DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING
UNIVERSITY OF BARISAL

FINAL EXAMINATION-2019
Course Title: Introduction to Computer Systems
Course Code: CSE-1101
1st Semester, 1st Year, Session: 2018-19

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? List and explain some important characteristics of a computer. [4]

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

2. a) What do you understand by computer architecture? Is it same as computer organization? If no, explain the difference between the two. [4]

   b) Draw the block diagram of a computer system and explain its main components. [5]

   c) Explain the concept of cache memory with diagram. What are the different types of cache memory found in a computer system? [3]

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

   b) Carry out the following conversions: [6]

   i. $(1694.33)_{10} = (\ ?\ )_2$

   ii. $(ABC)_{16} = (\ ?\ )_8$

   iii. $(125)_6 = (\ ?\ )_4$

   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) Explain the usefulness of the principle of duality in Boolean algebra. What is the dual of the Boolean expression, $A + \bar{A}B + A\bar{B}$? [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.

   c) Construct a logical diagram for the following Boolean Expression: [2]

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

   d) Construct logic circuit diagram for a half-adder by using NAND gates only. [4]

5. a) A computer has 512 MB of memory. How many characters can be stored in its memory at a time? [2]

   b) What are the differences between Mechanical and Optical mouse? [2]

   c) What is the difference between volatile and non-volatile memory? Is RAM a volatile or non-volatile memory? [3]

d) Is it possible to enhance the existing memory capacity of a computer system? If no, explain why. If yes, explain how. [2]

e) Explain the basic functions of an MICR device. [3]

6. a) What is a Language Translator? Differentiate between a compiler and an interpreter. [3]

b) What is Open Source Software? What are its advantages as compared to conventional commercial software? [3]

c) Write the various phases of Software Development Life Cycle (SDLC) model and the main activities performed in each phase. [4]

d) Explain the main functions of Operating System. [2]

7. (a) Explain the term DNS. Differentiate between the Internet and WWW. [3]

(b) Draw a flow chart for an algorithm to add up all even numbers between 0 to 100 and print result. [4]

(c) Define Pseudocode. Explain the term syntax and semantics. [3]

(d) What is the difference between LAN and WAN? [2]

8. (a) Explain CSN and PPN network architecture. [4]

(b) What are different types of network topologies? Explain any four topologies with suitable illustration and the help of diagram. [5]

(c) What are the differences among internet, intranet and extranet? [3]

Good Luck!!!

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