UNIVERSITY OF BARISAL

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

1st Semester Final Examination, Session: 2017-18

Course Title: Introduction to Computer Systems
Course Code:CSE-1101

Time: 3 hours **Marks:** 60

Answer any five Questions from the followings.

1. a) Differentiate between data and information. Why computer is called data Processor? Explain with necessary diagram. [4]

   b) What are the advantages of computer? "Computer have no IQ", describe the terminology. [4]

   c) The personal computer that you see today is in which generation of computer? Describe some applications of computer. [4]

2. a) Show the truth tables of AND, OR , XOR, NAND and NOR gates. [5]

   b) By drawing block diagram explain how CPU, RAM and Hard disk work together while executing a task. [7]

3. a) Why are binary codes used by computer systems? [2]

   b) Do the following conversions: [6]

      i. $(786.25)_{10} = (\ ?\ )_8$

      ii. $(2A3B.5F)_{16} = (\ ?\ )_2$

      iii. $(2753.35)_8 = (\ ?\ )_4$

   c) Perform the binary subtraction of the following using 2's complement method. [2]

   $(-64)_{10} - (128)_{10} = (\ ?\ )_2$

   d) Explain the principal of duality in Boolean algebra. [2]

4. a) State the De Morgan's Theorem. Prove that NAND and NOR gates are universal gate. [4]

   b) A logic circuit has three inputs A, B and C. It generates an output 1 only when A=0, B=1, C=0 or A=1, B=1, C=0. Design a combinational circuit for this system. [3]

   c) Consider the following Boolean Expression: [5]

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

   (i) Find the complement of the expression.

   (ii) Construct a logic diagram for the Boolean expression.

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

   b) Write down the name of five pointing devices. What are the differences between Mechanical and Optical mouse? [3]

   c) Explain the role of virtual memory in a computer system. [3]

d) Write down the differences between hard disk and floppy disk.

6. a) What is a debugger? Differentiate among a compiler, an assembler and an interpreter. [4]

b) Define Software Engineering.Describe the major steps of software development life cycle. [4]

c) Develop an algorithm for finding the prime number. [4]

7. (a) What are the characteristics and functionalities of system software and application software? [4]
Write the names of three system software and three application software.

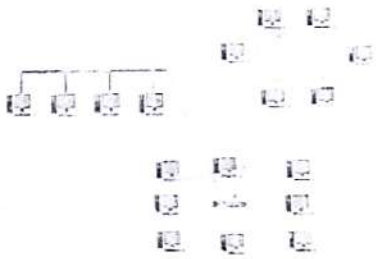
(b) Give some examples of standard application software. What is the difference between open source software and licensed software? [3]

(c) Compare the features of Second Generation and Third Generation computers. [3]

(d) Explain the term syntax and semantics. [2]

8. (a) What are the different types of computer networks? Explain CSN architecture. [4]

(b) The figure shows a network topology. It is a combination of two or more different basic network topologies. Now, [6]



i. Write the name of the network topology with advantages and disadvantages.

ii. The figure contains three different types of network topology. Write the name and briefly explain each of the network topology. [(From left to right)].

(c) What are the differences between internet and intranet? [2]

Good Luck!!!