Chittagong Veterinary and Animal Sciences Univ rsity
B. Sc. Fisheries (Hons.) 1st Year 1st semester Final Exa ation, 2013
Course Title: Fisheries Zoology (Theory); Course coc : FZO-101
Full Marks: 70; Time: 3 Hours

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

Section A

1. a) What is a protozoan? 1
   b) Mention eight general characters of Protozoa. 4
   c) Briefly explain the economic significance of Protozoa. 2

2. a) Define Chordate. 1
   b) Differentiate between Chondrichthyes and Osteichthyes. 2
   c) Write down the general characteristics of Chordata. 4

3. a) Briefly describe the phylum Rotifera. 2
   b) Draw a labeled diagram of a Rotifer. 3
   c) Write the commercial importance of rotifer in fisheries. 2

4. Describe the circulatory system of mussel. 7

5. a) Classify *Loligo*. 1
   b) Describe the digestive and cardiovascular system of *Loligo* with necessary diagram. 6

6. a) Define adaptation. 1
   b) How does aquatic animals adapt in their living environment? 6

7. Write short notes on:
   a) Porifera OR Mollusca 2.5
   b) Economic significance of Reptilia 2.5
   c) Fisheries Zoology 2.0

Section B

8. a) Define Annelida. 1
   b) Define four important characters of Annelida. 2
   c) What do you know about Oligochaeta? Mention its economic significance. 4

9. a) Differentiate between Acrania and Craniata. 2
   b) Classify the class reptilia on the basis of presence or absence of openings through the postero-lateral or temporal region of the skull. 5

10. a) Write down the taxonomic classification of Squid. 2
    b) Draw and label the external morphology of Squid. 3
    c) What do you know about the economic significance of Cephalopodan animals. 2

11. a) Draw the figure of *Aurelia* indicating its different parts. 3
    b) Describe the life cycle of *Aurelia*. 4

12. Describe brief the life cycle of Turtle. 7

13. a) Write down the scientific and common name of five important shrimp species. 2
    b) Describe the reproductive system of *Penaeus*. 5

14. Write short notes on:
    a) Bivalve OR Dolphin 2.5
    b) Arthropoda OR Aquatic Birds 2.5
    c) Octopus OR Cuttle fish 2.0

Chittagong Veterinary and Animal Sciences University
B. Sc. Fisheries (Hons.) 1st Year 1st semester Final Examination, 2013
Course No. & Title: FRS-101(T) & Fisheries Resources
Full Marks: 70; Time: 3 Hours

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

Section A

1.	a)	Define resource.	1
	b)	What do you mean by fisheries resources?	2
	c)	Define: Baor, Floodplain, Beel and River.	4
2.	a)	What are the objectives of sixth five year plan in fisheries of Bangladesh.	2
	b)	Write briefly the sectoral policies of DoF and BFDC.	3
	c)	Mention at least 7 institutions involved in fisheries education in Bangladesh.	2
3.		Give a list of exotic fishes of Bangladesh mentioning common name, scientific name, country of origin and year of introduction.	7
3.	a)	Explain fish egg, fish seed, spawn and fingerling.	2
	b)	Mention the methods of seed collection in fisheries.	2
	c)	Mention important natural carp spawning grounds of Bangladesh.	3
5.	a)	What do you mean by recreational uses of waterbodies?	2
	b)	Briefly describe the different forms of recreational uses of waterbodies.	5
6.	a)	Write down the scientific names of hilsa shad at present available in Bangladesh.	1
	b)	Mention the name of hilsa sanctuary mentioning position and banning period.	3
	c)	Mention the different spawning grounds of hilsa fishery in Bangladesh.	3
7.		Write short notes on:	
		a) Seaweeds	2.5
		b) NGO's in fisheries	2.5
		c) Sanctuary OR Haor	2.0

