

Chittagong Veterinary and Animal Sciences University, Chittagong
B. Sc. Fisheries (Hons.) Year -01, Semester-02, Final Examination 2014
Course Code: EME 102(T); Course Title: Estuarine and Marine Ecology
Total Marks: 70; Time: 3 hours

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

Section-A

- | | | |
|----|---|-----------------------|
| 1. | a) Explain the term "Estuary". | 2.0 |
| | b) Briefly describe the morphological sections of an estuary. | 3.0 |
| | c) "Estuary is a pollution trap"- justify with examples. | 2.0 |
| 2. | a) Classify estuary on the basis of vertical structure of salinity. | 3.0 |
| | b) Mention the physical processes responsible for estuary formation. | 2.0 |
| | c) What do you know about coastal upwelling and downwelling? | 2.0 |
| 3. | a) Define adaptation and distribution of marine organisms. | 3.0 |
| | b) How salinity and temperature affect the distribution of marine organisms? | 4.0 |
| 4. | a) What is the best growing habitat for coral reefs? | 2.0 |
| | b) Draw and label coral reef food web. | 3.0 |
| | c) "Coral reef considered as nursery ground and shelter for ornamental fishes" justify. | 2.0 |
| 5. | a) What is Latitude and Longitude? | 2.0 |
| | b) Classify earth surface zones on the basis of latitude circle. | 2.5 |
| | c) Differentiate between community and species. | 2.5 |
| 6. | a) Which major kingdoms are found in the ocean? | 2.0 |
| | b) Categorize the marine mammals into different groups. | 2.0 |
| | c) Mention the geographical distribution of Tuna fish. | 3.0 |
| 7. | Write short note on any two of the followings: | 3.5×2= 7.0 |
| | a) Coral bleaching, | c) BoBLME, |
| | b) Ecological niche, | d) Benthic community. |

Section-B

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|-----|---|---------------------------|
| 8. | a) What is ecology? | 2.0 |
| | b) Distinguish between ecology and ecosystem. | 2.0 |
| | c) Draw the energy flow dynamics of a marine ecosystem. | 3.0 |
| 9. | a) Enlist the name of common decomposers found in estuarine and marine ecosystem. | 1.5 |
| | b) Write down the significance of decomposition in nutrient cycling of an ecosystem. | 2.5 |
| | c) Describe the decomposition process required for complete breakdown of organic matter. | 3.0 |
| 10. | a) What is continental margin? | 2.0 |
| | b) What does the word topography refers? | 1.0 |
| | c) Briefly describe the bottom topography of a typical ocean. | 4.0 |
| 11. | a) What is salt marsh? | 2.0 |
| | b) Draw a labeled diagram showing different divisions of a marine environment. | 3.0 |
| | c) Distinguish between benthic and pelagic organisms. | 2.0 |
| 12. | a) Which forces cause estuarine mixing? | 2.0 |
| | b) Write down the types of estuarine circulation. | 2.0 |
| | c) "Estuarine process circulates the coastal zones with nutrient and primary productivity" justify. | 3.0 |
| 13. | a) Define intertidal zone. | 2.0 |
| | b) What are the factors that control the behavior of organisms in a sandy shore? | 2.0 |
| | c) Briefly describe the types of intertidal communities of an estuary. | 3.0 |
| 14. | Write short note on any two of the followings: | 3.5×2= 7.0 |
| | a) Darwin's subsidence theory, | c) Fjords, |
| | b) Euryhaline, | d) Marine pelagic fishes. |

Chittagong Veterinary and Animal Sciences University, Chittagong
Faculty of Fisheries

B. Sc. Fisheries (Hons.) Year -01, Semester-02, Final Examination' 2014
Course No & Title: CAM-102 (T); Coastal Aquaculture and Mariculture (Theory)
Total Marks: 70, Time: 3 hours

Answer any 05 (five) questions from each section. The figures in the right margin indicate full mark.

