

Chittagong Veterinary and Animal Sciences University, Chittagong

Faculty of Fisheries

B. Sc. Fisheries (Hons.) Year -01 Semester-01, Final Examination' 2017

Course No: FZO-101 (T), Course Title: Fisheries Zoology(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) What do you mean by planula? 1.0
b) Discuss the importance of studying aquatic zoology? 2.0
c) Is polyp and medusa can be found in a single animal? Discuss with an example. 4.0
2. a) Enumerate the differences between Platyhelminthes and Nematoda. 2.0
b) Classify Platyhelminthes upto sub-class level mentioning key characters and an example of each sub classes. 5.0
3. a) Make a comparative statement about the similarities in Dolphin and Human. 2.0
b) Mention the procedure of catching fish by dolphin using herding process? 2.0
c) Outline the parental care mechanisms of dolphin to their child. 3.0
4. a) What do you understand by crustaceans? 1.0
b) Identify the three key characteristics of arthropods. 2.0
c) Draw and label a typical crustacean. 2.0
d) Prioritize the economic significance of crustaceans. 2.0
5. a) Write down the key characters of the phylum chordate. 2.0
b) "All chordates are not vertebrates but all vertebrates are chordates"- Argue with your answer. 2.0
c) Differentiate between chondrichthys and osteichthys. 3.0
6. a) Differentiate between functional and behavioral adaptations. 2.0
b) How freshwater fish adapt themselves in respect to salinity changes? 5.0
7. Elaborate **any (02) two** from the following: 3.5×2=7.0
a) *Pila*, b) Frog, c) Choanocyte, and d) Sponge

Section-B

8. a) What is radula? 1.0
b) Differentiate between gastropods and cephalopods. 3.0
c) Show the location of different organs of a typical mollusk in a diagram. 3.0
9. a) What do you know about clitellum? 1.0
b) Discuss the Ascariasis infection in Bangladesh. 4.0
c) How you will control the helminthes infection in Bangladesh? 2.0
10. a) Differentiate between prawn and marine water shrimp. 2.0
b) Point out the functions of the following organs of *Octopus*: mantle, cecum, ink sac, crop, poison gland. 2.0
c) How starfish reproduce? 3.0
11. a) What do you know about Echinodermata? 2.0
b) Classify the phylum Echinodermata with an example from each class. 2.0
c) Outline the economic significance of echinoderms in marine environment. 3.0
12. a) Establish the relationship between temperature and sex determination in turtle. 2.0
b) Summarize the life history events of turtle. 5.0
13. a) What do you mean by adaptation? Why it is needed for animals? 2.0
b) Categorize different morphological adaptations found in fishes. 5.0
14. a. How you will differentiate between poisonous snakes from a non-poisonous one? 2.0
b. Develop a diagram showing the life history of crocodile. 2.0
c. Prioritize the economic significance of reptile. 3.0

Chittagong Veterinary and Animal Sciences University, Chittagong

Faculty of Fisheries

B. Sc. Fisheries (Hons.) Year -01 Semester-01, Final Examination' 2017

Course No: **FWE-101(T)**, Course Title: **Freshwater Ecology (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 aquatic ecology and freshwater ecology. 2.0
b) What do you know about the origin of ecology? 2.0
c) Differentiate between population ecology and community ecology. 3.0
2. a) Narrate the functions of ecosystem. 3.0
b) How does ecosystem maintain their state of equilibrium? 4.0
3. a) Define food chain and food web. 2.0
b) "The shorter the food chain, the greater the available energy" – explain. 3.0
c) Explain the term 'euhaline' with an example. 2.0
4. a) Differentiate between lentic and lotic habitat. 3.0
b) Explain thermal stratification of a lake. 4.0
5. a) How do nekton differs from neuston and benthic organisms? 3.0
b) Compare the Liebig's law of the minimum with the Shelford's law of tolerance. 4.0
6. a) Differentiate the types of population limiting factors. 3.0
b) How do different types of ecological pyramid form? 4.0
7. a) Differentiate two modes of population growth form. 3.0
b) Compare between the population limiting factors. 4.0