Section B

8.	a)	Mention the number of fish fauna at present available in Bangladesh: i) Freshwater fish, ii) Marine fish, iii) Freshwater prawn, iv) Marine shrimp, v) Exotic culturable fish species, vi) Endangered fish species.	3
	b)	Distinguish between shell fish and fin fish.	1.5
	c)	Write down five commercially important marine fish with their scientific names.	2.5
9.	a)	What do you mean by SIS?	01
	b)	Define: Exotic species, Indigenous species, Invasive species.	03
	c)	What are the impacts of introducing 'Tilapia' and 'African Magur' in culture system?	03
10.	a)	What is NFMP?	1
	b)	Write the objectives, principles and 'Jalmahal' management system under NFMP.	3
	c)	What are the goals and principles of NAEP?	3
11.	a)	Why Halda river is called the native breeding ground for IMCs?	3
	b)	Give a scenario of present status of artificial seed production in fisheries.	4
12	a)	Distinguish between a major carp and a minor carp.	1.5
	b)	What are the different techniques for the carp seed production in Bangladesh?	3
	b)	What are the problems associated with natural seed collection?	2.5
13.	a)	What are the values of recreation?	3
	b)	Describe briefly the future prospects of recreational waterbodies in Bangladesh.	4
14.		Write short notes on:	
		a) National fish policy	2.5
		b) Fishing gears OR Non piscine fisheries organisms	2.5
		c) Cartilaginous fish OR The Old Brahmaputra River	2.0

Chittagong Veterinary and Animal Sciences University
B. Sc. Fisheries (Hons.) 1st Year 1st semester Final Examination, 2013
Course No. & Title: FTE-101(T) & Fishing Technology
Full Marks: 70; Time: 3 Hours

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

Section A

1. a) Define Fishing Technology. Explain how the principle of Fishing Technology can be implemented to maintain a suitable catch. 3
   b) Denote: 240 D Z 100 x 2S 250 x 3 Z 300 4
2. a) Explain the terms – "modern fishing gear" and "modern fishing craft". 1
   b) Classify fishing gears according to the international classification and give example from each category. 6
3. a) Define EEZ. Write down the significance of EEZ. 3
   b) What is Rotenone? Mention its use. Do you think fish killed by rotenone is safe for human consumption? – Justify your answer. 4
4. a) Draw and label a typical fishing boat. 4
   b) Write down the relationship between Fishing and Fisheries Management 3
5. a) Define trolling and trawling. 2
   b) Using a flow diagram show the method of net preservation generally practiced in Bangladesh. Do you think this type of net preservation is necessary for nets made from synthetic fibers? 5
6. a) Describe briefly the construction of fishing twine. 3.5
   b) Write down the factors influence the efficiency of fishing gears. 3.5
7. a) What is knotless net? Do you think this type of net is suitable for fishing in the bottom water? Cite reasons in favour of your answer. 3
   b) Define numbering system. What are its different units for measurement? 4

Section B

8. a) Differentiate between fish location and fish detection. 2
   b) What do you understand by commercial fishing ground? Name commercial fishing grounds available in the Bay of Bengal? Write down the factors to be considered to locate a fishing ground in the sea. 5
9. a) Describe the working principle of light fishing. 2
   b) Briefly describe the steps of post fishing activities on board of trawler until transportation. 5
10. a) What is zone of convergence? How these zones influence the abundance of fish in the sea? 3
    b) Write down the significance of trammel net. 4
11. a) What is MSBN? Write down the significance of MSBN. 2
    b) Describe in short- "fish responses against fishing gears and stimuli". 5
12. a) What is FAD? 2
    b) Give the diagram of echo-sounder. Describe the working principles of echo-sounder. 5
13. a) Classify trawling into different categories. Which fishes are caught by a fin fish trawler? 2
    b) Draw and label of a typical trawl net. 5
14. a) What is electro-fishing? Write its importance. 2
    b) Describe briefly the "Marine Fisheries Ordinance-1983". 5

Chittagong Veterinary and Animal Sciences University
B. Sc. Fisheries (Hons.) 1st Year 1st semester Final Examination, 2013
Course No. & Title: FWA-101(T) & Freshwater Aquaculture
Full Marks: 70; Time: 3 Hours

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

Section A

1.	a)	Define aquaculture and classify it on the basis of type.	2
	b)	What are the basic considerations for suitable site selection of a fish farm?	3
	c)	Write about the scope of Aquaculture in Bangladesh.	2
2.		Describe the criteria you follow for site selection of a aquafarm.	7
3	a)	What are the importances of liming in fish pond?	4
	b)	Discuss different types of lime used in fish pond in Bangladesh.	3
4.	a)	Briefly describe the objectives of fertilization.	2
	b)	What are the different types of fertilization?	2
	c)	What are the advantages of organic and inorganic fertilization?	3
5.	a)	Mention suitable time of spawn release in nursery ponds.	2
	b)	Describe the different steps that you will consider before releasing fry into the pond up to the harvesting of the fishes.	5
6.	a)	What is the best time of pond drying in the year and why it is needed?	2
	b)	What are the advantages and disadvantages of draining and drying?	5
7.		Write short notes on the followings:	
		a) Pond slope OR Pond inlet and outlet	2.5
		b) Soil quality for pond construction	2.5
		c) Intensive aquaculture	2.0

