NSBM

National School of Business Management
BSc in Software Engineering / Computer Networks (Plymouth) Degree – 15.1
1st Year – 2nd Semester Examination
Programming with C Language

Time: 03Hrs
Answer All Questions. **20 October 2015**

Section A

1. How many times the while loop will get executed

```
#include<stdio.h>
int main()
{
  int j=1;
  while(j <= 255)
  {
    printf("%c %d\n", j, j);
    j++;
  }
  return 0;
}
```

   a) Infinite times
   b) 255 times
   c) 256 times
   d) 254 times

2. The statement char ch='z' would store in ch
   a) The character Z wed
   b) ASCII value of Z
   c) along with the single inverted commas
   d) Both (1) and (2)

3. The NULL character used in strings in C is represented by _____.
   A. /0
   B. \0
   C. *0
   D. $0

4. Point out the error, if any in the program.

```
#include<stdio.h>
int main()
{
  int P = 10;
  switch(P)
```

```
{
  case 10:
  printf("Case 1");

  case 20:
  printf("Case 2");
  break;

  case P:
  printf("Case 2");
  break;
}
return 0;
}
```

a) No default value is specified
b) Constant expression required at line case P:
c) There is no break statement in each case.
d) No error will be reported.

5. What will be the output of the program?

```
#include<stdio.h>
int main()
{
  int i=2;
  printf("%d, %d\n", ++i, ++i);
  return 0;
}
```

a) 3, 4
b) 4, 3
c) 4, 4
d) Output may vary from compiler to compiler

6. A C variable cannot start with
   a) An alphabet
   b) A number
   c) A special symbol other than underscore
   d) Both (B) and (C)

7. C language has been developed by?
   a) Ken Thompson
   b) Dennis Ritchiee
   c) Peter Norton
   d) Martin Richards

8. What will be the output of the program?

```
#include<stdio.h>
int main()
{
  int a, b=3;
  a = SQR(b+2);
  printf("%d\n", a);
  return 0;
}
```

a) 25
b) 11
c) Error
d) Garbage value

9. What will be the output of the program?

```
#include<stdio.h>
int main()
{
  int a = 500, b = 100, c;
  if(a >= 400)
    b = 300;
  c = 200;
  printf("b = %d c = %d\n", b, c);
  return 0;
}
```

a) b = 300 c = 200
b) b = 100 c = garbage
c) b = 300 c = garbage
d) b = 100 c = 200

10. C programs are converted into the machine language with the help of ?

A. An editor
B. Compiler
C. An operating system
D. None of the above

11. What is the result of the expression (10/2)*3+5%3?

A. 10
B. 17
C. 8
D. 1

12. Point out the error, if any in the for loop.

```
#include<stdio.h>
int main()
{
  int i=1;
  for(;;)
  {
    printf("%d\n", i++);
    if(i>10)
      break;
  }
  return 0;
}
```

a) There should be a condition in the for loop
b) The two semicolons should be dropped
c) The for loop should be replaced with while loop.
d) No error

13. To scan a and b given below, which of the following scanf() statement will you use?

```
float a;

double b;
```

a) scanf("%f %f", &a, &b);
b) scanf("%Lf %Lf", &a, &b);
c) scanf("%f %Lf", &a, &b);
d) scanf("%f %lf", &a, &b);

14. Which of the following is the correct usage of conditional operators used in C?
a) a>b ? c=30 : c=40;
b) a>b ? c=30;
c) max = a>b ? a>c?a:c:b>c?b:c
d) return (a>b)?(a:b)

15. The keyword used to transfer control from a function back to the calling function is
a) switch
b) goto
c) go back
d) return

16. Identify the correct statement/s

1:The array int num[26]; can store 26 elements.

2:The expression num[1] designates the very first element in the array.

3:It is necessary to initialize the array at the time of declaration.

4:The declaration int num[SIZE] is allowed to store any number of integers.

a) 1
b) 1,4
c) 2,3
d) 2,4

17. Input/output function prototypes are defined in which header file?
a) conio.h
b) stdlib.h
c) stdio.h
d) dos.h

18. Which of the following correctly shows the precedence order of arithmetic operations in C?
a) / + * -
b) *- / +
c) + - / *
d) / * + -

19. Which of the following cannot be checked in a switch-case statement?
a) char
b) int
c) float
d) double

20. A character variable can store ..... at a time?
A. 1 character
B. 8 characters
C. 254 characters
D. None of the above

(Total – 40 marks)

Section B

B1

A. Design an algorithm using **either** flow charts or pseudo codes to read 10 numbers in to an array and display the count of each number.

Sample Input: 5, 5, 4, 2, 6, 2, 6, 5, 2, 4
Sample Output: 5 – 3 times, 4 - 2 times, 2 – 3 times, 6 – 2 times

(4 marks)

B. Convert above algorithm to a working computer program using C programing language.
(6 marks)

C. Write a program to read three (3) integers and display the minimum number using if – else conditions. (5 marks)

D. Write a program to read a string and display it using block capital letters only.

Sample Input: c programing
Sample Output: C PROGRAMING

Hint: you may use a suitable string handling function or ASCII values. ASCII value of 'A' is 65 and 'a' is 97. (5 marks)

(20 marks)

B2

A. What do you mean by a function in C language? State 4 types of functions and figure out their syntax briefly. (5 Marks)

B. Write a function to convert a temperature reading in degrees Fahrenheit to degrees Celsius, using the formula C = (5 / 9) x (F – 32). The function should accept the Fahrenheit value as a float variable and should return the Celsius values as a float value. (5 Marks)

C. What do you mean by a recursive function? (3 Marks)

D. Write a recursive function to calculate factorial of a given number.

Hint: n! = nx(n-1)x(n-2)x(n-3)x....3x2x1 (4 Marks)

E. Re-Write the function in Q2 d. to calculate factorial of a given numbers without using recursion. (3 marks)

(20 marks)

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(Total – 40 marks)

B3

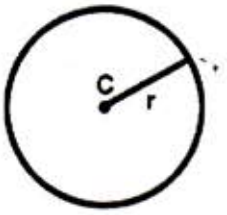
A. Define following terms in C language

i) Pointer

ii) Structure

(4 marks)

B. The following diagram represents a circle.



To represent a Circle using a computer program, we need to provide Cartesian coordinates of the center and the size of radius. Define a suitable C Structure to represent a circle. (4 marks)

C. Write a C program to display the triangular value of a number given by the user. (Hint: Triangular value of 5 is 1+2+3+4+5=15)

Sample input

Enter the number: 5

Sample Output

Triangular value of 5 is: 15 (6 marks)

D. Write a function which gets an integer array and number of elements as parameters and calculates and displays sum and average of all the integers of the array. (3 marks)

E. Write a C Program to count the number of vowels in a text message. You can store the text message in a character array of 100 elements. Hint: Use Switch - Case. (3 marks)

(20 marks)

*****End of the paper*****