**Printed Pages : 3**

**NCS201**

**(Following Paper ID and Roll No. to be filled in your Answer Book)**

PAPER ID : **199225**

**Roll No.**

# B. Tech.

## (SEM. II) THEORY EXAMINATION, 2014-15

## COMPUTER SYSTEM & PROGRAMMING IN C

Time : **3** Hours] [Total Marks : **100**

**Note:** Attempt all questions as per instructions.

1 Note: Attempt any FOUR parts. Each part carries equal marks. (5×4=20)

(a) Draw the memory hierarchical structure of a computer system. Explain each memory unit in brief.

(b) What is an operating system? Describe the functionalities of operating system.

(c) Describe Compiler, interpreter, assembler? Write the names of compiler that are used in c programming.

(d) What do you mean by Algorithm? Explain the properties of algorithm.

(e) Differentiate high level and machine level language.

(f) What is pseudo code? Difference between flow chart and algorithm with example.

2 Note: Attempt any TWO parts. Each part carries equal marks. (10×2=20)

(a) What do you understand by ASCII value of a character? Can we use expressions including both integer data type and character data type? Justify your answer.

(b) Write the difference between Type Conversion and Type Casting. What are the escape sequences characters?

(c) Convert following number into:

(i) $(11010.0110)_2$ = $(...)_{10}$

(ii) $(110101011.0110110)_2$ = $(...)_8$

(iii) $(2B6D)_{16}$ = $(...)_2$

(iv) $(AB4F.C1)_{16}$ = $(...)_{10}$

(v) $(54)_6$ = $(...)_4$

3 Note: Attempt any TWO parts. Each part carries equal marks. (10×2=20)

(a) Give the loop statement to print the following sequence of integer.

-6 - 4 - 2 0 2 4 6;

(b) What are the main principles of recursion?

(c) If int a=2, b=3, x=0; Find the value of x= (++a, b+=a)

4 Note: Attempt any TWO parts. Each part carries equal marks. (10×2=20)

(a) What are the different types of Operator in C language and also write down the difference between the associatively and precedence of operators.

(b) (i) What is the role of SWITCH statement in C programming Language? Explain with example.

(ii) Distinguish between `actual & formal arguments' and `global and extern variables'.

(c) Describe call by value and call by reference with example.

5. Note: Attempt any TWO parts. Each part carries equal marks. (10×2=20)

(a) Write a program in C language to generate the Fibonacci series.

(b) What do you mean by dynamic memory allocation? Explain the following functions in detail:

(i) free.

(ii) calloc

(c) Write a program to add two matrices of dimension 3 * 3 and store the result in another matrix.