Section B

8.	a)	What are the benefits of aquatic weed control?	2
	b)	What are the main problems associated with aquatic weed?	2
	c)	Describe the mechanical, biological and chemical control of aquatic weed.	3
9.	a)	What is composting process?	2
	b)	Describe the stages of composting.	3
	c)	Why the properties of compost should be understood properly?	2
10.	a)	What are the causes of mortality of fish fry during transportation?	2
	b)	What are the reasons of using anesthetics?	2
	c)	Discuss the open system transportation of fish fry.	3
11.	a)	Write down the benefits of hatchery production.	2
	b)	Name five anaesthetic drugs used in fish handling.	2
	c)	Describe briefly about hatchery design.	3
12	a)	Define cage and pen aquaculture.	2
	b)	Write about the design and construction of cage and pen.	5
13.	a)	Differentiate between induced spawning and hyphophysation.	2
	b)	Write briefly about the techniques of induced breeding used for carps in Bangladesh.	5
14.		Write down short notes on the following:	
		a) Bundh spawning	2.5
		b) Algal bloom	2.5
		c) Brood banks in Bangladesh	2.0

Chittagong Veterinary and Animal Sciences University
B. Sc. Fisheries (Hons.) 1st Year 1st semester Final Examination, 2013
Course No. & Title: FWE-101(T) & Freshwater Ecology
Full Marks: 70; Time: 3 Hours

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

Section A

1.	a)	What is freshwater ecology?	1
	b)	Write down the divisions of ecology.	3
	c)	Distinguish between habitat and ecological niche.	3
2.	a)	Define ecosystem. Describe fish pond as a freshwater ecosystem.	4
	b)	Name five freshwater habitats of Bangladesh.	1
	c)	Explain ecological pyramid of biomass.	2
3.	a)	What do you mean by limiting factors?	2
	b)	State Liebig's Law of the Minimum.	2
	c)	Write down the ecological principles associates with the Law of Tolerance.	3
4	a)	Define population. What are the characteristics of a population?	2
	b)	What are the ecological ages of population? Why it is necessary to know the ratio of various age groups in the population?	2
	c)	What are the different patterns of dispersion? Give reasons behind such distribution pattern in each case.	3
5.	a)	Distinguish between Lake and Pond.	2
	b)	Describe lotic water communities.	5
6.	a)	What do you mean by biotic community and species diversity?	2
	b)	Define sere, seral stage and climax with examples.	3
	c)	What is ecotone and edge effect?	2
7.	Write short notes on any two of the following: (3.5 x 2)		7
	a) Ecological indicators; b) Thermal stratification; c) Ecological classification of lake.		

Section B

8.	a)	Write down the components of freshwater ecosystems.	2
	b)	Classify freshwater organisms based on their life forms. Give examples.	5
9.	a)	Differentiate between lentic and lotic habitat.	2
	b)	Differentiate between rapid zone and pool zone.	2
	c)	Define littoral, limnetic and profundal zones of a lake with figure.	3
10.	a)	Differentiate between density dependent and density independent factors of population.	2
	b)	Briefly describe the types of population interactions with examples.	5
11.	a)	Define river.	1
	b)	Classify rivers based on topography, age and flow of water.	6
12.	a)	Write down the characteristics and factors of river ecosystem.	3
	b)	Write down the origin and pathway of four important rivers of Bangladesh.	4
13.	a)	Define carrying capacity.	1
	b)	Differentiate between primary and secondary productivity.	2
	c)	Define ecological succession and write down its general principles.	4
14.	Write short notes on any two of the following: (3.5 x 2)		7
	a) Community structure; b) Population age structure; c) Role of rivers.		

Chittagong Veterinary and Animal Sciences University
B. Sc. Fisheries (Hons.) 1st Year 1st semester Final Examination, 2013
Course No. & Title: Biochemistry (BCH-101)
Full Marks: 70; Time: 3 Hours
(Figures in the right margin indicate full marks. Answer any THREE (3) questions from each section of which Questions 1 & 5 are compulsory. Use separate answer script for each section.)