Section B

8. a) Differentiate autecology and synecology. 2.0
b) How does ecological study help to protect environment? 5.0
9. a) Compare habitat with ecological niche. Name 5 freshwater habitats of Bangladesh. 3.0
b) Explain ecosystem components by giving an example of a pond. 4.0
10. a) Show the energy flow model in an ecosystem. 2.0
b) Classify ecological pyramids with graphic representantions. 5.0
11. a) Draw the major zones of a lentic ecosystem. 2.0
b) How does freshwater lotic organisms adapt with prevailing conditions? 5.0
12. a) Calculate gross primary productivity when net primary productivity and respiration are 10 and 4 ppm, respectively. 2.0
b) Explain ecological principles associated with the Shelford's law of Tolerance. 5.0
13. a) How do you differ individual, species, population and community? 2.0
b) Develop different types of interaction between two species in a community. 5.0
14. a) For which full expression of biotic potential of an organism restrict? 2.0
b) Explain different types of dispersion in a population. 5.0

Chittagong Veterinary and Animal Sciences University, Chittagong
Faculty of Fisheries

B. Sc. Fisheries (Hons.) Year – 01 Semester – 01, Final Examination 2017

Course No: FTE-101 (T), Course Title: **Fishing Technology (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) Write in brief the importance of studying Fishing Technology course? 2.0
b) Why nylon is considered as an ideal fish net? 3.0
c) What is the difference between EEZ and Territorial water body? 2.0
2. a) Write in brief key management measures related to marine fisheries in Bangladesh. 3.5
b) Write in brief five different types of fishing boats of Bangladesh with their size, shape, operations and types of gears used. 3.5
3. a) Enlist major fishing grounds of Bangladesh with their geographical location. 2.0
b) Imagine you are a skipper of a fishing vessel, suddenly the vessel is attacked by sea pirates, then what will be the potential technological solution to combat fishing trawler hijacking and pirates? 3.0
c) "Transducer is the heart of Ecosounder"- justify the statement. 2.0
4. a) "Radar is called third eye of fisherman" – justify the statement. 2.0
b) Differentiate between trawling and trolling. 2.0
c) What is current jal? Draw and label different parts of a trawl net. 3.0
5. a) Write in brief FAO classification of fishing gears categories. 3.5
b) Write down the names of 5 (five) important different types of gill nets operated in the inland water of Bangladesh with brief description, mesh size, location of use fishing season, and species caught. 3.5
6. a) What do you mean by electrofishing? What types of water body is suitable for electrofishing? 3.0
b) List down various amendments of East Bengal Protection and Conservation Act 1950. 4.0
7. a) Write down the names of different types of artisanal fishing gears operated in the marine water of Bangladesh with brief description, water depth, fishing season and species caught. 2.0
b) Why current jal is considered as a harmful gear? Explain. 2.0
- ~~8. a) Write down the names of different types of artisanal fishing gears operated in the marine water of Bangladesh with brief description, water depth, fishing season and species caught. 3.0~~

Section-B

8. a) Write in brief fibre types for making yarns. 2.0
b) Write in brief the major numbering and counting systems of fibre. 2.5
c) Identifying the numbering system of following fishing twine: 2.5
(i) 200 Tex 3 × 2 Z; (ii) 200 Tex Z 160 × 2 S 300 × 3 Z 400; (iii) 200 D/2/3 Z; (iv) 210 X 2 X 3
9. a) What do you mean by convergence and divergence? 2.0
b) How do you differentiate fish detection from fish location? 2.0
c) Briefly discuss different types of traps. 3.0
10. a) Enlist the factors responsible for determining efficiency of a fishing gear. 2.0
b) How will you choose net making materials? 3.0
c) Classify synthetic fibers based on breaking load. 2.0
11. a) What is net preservation? 2.0
b) Briefly discuss different types of net preservation with advantages and disadvantages. 5.0
12. a) What are the differences between seine net and purse seine net? 2.0
b) Classify trawl net based on depth of operation. 2.0
c) When a foreign fishing vessel can enter into the Bangladesh water without license? 3.0
13. a) Write in brief the fundamental aspects of locating fishing grounds. 3.5
b) What do you mean by fish detection? Write in brief working principles of echo-sounder. 3.5
14. a) Write down briefly operation procedure of MSBN. 2.5
b) Write in brief operational procedure of trammel netting. 2.5
c) Write notes on operational procedure of long line fishing. 2.0