Section-A

1. a. Define mariculture and aquaculture with example. 3
b. Briefly explain the present status of coastal and marine aquaculture practices in Bangladesh. 4
2. a. Name the hormones that are commonly used for artificial breeding of sea bass. 1
b. "Sea bass is catadromous, euryhaline and serially hermaphroditic"- explain the statement on the basis of its biology. 6
3. a. Define "veliger larvae" and "spat". 1
b. Briefly describe the techniques that you can afford to culture oyster in the coastal water of Bangladesh. 6
4. a. Why mangroves are important for the economy of a country? 3
b. "Mangroves are heaven for coastal fisheries"- describe. 4
5. a. Define exotic species with example. 1
b. Briefly describe the importance of following factors in introducing a new "species" for aquaculture: 6
i) Water temperature, ii) Biological characteristics of candidate species, iii) Seed supply, and iv) Legal constraints.
6. a. Mention the factors hindering aquaculture production in Bangladesh. 4
b. Point out the options to improve the coastal/marine fish and shell fish productions. 3
7. Write short note on any two of the following: 3.5x2
a) Crab marketing system; b) Mangrove conservation and restoration; c) Larvae rearing of marine finfish. =7

Section-B

8. a. Write down the habitat and distribution of mud crab. 2
b. How will you increase the market value of "barried female crab"? Describe the process in detail. 5
9. a. What is abalone? 1
b. What do you know about the reproductive habit of abalone? 2
c. How will you culture abalone in the Bay of Bengal coast? 4
10. a. What do you mean by "Grouper"? 1
b. Write down the culture system of Grouper. 6
11. a. Write down the name of important finfish and shellfish species that you will consider for coastal aquaculture. 2
b. Discuss the prospects and constraints of sea bass culture in Bangladesh. Give some recommendations to overcome these problems. 5
12. a. Define mangrove. 2
b. Enlist major finfish and shellfish species available in Sundarban. 1
c. How living and non-living parts of the environment are interrelated in a mangrove ecosystem? 4
13. a. What is pearl? 1
b. Name 4 (four) species of pearl oyster. 1
c. How pearls are formed in mollusks? 2
d. Describe the techniques of artificial pearl production in a coastal farm. 3
14. Write short note on any two of the following: 3.5x2
a) Sea weeds; b) Prawn culture in coastal region; c) Feasibility of scallop culture. =7

Chittagong Veterinary and Animal Sciences University, Chittagong

Faculty of Fisheries

Year -02, Semester-01, Final Examination' 2014

Course No: WQM 102 (T), Course Title: Water Quality Management

Total Marks: 70, Time: 3 hour

Answer any 05 (five) question from each section. Figure in the right margins indicates full marks.

Section-A

- | | | | |
|----|----|--|------------|
| 1. | a. | What do you know about water quality parameter? | 1.5 |
| | b. | Classify water quality parameters giving at least three examples from each class. | 2.5 |
| | c. | What are the important goals of water quality management of aquaculture pond? | 3.0 |
| 2. | a. | What do you mean by water quality deterioration? | 1.0 |
| | b. | How will you assess the water quality deterioration? | 3.0 |
| | c. | Write about the possible sources of water quality deterioration in a culture pond? | 3.0 |
| 3. | a. | What is eutrophication? | 2.0 |
| | b. | What are the primary symptoms of eutrophication? | 2.0 |
| | c. | Why eutrophication is harmful for culture species? | 3.0 |
| 4. | a. | Define total alkalinity and total hardness. | 3.0 |
| | b. | How will you manage high pH problem in a water body? | 4.0 |
| 5. | a. | How will you identify and solve H ₂ S gas problem in your pond? | 3.0 |
| | b. | Briefly describe the iron management practice in aquaculture production system. | 4.0 |
| 6. | a. | Define dissolve oxygen (DO)? | 1.0 |
| | b. | What are the possible sources of DO in a culture pond? | 3.0 |
| | c. | Why anoxic condition is harmful for aquatic organism? | 3.0 |
| 7. | | Write short note on any ¹ of the following: | 3.5×2= 7.0 |
| | a. | Biological Oxygen Demand (BOD) | |
| | b. | Water sampling in aquaculture pond | |
| | c. | Control measure of excessive phytoplankton production in culture pond | |