Section A

Q.1 a. Define biomolecules. Differentiate among proteins, lipids, polysaccharides and nucleic acid in terms of building blocks, bonds and major functions. 5

b. Differentiate between hormones and enzymes in terms of the definition, classification and mode of action. 6

Q.2 a. Write down the structures of proteins. 3

b. Which amino acids are the major determinants of the charge of a peptide chain containing all 20 amino acids? 2

c. Write down the structure of commonly found hexose sugars and show the followings: (i) Asymmetric carbon, (ii) Carbonyl carbon, (iii) Primary alcohol and (iv) Penultimate carbon. How many isomers would be possible to get from this sugar? 3

d. Differentiate the following pairs of polysaccharides: (i) Starch and cellulose and (ii) Hyaluronic acid and chondroitin sulphate 4

Q.3 a. Distinguish among the three biologically important diasaccharides in terms of their structures, sources and functions. 3

b. Define glycoproteins. Write down the structure and functions of antifreeze glycoprotein. 4

c. Define fatty acids. Classify fatty acids and write down the structures of polyunsaturated fatty acids. 5

Q.4 a. "Acidification of rivers, lakes, seas and rain threatens the environment"-explain. 3

b. Write down the structure and name of the following side chains: (i) Hydrogen, (ii) Aliphatic hydrophobic, (iii) Aromatic hydrophobic, (iv) Acidic and (v) Basic 3

c. Define indispensible amino acid. Enumerate the name of the essential amino acids. 3

d. Mention the uses of the following reagents in protein chemistry: (i) Sanger's reagents, (ii) Edman's reagents, (iii) Cyanogen bromide and (iv) Urea or Guanodin hydrochloride 3

Section B

Q5. a. Define free radicals and antioxidants with examples. 3

b. Differentiate between RNA and DNA. 3

c. Define Chargaff's rule. Write down the structure of ATP and AMP.

d. Does the tetra nucleotide pdA-pdT-pdC-pdG belong to DNA or RNA? Give its complementary nucleotide indicating its ends with 5' and 3'. 3

e. Define restriction enzymes and give two examples of them. 2

Q.6 a. Draw and level the endocrine glands of a fish. Write down the origin and major functions of the following hormones: (i) Estrogen, (ii) Oxytocin, (iii) Epinephrines, (iv) FSH, (v) Insulin, (vi) Thyroid hormones and (vii) Growth and LH 5

b. Write down the basic principle of recombinant DNA technology. 4

c. Define phospholipids. Write down the structure of the following lipids: (i) Triacylglycerol and (ii) Steroid nucleus 3

Q.7 a. Define and classify lipoproteins with their functions. 3

b. Define metabolism. Distinguish between anabolism and catabolism. Enumerate the major pathways of carbohydrate metabolism. 5

c. What are the common metabolic end products of carbohydrates, proteins and lipid metabolism? 4

Q.8 Write short notes on any four of the followings: 3×3 =12

(a) Deamination, (b) Decarboxylation, (c) Rancidity, (iv) Cory-cycle, (v) β oxidation and (v) Replication

Chittagong Veterinary and Animal Sciences University
B. Sc. Fisheries (Hons.) 1st Year 1st semester Final Examination, 2013
Course Code & Title: LAN-101(T) & Communicative English
Full Marks: 70; Time: 3 Hours

(Figures in the right margin indicate full marks. Answer ALL the questions from each section. Use separate answer script for each section.)

Section - A

1. Use right forms of verbs in the following sentences: 5
   a) John along with twenty friends (be) planning a party.
   b) If I were you, I (agree) to his proposal.
   c) She is used to (take) a glass of milk every night.
   d) The players in the field (be) English.
   e) He always carries an umbrella lest it (rain).

2. In the following sentences supply the articles (*a, an* or *the*) if they are necessary. If no article is necessary, leave the space blank: 5

   a) Rishad's father bought her _____ car that she wanted for her birthday.
   b) There are only _____ few seats left for the guests.
   c) _____ earth is round.
   d) I saw _____ boy in the street.
   e) My _____ car is four years old, and it still runs well.

3. Change the voice of the following sentences: 5
   a) The mother was pleased with the daughter's work.
   b) We prohibit smoking here.
   c) Rome was not built in a day.
   d) Do not laugh at the poor.
   e) Hurry will gain nothing.

