B. Tech.
(SEM. I) (ODD SEM.) THEORY EXAMINATION, 2014-15
COMPUTER SYSTEM & PROGRAMMING IN C

Time : 3 Hours] [Total Marks : 100

Note : Attempt questions from each Section as per instructions.

SECTION - A

Attempt all parts of this question. (2×10=20)
Each part carries 2 marks.

1. (a) Write down any four characteristics of a good programming language.

(b) What is the value of y for y = -16% -2 ?

(c) What is the output of this C code ?

```c
#include <stdio.h>
int main()
{
    int x = 2;
    x = x << 1;
    printf("%d\n", x);
}
```
(d) Give the loop statement to print the following sequence of integer.
-8 -6 -4 -2 0 2 4 6 8
(e) Draw flow chart for do-while loop statement.
(f) Why do we need signed and unsigned char?
(g) Define the operating System. What are the functions of Operating System?
(h) 
#include <stdio.h>
void main()
{
    int a = -5;
    int k = (a++, ++a);
    printf("%d\n", k);
}
(i) If a=10 and b=15, find the value of following statement:
a<b? a+5: b+6
(j) What is NULL character? Why is it important?

SECTION - B

Attempt any six parts of this question. \(5 \times 6 = 30\)
Each part carries 05 marks.

2  (a) What are the advantages of using C Processor? Write a program using macros to find the area of circle.
(b) What is recursive function? Write a program using recursive function to calculate the factorial of a given number.
(c) Define a Structure type, struct Personal that would contain person name, date of joining and salary. Using this structure, write a program to read this information for one person from the key board and print same on the screen.
(d) Name the 8 different DOS commands with example.
(e) Convert the following:
(i) \((11010.0010)_2 = ()_{16}\)
(ii) \((786.983)_{10} = ()_{16}\)
(iii) \((467.342)_{8} = ()_{10}\)
(iv) \((7BD.3E)_{16} = ()_{2}\)
(v) \((82.35)_{10} = ()_{4}\)

(f) Explain with Example, the syntax and usage of the following in C Program.
(i) Array of Structure.
(ii) Structure Pointers.

(g) Write the function to concatenate two strings without using the library function.

(h) Primary data types in C language, mentioning their range, space they occupy in memory and keyword used for their representation in programming.

SECTION - C

Attempt all questions. Each question carries 10 marks. \((10 \times 5 = 50)\)

3 Attempt any One Part:
(a) Write a program in C language to find the sum of series
\[
\text{Sum} = x - x^3/3! + x^5/5! - x^7/7! + x^9/9! 
\]
(b) What is the difference between array and structure? Write a program in C to find the largest number of a 4 x 4 matrix.

4 Attempt any One Part:
(a) Write a program in C to reverse a string by using pointer.
(b) Write a program in C to classify a given no as prime or composite.
5 Attempt any One Part :
(a) Explain any three file operations and two bitwise operations with examples.
(b) Write a program in C to generate a following numbers structure:

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

6 Attempt any One Part :
(a) Write a program in C language to read a file and copy its content to another file.
(b) What are the different types of Operator in C language and also write down the difference between the associativety and precedence of operators?

7 Attempt any One Part :
(a) Write a Program in C to swap two numbers using Call by Reference and Call by Value Methods.
(b) Explain the following:
    (i) Function Prototype.
    (ii) Double precision.
    (iii) Identifier and keywords.
    (iv) Android operating system.