Section-B

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|-----|----|--|-----|
| 8. | a. | What do you understand by water quality management? | 1.0 |
| | b. | Write about the importance of water quality management in semi-intensive and intensive culture system? | 3.0 |
| | c. | What do you know about the standard value of temperature, pH, DO, NO ₃ -N and PO ₄ -P of semi- intensive and intensive culture pond? | 3.0 |
| 9. | a. | What do you mean by water pollution? What are the major water pollutants? | 3.0 |
| | b. | Write down the effects of water pollution on flora and fauna. | 4.0 |
| 10. | a. | What do you mean by pond fertilization? | 1.0 |
| | b. | Write down the advantage of fertilizing the grow-out ponds with cow dung and lime. | 4.0 |
| | c. | Discuss the effects of over fertilization on pond water quality. | 2.0 |
| 11. | a. | What do you know about the standard value of different water quality parameters of shrimp hatchery? | 2.0 |
| | b. | Mention the protocol for maintaining a hatchery disease free. | 3.0 |
| | c. | How excessive iron can deteriorate water quality of hatchery? | 2.0 |
| 12. | a. | What are the effects of high acidity on aquatic life? | 3.0 |
| | b. | What are the basic requirements of water quality to set up a hatchery? | 4.0 |
| 13. | a. | What are the major sources of NH ₃ in fish pond? | 3.0 |
| | b. | How will you manage NH ₃ problem in your pond? | 4.0 |
| 14. | a. | What are the important water quality issues in the integrated aquaculture system? | 3.0 |
| | b. | Briefly describe the mitigation measures of the effects of coastal aquaculture. | 4.0 |

Chittagong Veterinary and Animal Sciences University, Chittagong
Faculty of Fisheries
B. Sc. Fisheries (Hons.) Year -01, Semester-02, Final Examination' 2014
Course No & Title: ASS-102 (T); Aquatic Soil Science (Theory)
Total Marks: 70, Time: 3 hours

Answer any 05 (five) questions from each section. The figures in the right margin indicate full mark.

Section-A

- | | | | |
|----|----|--|---|
| 1. | a. | Define soil. Write down the significance of soil in Fisheries. | 3 |
| | b. | How does the aquatic environment modify the soil components? | 4 |
| 2. | a. | How does the bed soil influence the fertility of fish pond? | 3 |
| | b. | State the contribution of soil microorganism in nutrient regeneration. | 4 |
| 3. | a. | Write down the properties of clay soil. | 3 |
| | b. | How will you manage clay soil for aquaculture? | 4 |
| 4. | a. | What are the chemical properties of aquatic soil? | 3 |
| | b. | How does the soil pH influence the water productivity? | 4 |
| 5. | a. | What do you mean by Bioturbation? | 2 |
| | b. | Discuss the effects of bioturbation on physico-chemical properties of overlying water. | 5 |
| 6. | a. | What is acid-sulphate soil? What are the impacts of acid-sulphate soils? | 3 |
| | b. | Briefly describe the formation of acid sulphate soil. | 4 |
| 7. | a. | How can you manage healthy bottom mud in aquaculture system? | 4 |
| | b. | Write down the significance of cation exchange capacity. | 3 |

