DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING
UNIVERSITY OF BARISHAL
1st Year 1st Semester Examination-2019, Session: 2018-19
Course Title: Programming Fundamental
Course Code: CSE-1103

Time: 3 hours

Marks: 60

Answer any Five Questions from the followings. Parts of the same question must be answered consecutively.

1. a) Draw a flowchart to find and display the area and perimeter of a circle whose radius is given. [3]

   b) What is Programming? Explain the importance of C as a programming language. [4]

   c) What is source program and object program? [2]

   d) Delineate the compiling and running process of a C program using a flow chart. [3]

2. a) Which of the following are invalid variable names and why? [2]
   - i)   First.name
   - ii) n1+n2
   - iii) &name
   - iv) row total

   b) Determine the value of each of the following logical expression if $a = 5$, $b=10$ and $c = -6$. [3]
   - i) $a==c \,||\, b>a$
   - ii) $b>15 \,\&\&\, c<0 \,||\, a>0$
   - iii) $(a/2.0 ==0.0 \,\&\&\, b/2.0!=0.0)||c<0.0$

   c) Identify syntax errors in the following program. After corrections, what will be the output of the program if executed? [4]
   ```c
   #include<stdio.h>
   #define PI 3.14159
   main()
   {
       int R,C;
       float perimeter;
       float area;
       c=PI
       R=5;
       perimeter = 2.0*C*R;
       Area = C*R*R;
       printf("%f","%d",&perimeter,&area)
   }
   ```

   d) Write a program to read two integers values m and n and to decide and print whether m is multiple of n. [3]

3. a) What do you mean by C token? Describe different data types with example. [4]

   b) What is the output of the following code segment? [2]
   ```c
   void main()
   {
       unsigned x = 1;
       signed char y = -1;
       if (x > y)
           printf("x > y");
       else
           printf("x <= y");
   }
   ```

   c) Write a C program to find all prime numbers less than N. [3]

d) What is the output of the following code segment?

```
void main ()
{
    int m, n, p;
    for (m=0;m<3;m++)
        for(n=0;n<3;n++)
            for(p=0;p<3;p++)
                if(m+n+p==2)
                    goto print:
    print:
    printf("%d,%d,%d", m, n, p);
}
```

4. a) Define operator and operand? Explain different types of operators in C language with proper example. [4]

b) Find the output of the following program. [2]

```
#include<stdio.h>
int main(){
    int a = 10, b = 25;
    a = b++ + a++;
    b = ++b + ++a;
    printf("%d %d \n", a, b);
    return 0;
}
```

c) Convert the following switch-case code to an if-else code. [2]

```
char c;
scanf("%c",&c);
switch ( c )
{
        case 'a':
        case 'e':
        case 'i':
        case 'o':
        case 'u':
                printf("Vowel");
                break;
        default:
                printf("Consonant");
}
```

d) Write a program to calculate and display digit sum of an integer number N. [4]

5. a) Explain the differences among *for*, *while* and *do while* loops with proper examples. [3]

b) Find the output of the following program segment: [2]

```
void f1(int a)
{
    static int b=21;
    b=a+b;
    printf("b=%d", b);
}
void main()
{
    f1(30);
    f1(30);
    f1(30);
}
```

c) Briefly explain *break*, *continue* and *goto* statements with proper example. [3]

d) Write a C program to print the following outputs using for loops: [4]

```
1
2 2
3 3 3
4 4 4 4
5 5 5 5 5
```

a) Distinguish between the following pairs: [2]
    i)   *getchar* and *scanf functions*
    ii)   *%s and %c specifications for reading.*

b) Rewrite each of the following without using compound relations: [3]
    i)   *if (grade <= 59 && grade >= 50)*
             second = second + 1;

    ii)   *if (number > 100 || number < 0)*
             printf("Out of range");
         else
             sum = sum + number;

c) What is the output of the following program? [3]

```
void main()
{
    char string [ ] = "Computer Science and Engineering";
    int m;
    for( m=0; string[m]!='\0';m++)
      if ((m%2) == 0)
        printf("%c", string[m]);
}
```

d) Write a C program to display the transpose matrix of matrix *A[10][11]*. [4]

7. a) What is recursion? Write a program to calculate the **sum** of first *n* positive integers using a recursive function. [4]

   b) What do you know about call by reference and call by value? Explain with examples. [3]

   c) What is a pointer? Distinguish between *(*m)[5]* and **m[5]*. [3]

   d) What is the output of the following segment? Why? [2]

```
int  p[2];
*( p + 1 ) = 30;
*p = * ( p + 1);
printf( "%d", p[0] );
```

8. a) What is structure? Write a program to input the values of employee_id, name and salary of 10 employees. The program will display the details of each employee. You have to use structure and array. [5]

   b) What is a file? Write a program to store the output of the program in 8(a) to a file. [4]

   c) What is the significance of EOF? How does an append mode differ from a write mode? [3]