Chittagong Veterinary and Animal Sciences University, Chittagong

Faculty of Fisheries

B. Sc. Fisheries (Hons.) Year – 01 Semester – 01, Final Examination 2017

Course No: CSC-101 (T), Course Title: Computer Science (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) What is the difference between a programmer and a system analyst? 02
b) List the features of 3rd generation computer. 03
c) Describe the classifications of computer system based on capacity. 02
2. a) Convert the following numbers showing the conversion steps clearly 06
i) $789.45_{10} \rightarrow$ Binary ii) $7345.16_8 \rightarrow$ Hexadecimal iii) $5AB.3C_{16} \rightarrow$ Decimal
b) What is programming language? 01
3. a) What is I/O device? Give examples. 02
b) Define bar code reader and digital camera. 03
c) Differentiate between I/O device and peripheral device. 02
4. a) Briefly explain the functions of ALU during data processing. 04
b) Write down the difference between memory and storage. 03
5. a) What is network media? Explain its type with proper example. 03
b) Write down the properties of MAN and WAN. 04
6. a) Briefly explain memory hierarchy. 02
b) Explain the mechanism of data storage on the surface of optical storage. 03
c) Write the role of cache memory in a computer system. 02
7. a) Define software. Give some examples of application software. 02
b) What do you mean by user interface? Explain the differences between CLI and GUI. 05

Section-B

8. a) How can we relate operating system with hardware, software and user? 02
b) What is an operating system? 01
c) Write the characteristics of an operating system. 02
d) What are the features of MS- DOS? 02
9. a) Define the following text codes: 03
i) Unicode ii) EBCDIC iii) ASCII
b) What do you mean by information? Explain the four phases of information processing cycle. 04
10. a) What is computer virus? Give examples. 02
b) Write the contribution of computers in the field of education and administration. 03
c) What do you mean by IP address and subnet mask? 02
11. a) List some common uses of computer networks. 03
b) Write the functions of SMTP and HTTP. 02
c) What is web search engine? Give some examples of web search engine. 02
12. a) What do you mean by Database Management System (DBMS)? Mention some major operation of DBMS. 04
b) Explain serial transmission and parallel transmission with necessary diagrams. 03
13. a) Draw a truth table and logic gate of i) OR gate ii) AND gate 06
b) What is Internet? 01
14. a) Perform the binary arithmetic operations on the following numbers: 03
i) $1110111+101111$ ii) $1011001-11110$ iii) $1011.11-10.1$
b) Perform 2's complement on the following binary numbers: 04
i) $111011-111$ ii) $111101-111111$

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 resource. What are the three main characteristics of it? 1.0
b) Classify freshwater resources of Bangladesh. 1.0
c) "Fish is renewable resource" – justify. 2.0
d) Describe the major river system of Bangladesh. 3.0
2. a) What is EEZ? 1.0
b) What are the aims and objectives of Bangladesh Fisheries Research Institute (BFRI)? 3.0
c) How does Bangladesh Fisheries Development Corporation (BFDC) help for sustainable fisheries management? 3.0
3. a) What was the necessity of introducing New Fisheries Management Policy (NFMP)? 2.0
b) Describe NFMP giving emphasis on its purpose, objectives and working principles. 5.0
4. a) Define indigenous fish species with examples. 2.0
b) What are the major dominant fish groups of Bangladesh? 1.0
c) Write down the local and scientific names of Indian Major Carps (IMCs). Why they are called so? 4.0
5. a) What is the percent contribution of Hilsha in the total fish production as a single species? 1.0
b) What do you know about its species diversity and geographical distribution? 1.0
c) Describe the biology and migration pattern of Hilsha. 5.0
6. a) What do you mean by fish seed? 1.0
b) Why is Halda so important as a natural source of fish seed? 1.0
c) What would be your suggestions for restoration of natural breeding ground? 3.0
d) Why fish seeds are produced artificially? 2.0
7. a) What do you mean by exotic fish fauna? 1.0
b) What are the main purposes of introducing exotic fish for aquaculture in Bangladesh? 3.0
c) Write down the scientific name of any 5 exotic fish species of Bangladesh. 3.0

