BBA TM 3rd Semester 07 March 2019 (Morning)

ISLAMIC UNIVERSITY OF TECHNOLOGY (IUT)
ORGANISATION OF ISLAMIC COOPERATION (OIC)
Department of Computer Science and Engineering (CSE)

MID SEMESTER EXAMINATION **WINTER SEMESTER, 2018-2019**

DURATION: 1 Hour 30 Minutes **FULL MARKS: 75**

CSE 4361: Computer Science and Technology I

Programmable calculators are not allowed. Do not write anything on the question paper.

There are **4 (four)** questions. Answer **3 (three)** of them (**You must answer question no. 4**)

Figures in the right margin indicate marks.

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1. a) What is the basic definition of a computer? Describe six different types of computers for individual users. 8

   b) What is the difference between a desktop computer and a workstation? 3

   c) Perform the following operations: 9

      i. 26B.C12 (Convert from Hexadecimal to Decimal)

      ii. 101001.010011101 (Convert from Binary to Decimal)

      iii. 1100,1001 (Perform Binary Subtraction)

   d) What would be the output of the following program? 5

```
#include <stdio.h>
int main()
{
        int a, b, c;
        a= 2;
        b= --a;
        c= a++;
        printf("%d %d %d", a, b, c);
        return 0;
}
```

Figure 1: Code for question no. 1(d)

2. a) What is cache? What is cache Hit and Miss? Why the size of cache memory is very small in most computers? 8

   b) What was the significant improvement seen in the fourth generation computers? Mention the kind of computer you would use for performing the following tasks – 6

      i. Weather forecasting

      ii. Maintaining transaction of an air-ticket booking website

      iii. Rendering animations

   c) Describe the working principle of barcode readers. 5

   d) Find out the number of bugs in the following program. Briefly explain about each bug in one or two sentences. 6

```
#include <stdio.h>
int main()
{
        int celsius, farenhite;
        celsius =((farenhite-32)*9/5);
        kelvin =celsius+273;
        printf("%f", celsius);
        return 0;
}
```

Figure 2: Code for question no. 2(d)

3. a) Write short notes on the steps of Programming Development Life Cycle (PDLC). Why the documentation of programs is so important? 7

   b) Perform binary subtraction on the following numbers: 7

   (-24)-(-10)

   c) Write a C program that takes input of an integer and check if the number is odd or even. Print 'Odd' in case of odd numbers and 'Even' in case of even numbers. 5

   d) Briefly explain about the tracks and sectors of a hard disk and how the access time is measured for finding any data. 6

Mandatory

4. a) BTM House has a capacity of 30 people to stay. There are mostly non-residential students in the house, but some residential students have seats there too. Non-residential students have a basic monthly expense of 4000 taka to live there, whereas the residential students have the monthly expense of 2500 taka. The manager of the BTM House must calculate the expenses of the house. Being a smart programmer yourself, you have been given the task to write a program that would do this particular task. Your program will take the number of residential students who have seats in BTM House as input. Then it would print the total monthly expense of BTM House as output. It would also print the total monthly expenses of residential and non-residential students. 10

Sample execution of your program:

```
Input:
Enter the number of residential students who have seats in BTM
House: 12
Output:
Total monthly expenses of residential students: 30000
Total monthly expenses of non-residential students: 72000
Total monthly expenses of BTM House: 102000
```

Figure 3: Example execution for question no. 4(a)

   b) Write an algorithm for finding out the sum of all the even integers from 1 through 100, both 1 and 100 inclusive. 7

   c) Write the C code for the flowchart given below: 8

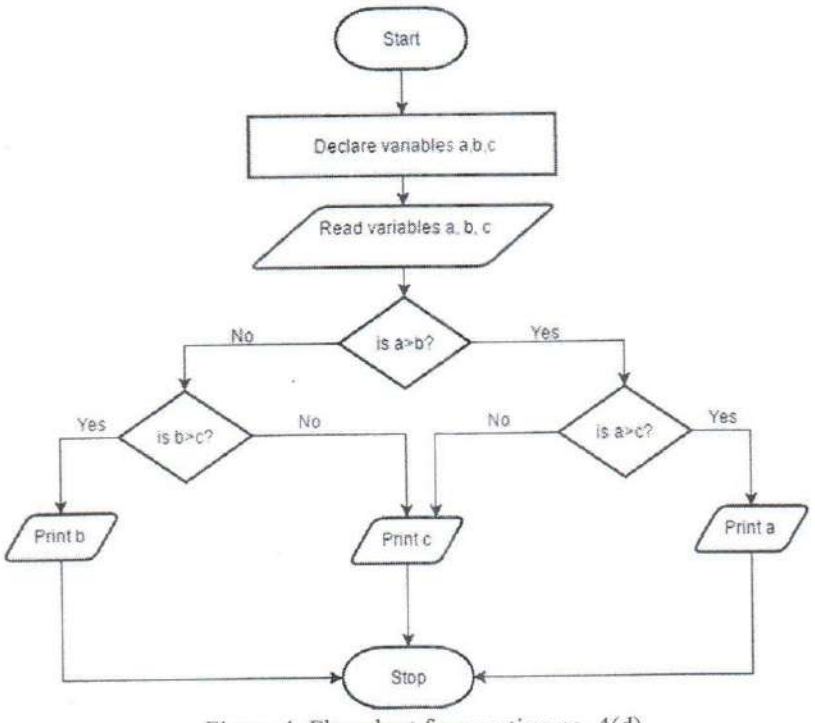

Figure 4: Flowchart for question no. 4(d)