Beak
 - iv. Smooth suckers

- f) Which of the following applies to the bookish Kraken?
 - i. Notorious
 - ii. Scary
 - iii. Weird
 - iv. Harmless
- g) Where can we see a giant squid?
 - i. At the museum
 - ii. At a seaside
 - iii. On TV
 - iv. In supermarkets
- h) The main purpose of the text is to:
 - i. Help us to understand more about both mythical and biological creatures of the deep
 - ii. Illustrate the difference between Kraken and squid
 - iii. Shed light on the mythical creatures of the ocean
 - iv. Compare Kraken to its real relative

Chattogram Veterinary and Animal Sciences University, Chattogram
Faculty of Fisheries

B. Sc. Fisheries (Hons.) Year -1 Semester-2, Final Examination' 2019
Course No: **EME-102 (T)**, Course Title: **Estuarine and Marine Ecology (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) "Estuaries have some unique characteristics which make them healthy ecosystem of earth" – explain the statement. 3
b) Illustrate the mechanism of estuary formation. 4
2. a) Classify lentic waters with example. 3
b) Give comparative faunal characteristics of brackish and marine water ecosystem. 4
3. a) Classify marine organisms on the basis of nutrition and life cycle with proper example. 2
b) Explain pelagic organisms at different depth with their adaptation capability and proper example. 5
4. a) What are the impacts of climate change on aquatic ecosystem? 3
b) Differentiate between "green house effect" and "enhanced green house effect". 4
5. a) "Distribution of marine organisms in world ocean is determined according to earth's latitudes region"- explain the statement. 3
b) Describe the geographical distribution of Tuna and Hilsa. 4
6. a) Explain biogeochemical cycle from the marine environment. 2
b) Carbon cycle is considered as one of the most impotent elements in marine environment. Describe the marine carbon cycle mechanism. 5
7. Write down short notes **any 02 (TWO)** on following: 3.5 X 2 = 7
i) ENSO; (ii) Intertidal habitat and (iii) Nitrogen load.

Section B

8. a) "Coastal zone contains distinctive development opportunities that can be instrumental in reducing the vulnerability and poverty of coastal communities and can contribute significantly to the development of Bangladesh as a whole"- explain that statement. 4
b) Explain the classification of estuary on the basis of water circulation. 3
9. a) Explain open ocean habitat and describe the major characteristics of open ocean habitat with diagram. 4
b) "Marine fishes have high adaptive capacity for surviving in critical marine water environment".- Explain. 3
10. a) What is river system? 2
b) Briefly describe the common characteristics of a river system with flow diagram. 5
11. a) How can you differentiate between habitat and niche? 3
b) Show the biogeochemical cycle of carbon in marine ecosystem. 4
12. a) Coral are very much sensitive to environmental change. Discuss the environmental features required for coral growth. 2
b) Briefly describe the Darwin's theory of coral formation. 5
13. a) What do you understand by submarine canyon and mid-ocean ridge? 2
b) Differentiate between seaweed and seagrass. 2
c) "Mangrove habitat is considered one of the most important costal habitats due to its biological and physical importance". Justify the statement. 3
14. Write down short notes **any 02 (TWO)** on following: 3.5 X 2 = 7
i) Sandy beach habitat; (ii) Marine benthic community and (iii) Acid rain.

Chittagong Veterinary and Animal Sciences University
MS in Public Health Final Examination 2018
Subject: Biostatistics (Practical)
Code: BST-601

Full Marks: 20

Time: 2 hours

Answer the following questions:

1. The following data refer to the sample of weights of the nurses in a hospital

5+5=10

78, 71, 75, 65, 67, 63, 72, 61, 58, 65, 62, 51, 50, 45, 52, 65, 48, 55, 43, 77, 46, 48, 57, 59, 68, 45, 71, 76, 65, 45, 61, 68, 65, 52, 51, 50, 45, 52, 65, 48, 45,

- i. Obtain all measures of central tendency from the above data.
- ii. Find any two absolute measures of dispersion from the data with necessary comments.

2. You are given a data set of the following patients of a hospital of their smoking status and lung ailment.

10

Smoking status	Lung ailment
Smoker	Yes
Non smoker	Yes
Smoker	Yes
Smoker	Yes
Smoker	No
Smoker	Yes
Smoker	Yes
Non smoker	Yes
Non smoker	No
Non smoker	No
Smoker	Yes
Non smoker	No
Non smoker	Yes
Non smoker	No
Smoker	Yes
Smoker	Yes
Non smoker	Yes
Smoker	No
Smoker	Yes
Smoker	No
Smoker	Yes
Smoker	No
Non smoker	Yes
Non smoker	No
Non smoker	No
Smoker	Yes
Non smoker	No
Non smoker	Yes
Non smoker	No
Smoker	No

Does Smoking have a significant contribution to lung ailment? Test at 5% level of significance.