DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING
UNIVERSITY OF BARISHAL

FINAL EXAMINATION-2022

Course Title: Introduction to Computer Systems

Course Code: CSE-1101

1st Semester, 1st Year, Session: 2020-21

Time: 3 hours

Marks: 60

Answer any five Questions from the followings. Parts of the same question should be answered consecutively.

1. a) What is data processing? Differentiate between data and information. Which one is more useful to people and why? [4]

   b) What is garbage-in-garbage-out? Explain the unique features and advantages of fifth generation computers. [4]

   c) What is a microprocessor? Draw a block diagram of a microcomputer. [4]

2. a) What do you understand by CPU cycle? What are the main operations accomplished using the CPU cycle? [4]

   b) Draw the block diagram of a computer system and explain its main components. [4]

   c) Explain the concept of cache memory with diagram. What are the different types of cache memory found in a computer system? [4]

3. a) Why are binary codes used by computer systems? [1]

   b) Carry out the following conversions: [6]

   i. $(2694.33)_{10} = (?)_2$ 101010000110.0101

   ii. $(ABC2)_{16} = (?)_8$ 25362

   iii. $(1254)_8 = (?)_4$ 22230

   c) Perform the binary subtraction of ***-64*** and ***-128*** in 2's complement method. [2]

   d) Explain the meaning of the term memory dump. What happens when a computer divides a number by zero? [3]

4. a) What is the importance of Boolean algebra in the designing of switching circuits? What is the dual of the Boolean Expression: $X + \bar{X}Y + X\bar{Y}$? [3]

   b) A logic circuit has three inputs A, B and C. It generates an output of 1 only under following conditions: [3]

   A=0, B=0, C=0
   A=0, B=1, C=1
   A=1, B=0, C=1
   A=1, B=1, C=1

   Design a combinational circuit for this system. [3]

   c) Construct a logical diagram for the following Boolean Expression:

   $$A.B + (\bar{A}.\bar{B}).(B.C + \bar{B}.\bar{C})$$ [3]

   d) Construct logic circuit diagram for a half-adder by using NAND gates only. [5]

5. a) How Data is organized on a Magnetic Disk? Briefly explain. [4]

   b) Distinguish between DRAM and SRAM. [3]

   c) Calculate the capacity (in GB) of a hard disk having 1024 cylinders, 18 tracks, 36 sectors per track.

6. a) What is a Programming Language? Describe the evolution of different Programming Languages. [4]

b) What is a Flow Chart? Draw a Flowchart to calculate the sum of the following series: [4]

$1 + 2 + 3 + \ldots\ldots\ldots\ldots\ldots\ldots + 100$

c) What is meant by Information Technology? Discuss the cycle of information processing. [4]

7. (a) Explain the major functions of an operating system. [3]

(b) What is a PCB and what information is contained in it? [3]

(c) Explain the terms: source code, syntax, semantics and IDE. [3]

(d) Explain the process of data communication with the help of a diagram. [3]

8. (a) What is a Network? Name different types of computer networks and briefly explain their characteristics. [5]

(b) What is the difference between Intranet and Extranet? [3]

(c) Write short note on: [4]

i) WWW
ii)E-mail

Good Luck!!!