4. Join the following pairs of sentences as directed: 5

   a) He is handsome. He is not intelligent. (but)
   b) She works hard. She wants to shine in life. (so that)
   c) Lize eats carefully. She does not want to be overweight. (lest)
   d) She regularly listens English news. She wants to improve her English. (present participle)
   e) She could not arrive. She was sick. (because)

5. Put the correct preposition in the following sentences: 5

The full moon and crescent have always played an important part (a)_____ literature. But science has different things to tell about the moon. It reveals (b)_____ us that the moon has no light of her own. That soft silvery brightness, which forms her principal charm to us, is borrowed solely (c) _____ the light of the sun. When, on a clear night, we look (d) _____ on the magic of moon light, it is often difficult (e) _____ us to realise that the moon is shining in borrowed feathers.

6. Change the forms of the following words as directed and make a sensible sentence with the changed words: 5

   a) Sure (verb); b) able (verb); c) beauty (adjective); d) successful (noun); (e) certain (verb).

7. Punctuate the following: 5

Who is the greatest writer in English In answer to this question many people would name William Shakespeare Shakespeare lived in england from 1564 to 1616 he was an actor and playwright in london but he also wrote poems about nature love and change his plays are divided into three categories comedies tragedies and histories.

Section - B

8. Transcribe the following words into IPA : 5
   a) able; b) doctor; c) pain; d) good; e) but.

9 Suppose you are concerned about sound pollution in your city. Write a letter to the editor of the Daily Star about it. 10

10. Write a paragraph on any of the following: 10
   a) Causes of road accidents in Bangladesh; b) How to speak English better.

11. Write a précis of the following: 10

The greatest advantage of early rising is the good start it gives us in our day's work. The early riser has done a large amount of hard work before other men have got out of bed. In the early morning the mind is fresh, and there are few sounds or other distractions, so that work done at that time is generally well done. In many cases the early riser also finds some time to take some exercise in the fresh morning air, and this exercise supplies him with a fund of energy that will last until the evening. By beginning so early, he knows that he will have plenty of time to do thoroughly all the work he can be expected to do, and is not tempted to hurry through it. With health and spirits for the last hour his work being finished in good time, he has long interval of rest in the evening before he goes to bed. He gets to sleep several hours before

Chattogram Veterinary and Animal Sciences University
Faculty of Food Science and Technology
BFST 2nd year 2nd Semester Final Examination, 2019
Course Title: Food Microbiology (Theory)
Course Code: FMB-202

Full Marks: 70 **Time: 3 hours**

[Figures in the right margin indicate Full Marks. Answer any **5 (Five) questions** from each section. Use separate answer script for each section. **Split answer is strongly discouraged**.]

SECTION-A

1. a) List the factors responsible for thermal resistance of microbes. 2

   b) Complete the following table. 0.5 x 10=5

Conditions/Common Names	Causal Agents
i. Neck rot of bananas	---------
ii. Brewer's yeast	---------
iii. ----------	*Cladosporium* species
iv. Burnt/Caramel flavor of milk	---------
v. Whiskers on meat	---------
vi. --------- flavor in egg	*Streptomyces* species
vii. Stale fishy odor of fish	---------
viii. ---------	*Rhizopus stolonifer*
ix. Sulfide stinker	---------
x. Sweet curdling of milk	---------

2. a) Make a list of factors that make the eggs shelf-stable for a limited period. 2

   b) Enlist some microbial spoilages of fruits and vegetables with their causal agents. 5

3. a) Define "Gray". Enumerate the factors influencing the kind and rate of spoilage of fish. 1+4=5

   b) Classify common wines. 2

4. a) Classify food-borne illness based on etiology with examples. 4

   b) Differentiate food infection from food intoxication. 3

5. a) Define thermodurics with examples. 2

   b) Describe the source of contamination and spoilage of meat. 5

6. a) What is single cell protein (SCP)? Enlist microbes used as SCP with its nutritive value. 1+3=4

   b) Differentiate the following terms – 1 x 3=3

   i. Simmering and boiling
   ii. Drip and leakage
   iii. Evaporated milk and condensed milk

SECTION-B

7. a) List natural inhibitory substances present in different foods. 2

   b) Describe the factors that regulate the growth of microorganisms in food. 5

8. a) State the WHO standard of drinking water. 3

   b) Enumerate the process of canning. 4

9. a) Define food-borne disease outbreak. 2

   b) Design a guideline for investigating an outbreak of Botulism. 5

10. a) List five (5) fermented dairy products. 2

    b) Mention food enzymes with their sources and application(s). 5

11. a) How will you preserve fish? 3

    b) Describe the spoilage of egg. 4

12. a) Define food control and list the regulatory agencies responsible for food control. 3

    b) Outline HACCP activities of a milk industry. 4