Section-B

- | | | | |
|-----|----|--|---|
| 8. | a. | What do you mean by soil fertility and soil productivity? | 3 |
| | b. | How does bottom mud act as a store house of nutrients for aquatic productivity? | 4 |
| 9. | a. | What is humus? Why humus is important content of wet soil? | 3 |
| | b. | Write down the properties of humus. | 4 |
| 10. | a. | What is soil colloid? How do you identify it? | 3 |
| | b. | Write down the action of different microorganisms in soil. | 4 |
| 11. | a. | What are the differences between actual acid sulphate soil and potential acid sulphate soil? | 3 |
| | b. | Briefly describe the management procedure of acid sulphate soil. | 4 |
| 12. | a. | Classify and define the different salt affected soils. | 3 |
| | b. | Briefly describe the management procedure of salt affected soils. | 4 |
| 13. | a. | How will you test soil permeability? | 3 |
| | b. | Briefly describe the basic functions of pond soils. | 4 |
| 14. | a. | Why monitoring soil condition is important in aquaculture? | 2 |
| | b. | Explain the steps involved in soil management plan in fish production. | 5 |

Chittagong Veterinary and Animal Sciences University, Chittagong

Faculty of Fisheries

Year -01, Semester-02, Final Examination' 2014

Course Title: Communicative English (T), Course No: LAN 102

Total Marks: 35, Time: 2 hour

Answer ALL questions from each section. Figures in the right margin indicate full marks.

Section-A

1. Use the right form of verb in the following sentence: 5.0
- a. A number of employees (be) present in the last night's meeting.
 - b. If she (be) you, I wouldn't have to worry at all.
 - c. Had I the wings of a dove, I (roam) around the globe.
 - d. We are the looking forward to (welcome) you to our party.
 - e. I (already/have) my lunch.
2. Change the following sentences as directed 5.0
- a. All his friends laughed at him (change voice).
 - b. "Will you be my friend if I give you my ice cream?" *Tina said to Rina (change speech)*
 - c. My father is going to USA. His intention is to meet the president. (join using 'in order to')
 - d. Shakespeare says that time cannot fool love. (change speech)
 - e. Rome was not built in a day. (change voice)
3. It's the age of internet and Smartphone. Apart from communicating, people can use their Smartphones for learning purposes as well. For example, they can now use their Smartphones to learn and improve English. Now write a letter to the editor of an English daily explaining and suggesting how people can utilize their Smartphones for learning. 7.0

Section-B

4. Complete the following sentences: 5×1= 5.0
- a. We eat food so that
 - b. In spite of, he was honest.
 - c. It is time they.....
 - d. No sooner had he reached.....
 - e. I took him.....
5. Write paragraph on **ANY ONE** of the following: 1×5= 5.0
- a. Proper use of time
 - b. Keeping a promise
6. Read the passage carefully and answer the questions that follow: 1×8= 8.0
- In the early 1920's, settlers came to Alaska looking for gold. They traveled by boat to the coastal towns of Seward and Knik, and from there by land into the gold fields. The trail they used to travel inland is known today as the Iditarod Trail, one of the National Historic Trails designated by the Congress of the United States. The Iditarod Trail quickly became a major thoroughfare in Alaska, as the mail and supplies were carried across this trail. People also used it to get from place to place, including the priests, ministers, and judges who had to travel between villages. In the winter, the settlers' only means of travel down this trail was via dog sled.
- Once the gold rush ended, many gold-seekers went back to where they had come from, and suddenly there was much less travel on the Iditarod Trail. The introduction of the airplane in the late 1920's meant dog teams were no longer the standard mode of transportation, and of course with the airplane carrying the mail and supplies, there was less need for land travel in general. The final blow to the use of the dog teams was the appearance of snowmobiles.

By the mid 1960's, most Alaskans didn't even know the Iditarod Trail existed, or that dog teams had played a crucial role in Alaska's early settlements. Dorothy G. Page, a self-made historian, recognized how few people knew about the former use of sled dogs as working animals and about the Iditarod Trail's role in Alaska's colorful history. To raise awareness about this aspect of Alaskan history, she came up with the idea to have a dog sled race over the Iditarod Trail. She presented her idea to an enthusiastic musher, as dog sled drivers are known, named Joe Redington, Sr. Soon the Pages and the Redingtons were working together to promote the idea of the Iditarod race.

