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Sub Code: NCS-201

Roll No. 

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**B. TECH.**  
**(SEM II) CARRY OVER-THEORY EXAMINATION 2017-18**  
**COMPUTER SYSTEM & PROGRAMMING IN C**

**Time: 3 Hours****Total Marks: 100****Note: 1.** Attempt all Sections. If require any missing data; then choose suitably.**SECTION A****1. Attempt all questions in brief. 2 x 10 = 20**

- a. What do you mean by Cache Memory? Why it is required?
- b. Represent 2GB in MB, Bytes, and Bits.
- c. If  $a=8, b=5, c=2, d=23, e=2, f=9, g=45, h=7$  then what will be solution for below expression.  
 $(a+b*(b/c) || d*e>f+g\&\&h-a\%b)$
- d. Write syntax for while and do-while, also differentiate between them.
- e. Outer for loop is designed to get executed 5 times and the inner nested for loop is designed to execute 4 times, if printf statement is written just above inner for loop how many times will it get executed.
- f. Write a statement to declare a variable var1, which is of structure st1 type and initialize its three members m1, m2, m3 which are of int, float, char type respectively with suitable value.
- g. The statement strcmp(x,y) returns a negative value. What inference will you draw from this?
- h. Write any 3 pre-defined macros in C language.
- i. Explain any 5 bitwise operators with suitable C program and output.
- j. What may be the possible value of x for following number system?  
 $(101)_x=(5)_8$

**SECTION B****2. Attempt any three of the following: 10 x 3 = 30**

- a. Draw a block diagram of digital computer, Explain the role of each functional unit.
- b. What is an algorithm and flow chart; Write the basic characteristic of algorithms, also draw the flow chart and write an algorithm for finding greatest number among three distinct number.
- c. Explain different Storage Class in C language.
- d. Write a program in C to simulate arithmetic calculator using switch statement.
- e. Declare a structure which contains the following members:  
 Roll No, name, father's name, age, city, marks.

Write a program in c to list all students who scored more than 75 marks

### SECTION C

- 3. Attempt any *one* part of the following: 10 x 1 = 10**
- Define Operating System; also explain different types and functions of operating system
  - What are standard C preprocessor directives? What do you mean by conditional compilation? Write a C program to calculate area of circle using macro.
- 4. Attempt any *one* part of the following: 10 x 1 = 10**
- Write any 5 string handling functions also write a program to check whether entered string is palindrome string or not.
  - Write a program in C to find the GCD of two numbers using recursion.
- 5. Attempt any *one* part of the following: 10 x 1 = 10**
- What do you mean by sorting, write a program to sort n numbers.
  - Convert the following:
    - $(315C)_{16} = (?)_{10}$
    - $(1011011101.11)_2 = (?)_{16}$
    - $(626)_{10} = (?)_8$
    - $(645)_8 = (?)_{16}$
    - $(1011.11)_8 = (?)_2$
- 6. Attempt any *one* part of the following: 10 x 1 = 10**
- Write a C program to multiply two matrices which will be entered by a user. The user will enter the order of a matrix and then its elements and similarly input the second matrix. If the entered orders of two matrices are such that they can't be multiplied by each other, then an error message is displayed on the screen.
  - Show and justify with example how arguments are passed using 'call by value' and 'call by reference'.
- 7. Attempt any *one* part of the following: 10 x 1 = 10**
- Explain implicit and explicit type conversion also discuss promotion and demotion concept, also write a program to swap two number.
  - Write a program to count the number of words in text file