Section B

8. a) "River is a part and parcel of the people of Bangladesh" – why? 1.0
b) What do you mean by Haor, Baor and Beel? 2.0
c) What are the fishing grounds of the Bay of Bengal? 4.0
9. a) Which organization is at the apex of National Agricultural Research System (NARS)? Write down its goal. 2.0
b) List five national and five international NGOs working for the development of fisheries resource in Bangladesh. 2.0
c) What are the mandates of Department of Fisheries? 3.0
10. a) What is co-operative? Write a short note on community Based Fisheries Management (CBFM). 2.0
b) Explain the principles of New Agricultural Extension Policy (NAEP). 5.0
11. a) What do you know by SIS? 1.0
b) Write down the local and scientific names of five SIS of our country. 2.0
c) Explain the importance of SIS. 3.0
d) What are the factors do you think responsible for the degradation of SIS biodiversity? 1.0
12. a) Why did Bangladesh Government ban the culture of African Magur? 2.0
b) "Tilapia is an important exotic fish that has been cultured in Bangladesh for years" – give your opinion. 5.0
13. a) Write down the cultural, nutritional and economic importance of Hilsha fishery in Bangladesh? 3.0
b) Name the nets and boats used to catch Hilsha. 2.0
c) Name the spawning grounds of Hilsha so far identified in Bangladesh. 2.0
14. Write short note on any 2 (two) of the following: 3.5 x 2 = 7.0
a) Fourth Fisheries Project
b) Crustaceans
c) Problems of Thai pangus culture
d) Recreational fisheries.

Chittagong Veterinary and Animal Sciences University

Faculty of Fisheries

B. Sc. Fisheries (Hons.) Year -01 Semester-01, Final Examination' 2017

Course code: BCH-101 (T), Course Title: Biochemistry (Theory)

Total Marks: 70, Time: 3 hours

3 (Three)

Answer any 6 (six) questions from each section where **question no 1 and 5 are compulsory**. Figures in the right margin indicate full mark. Use separate answer script for each section. Split answer is discouraged.

Section-A

1. a) State the significant of Edman reagent, Dansyl chloride and Sanger's reagent in protein chemistry. 3.0
b) Describe transamination of amino acid catabolism with specific example. Mention the class number and the class name of the enzymes responsible for this reaction. 2+1 =3
c) Compare and contrast between α - helix and β - pleated sheet structure of protein. 3.0
d) Classify human, birds, frog, tadpole and fishes on the basis of their N-excretory products. "The form of the products is largely determined by the accessibility of H₂O to the organism"- justify the statement taking example of the products from lungfish. 1+1 =2
2. a) Differentiate between hormone and enzyme. Classify hormone based on their chemical nature and mode of action. 3.0
b) What is TATA box? Briefly describe the total process of protein synthesis. 4.0
c) Enlist the name of different hormones that are synthesized from pituitary gland, pineal gland, adrenal gland and ovary. 2.0
d) What is central dogma? Differentiate the following term; 3.0
i. Exon and Intron ii. Nucleotide and nucleoside
3. a) What are lipids? Define and state the significance of any three parameters used for fat characterization. 2+3 =5
b) Describe the reactions of β -oxidation of fatty acids where FAD and NAD⁺ act as coenzymes. 4.0
c) Write down the differences between fat and oil. Mention the significance of Acid Value, Saponification Value and Iodine Value in fat/oil. 3.0
4. a) Describe the Watson-Crick model of DNA structure. 5.0
b) "RNA but not DNA is labile to alkali hydrolysis"-explain. 4.0
c) What is Chimeric DNA? Briefly describe the basic principles of recombinant DNA technology. 3.0

Section-B

5. a) Define the following terms; 4.0
i. Bioluminescence ii. Central dogma iii. Bioenergetics iv. Exergonic reaction
b) What is amphibolism? Briefly describe the reactions that occur in the pay off phase of glycolysis 3.0
c) Define biogenic amine. Calculate the total number of ATP after complete oxidation of palmitic acid into CO₂ and H₂O. 4.0
6. a) Enlist the regulatory enzymes of gluconeogenesis. Why gluconeogenesis does not occur in muscle cell? 2.0
b) 'CAC is an amphibolic cycle'- explain 4.0
c) Why does NADH produced by isocitrate dehydrogenase generate three ATP while glyceraldehyde-3-phosphate dehydrogenase three, two or zero (no)? 3.0
d) Define transamination. Show the reaction of urea cycle that occurs in cytosol of liver cell. 3.0
7. a) Briefly describe various types of reversible inhibition. Mention their effect on Km and Vmax. 3+2 = 5
b) What is Km? How will you calculate the value of Km? Write down the significance of Km. 3.0
c) Arrange the various types of enzyme specificity in tabular form in increasing order. 2.0
d) "Store glycogen is known as fuel reserve in our body"- why? 2.0
8. Write down the short notes on the following (any four): 4x3 =12
a. Water cycle b. Steroid molecule c. Glycogenolysis d. Impact of using growth hormone in fish farming
e. rDNA technology