Many people worked to make the first Iditarod Trail Sled Dog Race a reality in 1967. The Aurora Dog Mushers Club, along with men from the Adult Camp in Sutton, helped clear years of overgrowth from the first nine miles of the Iditarod Trail. To raise interest in the race, a \$25,000 purse was offered, with Joe Redington donating one acre of his land to help raise the funds. The short race, approximately 27 miles long, was put on a second time in 1969. After these first two successful races, the goal was to lengthen the race a little further to the ghost town of Iditarod by 1973. However in 1972, the U.S. Army reopened the trail as a winter exercise, and so in 1973, the decision was made to take the race all the way to the city of Nome-over 1,000 miles. There were many who believed it could not be done and that it was crazy to send a bunch of mushers out into the vast, uninhabited Alaskan wilderness. But the race went! 22 mushers finished that year, and to date over 400 people have completed it.

- A. The primary purpose of this passage is to
 - a. recount the history of the Iditarod trail and the race that memorializes it
 - b. describe the obstacles involved in founding the Iditarod race
 - c. outline the circumstances that led to the establishment of the Iditarod Trail
 - d. reestablish the important place of the Iditarod Trail in Alaska's history
- B. Based on information in the passage, it can be inferred that all of the following contributed to the disuse of the Iditarod Trail except
 - a. more modern forms of transportation
 - b. depleted gold mines
 - c. highway routes to ghost towns
 - d. reduced demand for land travel
- C. As used in paragraph 2, which is the best definition for **mode**?
 - a. formula
 - b. way
 - c. preference
 - d. option
- D. According to the passage, the initial Iditarod race
 - a. was funded through the sale of musher entrance fees
 - b. was founded by an advocate for Alaskan history
 - c. ended at the ghost town of Iditarod
 - d. boasted a total of 400 entrants
- E. What do you understand by 'self-made historian' as used in paragraph 3?
- F. What is the word used to describe a person who drives a dog sled?
- G. Fill in the gap.
The use of dog terms diminished as.....were introduced.
- H. Why did Dorothy G. Page want to introduce dog sled race over Iditarod Trail?

Chittagong Veterinary and Animal Sciences University, Chittagong
Faculty of Fisheries

Year -01, Semester-02, Final Examination' 2014
Course No: ICH 102 (T), Course Title: **Ichthyology**
Total Marks: 70, Time: 3 hour

Answer any 05 (five) question from each section

Section-A

1. a. Define ichthyology. 1.0
b. Write down the importance of ichthyology. 1.5
c. Describe the order mastacemboliformes, beloniformes and pleuronectiformes. 4.5
2. Distinguish between any **TWO** of the following pair- 3.5×2=7.0
 - a. Air bladder and air sac
 - b. Spiracle and spiral valve; and
 - c. Squaliformes and rajiformes
3. a. What do you understand by streamlined body? 2.0
b. Discuss briefly the various body forms found in fishes. 3.0
c. Show the location of different openings on fish body. 2.0
4. a. What do you understand by food habit, feeding habit and feeding adaptation? 2.0
b. What adaptive changes occur in lips, jaws, gills, stomach and intestine of fishes due to feeding adaptation? 5.0
5. a. What do you understand by excretion? 1.0
b. Name the excretory organ found in fishes. 0.5
c. Enumerate the function of fish kidney. 1.5
d. Show osmoregulatory system of freshwater fishes with figure. 4.0
6. a. Describe the special cells that give color to fishes. 3.0
b. Discuss briefly the significance of coloration in fishes. 4.0
7. Write notes on any **TWO** of the followings: 3.5×2=7.0
 - a. Bioluminescence in fishes
 - b. Sexual dimorphism in fishes and
 - c. Devonian fishes
 - d. Digestive system

Section-B

8. a. Define respiration. 1.0
b. Write down the purpose of respiration. 1.0
c. Write down the name of the factors that influence the respiratory volume. 2.0
d. Why gills are efficient? 3.0
9. a. Define and classify fish muscle. 2.0
b. Differentiate between skeletal, Cardiac and Smooth muscle. 2.0
c. Describe the skeletal muscle of the median fin. 3.0
10. a. Describe the scale of fish on the basis of structure. 3.5
b. Describe the derivatives of skin. 3.5
11. a. Show diagrammatically the different nervous system of fish. 3.5
b. Describe the structure of neurons with figure. 3.5
12. a. What do you mean by pisces? 1.0
b. Describe the order acipenseriformes, lepisosteiformes, clupeiformes and cypriniformes. 6.0
13. Distinguish between any **TWO** of the following pair- 3.5×2=7.0
 - a. Endocrine gland and exocrine gland
 - b. Chromatophore and iridocyte; and
 - c. Afferent branchial system and efferent branchial system.
14. Write notes on any **TWO** of the following: 3.5×2=7.0
 - a. Chloride cell
 - b. Rheoreceptor;
 - c. Opisthonephric kidney
 - d. Electric organ

Chittagong Veterinary and Animal Sciences University, Chittagong
Faculty of Fisheries

Year -01, Semester-02, Final Examination' 2014

Course Title: Handling & Preservation of Fish (T), Course No: HPF-102

Total Marks: 70, Time: 3 hour

Answer any 05 (five) question from each section. Figures in the right margin indicate full marks.

Section-A

1. a. Why fish is considered as one of the best food? 2.0
b. What do you mean by proximate composition? 1.5
c. Differentiate between spoilage and deterioration. 2.0
d. What is white muscle and dark muscle in fish? 1.5
2. a. Write down the importance of handling of fish and shellfish. 2.5
b. Write down the causes of fish spoilage and mention the remedial measures of such spoilage. 4.5
3. a. Mention the steps to be followed in handling fish on board of a trawler in the Bay of Bengal. 3.5
b. Why ice is considered the best medium for preservation of fish? 1.5
c. What are the difference between plate freezer and immersion freezer? 2.0
4. a. Define sorting and grading of fish. 1.0
b. Calculate the amount of heat has to be removed from 5 kg Hilsha to freeze at -40°C , where initial temperature of fish is 25°C . 4.5
c. Write down the factors to be considered during sorting and grading of fish 1.5
5. a. Define commercial handling of fish and shell fish. Mention their objectives. 1.5
b. Give a schematic diagram on post mortem changes in fish. 4.0
c. Write down the importance of fish minerals and vitamins on human body. 1.5
6. a. Write down the pre-requisites for establishing an ideal fish processing plant. 1.0
b. Draw a layout of shrimp processing plant. 4.5
c. Write down the importance of waste disposal system in a fish processing plant. 1.5
7. a. What are the objectives of good sanitation in a fish working premises? 2.0
b. Mention the importance of staff hygiene in quality fish preservation. 1.5
c. Write down the specification of entry door, floor, window and wall of a good fish working premises. 3.5

Section-B

8. a. What is fish freezing? Briefly describe the changes that occur in fish during freezing. 2.0
b. Draw and enumerate different stages of a typical fish freezing curve. 2.0
c. Differentiate between slow freezing and quick freezing. 1.0
d. Define water activity (a_w). What are the roles of a_w in fish preservation? ' a_w of caviar is 0.92' - justify. 2.0
9. a. Discuss different stowage methods of fish in-ice on fishing vessels with advantages and disadvantages of each method. 4.0
b. How ice cools fish? What are the points we should consider for proper icing? 3.0
10. a. Do you think that icing of fish in Bangladesh is a satisfactory way of fish preservation? Justify your answer. 3.0
b. What are the differences between fish preservation and fish conservation? 2.0
c. Write down the scientific name of two shellfish and two mollusks having commercial importance. 2.0