Chittagong Veterinary and Animal Sciences University, Chittagong
Faculty of Fisheries

B. Sc. Fisheries (Hons.) Year -01 Semester-01, Final Examination' 2018

Course No: BCH 101 (T), Course Title: **Biochemistry (Theory)**

Total Marks: 70, Time: 3 hours

*Answer any **three (3)** questions from each section where question no 1 and 5 are compulsory. Figures in the right margin indicate full mark. Use separate answer script for each section. Split answer is discouraged.*

Section-A

1. a) Define carbohydrate. Prove that the carbohydrate may be classified based on i. number of carbon; ii. Number of sugar unit; and iii. Presence of aldehyde and ketone group. 2
b) Describe epimers. How do they guide the structures of carbohydrate? 2
c) State on the homopolysaccharide and heteropolysaccharide. How chitin and dextrans are formed through the polymerization of sugar/sugar derivatives? 3
d) How could a linear structure of carbohydrate be converted to ring structure? Write down the structure of the following: i. α -D-glucopyranosyl β -D-glucopyranoside; ii. β -D-fructofuranosyl α -D-glucopyranose; iii. β -D-galactopyranosyl -(1-4) α -D-glucopyranose 1+3
2. a) Explain that amino acids are the structural and functional unit of protein. How do amino acids lead to form protein? 2
b) Write down the structures of the amino acids containing the following groups: 4
i. Thiol group; ii. Indole group; iii. Amide group and iv. Phenolic group
c) Explain essential and non-essential amino acids. Why are they called so? 3
d) "Show that amino acids are less acidic than most carboxylic acids and less basic than most amines"- justify. 3
3. a) Elucidate the fate of glucose in the fish body, its absorption, transport, uptake by cells and its role in metabolic pathways of other nutrients. 3
b) Describe the irreversible reactions in glycolysis pathway. 3
c) Mention the name of reagents-usually utilizes for the identification of N-terminal residue from a protein molecule. 3
d) Describe the biologically important peptides that regulate body's (important) key functions. 3
4. a) Differentiate between aerobic and anaerobic glycolysis. Describe the fate of glucose in anaerobic condition. 3
b) Diagrammatically show the conversion of the products of Urea cycle. Explain "phenyl ketone Urea" and "ketoacidosis". 3
c) Explain the involvement of carnitine in the β oxidation of fatty acids with necessary diagram. 3
d) Outline one mechanism by which the electrons in NADH formed during the oxidation of glyceraldehyde-3-P in the cytoplasm enter the electron transport chain in the mitochondrial inner membrane. 3

Section B

5. a) Why does DNA replicate in the 5 to 3 direction? 2
- b) What is the purpose of replication? What is involved in DNA replication. 1+2
- c) Differentiate between an intron and exon? 2
- d) What are the stages of translation? What are the importance of translation in hereditary? Describe the role of codon order in translation dynamics. 4
6. a) Enlist the hormones released from adenohipophysis. 3
- b) Does enzyme act better under acidic or alkaline pHs? Since pepsin is a gastric enzyme, does it have an acidic or alkaline optimum pH? 3
- c) Enzymes are specific to substrate-justify this statement. 3
- d) Mention the role of vitamin in different coenzyme synthesis. 3
7. a) What are the fates of pyruvate under different condition? 3
- b) Describe the role of carnitine in fatty acid oxidation. 3
- c) Fatty acid biosynthesis and fatty acid degradation are two important phenomena in lipid metabolism- describe the enzymes and coenzymes in those processes. 3
- d) Differentiate the following term: 3
- (i) Saturated and unsaturated fatty acid
- (ii) Beta oxidation and alpha oxidation
8. a) Define rancidity. Describe the microbial rancidity with its significance. 3
- b) Summarizes the digestive enzymes that released from fish digestive tract with its function. 3
- c) Describe the importance of antifreeze protein genes for the production of cold resistant fish variety in aquaculture. 3
- d) What are steroids? What are some examples of steroids with their specific biological function. 3

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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 |

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