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|-----|----|--|-----|
| 11. | a. | Define packaging. What are the major functions of packaging? | 1.0 |
| | b. | What is IQF? How IQF products are packed? Write down the properties of an ideal fish package. | 2.0 |
| | c. | What are the usages of irradiation in food preservation? Define commercial sterility. | 1.0 |
| | d. | Compare vacuum packaging, controlled atmosphere packaging and modified atmosphere packaging as a means of shelf life extension of fish. | 3.0 |
| 12. | a. | What is the generation time of bacteria and name the five spoilage bacteria in fish. | 2.5 |
| | b. | Mention the names of different methods of chilling. | 1.5 |
| | c. | What is glazing and how it is done in fish? | 3.0 |
| 13. | a. | Write down the different methods and importance of washing and grading of fishes during preservation. | 3.0 |
| | b. | What is sensory quality assessment table for sorting and grading? | 2.5 |
| | c. | Mention the role of temperature during preservation. | 1.5 |
| 14. | a. | Write down the prospects of live fish transportation. Briefly describe the methods of live fish transportation. | 3.0 |
| | b. | List down the factors associated with successful transportation of live fish and describe any two important factors. | 3.0 |
| | c. | Consider that you have the following stocks- fatty fish (sardine/salmon), lean fish (cod/haddock), flatfish (flounder), and crustaceans (lobster/ shrimp). You have three frozen storage facilities (-18°C, -25°C and -30°C). Which storage facility will provide maximum storage life and which one will be more economical? Justify your answer. Which particular stock will have longer storage life? | 1.0 |

A

Chittagong Veterinary and Animal Sciences University, Chittagong
Faculty of Fisheries

B.Sc. Fisheries (Hons.) Year -01, Semester-02, Final Examination' 2014
Course No & Title: CSC-102(T); Computer Science (Theory)
Total Marks: 70, Time: 3 hour

Answer any 04 (four) questions from each section where question 1 and 6 are compulsory. The figures in the right margin indicate full mark.

Section-A

1. a) What are the basic differences between CISC and RISC? 2
b) What are the uses of secondary storage in a computer system? 1.5
c) Distinguish between hardware and software. 1.5
2. a) What is digital computer? Briefly explain the data processing cycle of computer system. 5
b) What is meant by computer generation? Write short note on super computer. 5
3. a) Calculate the difference: i) 1100101001-110110110 4
ii) 1010-1011
b) Add the following numbers: 2
100101 and 10100
c) What do you mean by BCD and Unicode? 4
4. a) What are I/O devices? List common I/O devices. 2
b) Explain how data is stored on the surface of magnetic and optical disks. 5
c) Write the characteristics of address bus and control bus. 3
5. a) What do you mean by operating system? Discuss the major functions of DOS operating system (OS). 5
b) Write the advantages of WINDOWS. 3
c) What do you understand by multi-user operating system? Give examples. 2

Section-B

6. a) Convert the Binary from $127_{(10)}$ 2.5
b) Convert the following octal number to hexadecimal equivalent. 2.5
 $7025_{(8)}$
7. a) What is network topology? Describe two basic topologies. 4
b) What do you understand by computer networks? List some common uses of computer networks. 3.5
c) Describe the general characteristics of LAN. 2.5
8. a) Define computer virus and antivirus. 3
b) What do you mean by Database management system? Write two reasons why need data normalization. 5
c) Write the name of some popular web browser. 2
9. a) What is disk formatting and file defragmentation. 3
b) State the salient features of CRT, LCD and LED monitor. 3
c) A printer is said to have a resolution of 600dpi; what does this mean? 4
10. a) What is a search engine? List three names of popular search engine. 2.5
b) Write short notes on E-mail. 2.5
c) What is a modem? Explain how two distant computers can communicate through telephone line using modems. 5