Printed pages: 2 **Sub Code: NCS101ECS101**

Paper Id: | 1 | 0 | 1 | 7 | **Roll No.** | | | | | | | | | | |

B.TECH.

(SEM 1) 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.
2. Any special paper specific instruction.

Section-A

1. Attempt *all* questions in brief. **2*10=20**

a) Why we use do-while loop in c? Also tell any properties which you know?

b) What is meaning of continue and break keyword in c? Explain.

c) Define the concept of modular programming approach.

d) Explain the difference between function declaration and definition of a function.

e) Design a flow chart and algorithm to find the greatest number among three numbers.

f) What is operator? Also define atleast three operators with example.

g)
```
main( )
  {
     int a = 300, b, c ;
     if ( a >= 400 )
     b = 300 ;
     c = 200 ;
     printf ( "\n%d %d", b, c ) ;
  }
```
What will be the output of the above program?

h)
```
#define PRODUCT(n) n*n
void main()
{
  int j;
 j=64/PRODUCT(4);
printf("%d",j);
}
```
What will be the output of the above program?

i) Write a function to interchange the two values of two variables without using third variable.

j) What is the difference between the following two #include directives:
#include "filename"
#include <filename>

Section-B

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

a) What is digital computer? Draw block diagram of digital computer and explain each components of it.

b) Write a program to check the number is palindrome of not. The program should accept any arbitrary number typed by user.

c) What is Operating System? Explain various types of functions performed by an operating system.

d) What is structured programming approach? Highlight the advantages and disadvantages of structured programming.

e) What do you mean by sorting ?Write a program in C to sort the elements of a given array of N positive integers .Also give flow chart for the same.

Section-C

3. Attempt any *two* of the following: 2*5=10

a) What is meant by storage classes of a variable? Define all types of storage classes with example.

b) Write a program to multiply two matrices (read size and number of element of matrices from the keyboard).

c) Discuss various data types used in c with suitable examples.

4. Attempt any *two* of the following: 2*5=10

a) What is recursion? Write a recursive program to find factorial of a number.

b) Explain the difference between parameter passing mechanism call by value and call by reference. Which is more efficient and why?

c) Write a program to check a number is prime number or not.

5. Attempt any *two* of the following: 2*5=10

a) What is Macros? How is it substituted? Write macro definition with arguments for calculation of area and perimeter of a circle and rectangle .Store these macro definitions in a file called “areaperi,h”. Include this file in your program and call the macro definition for calculating area and perimeter for circle.

b) What are the different file opening modes in C. Write a program to copy the contents of one file into other file?

c) Define structure with syntax .Also write a program that compares two given dates. To store date use structure say date that contains three members namely date, month and year. If the dates are equal then display message as "Equal" otherwise "Unequal".

6. Attempt any *two* of the following: **2*5=10**

a) Suppose a file contains student's records with each record containing name and age of a student. Write a C program to read these records and display them in sorted order by name.

b) Write a program to sort a set of names stored in an array in alphabetical order.

c) Write a user define function to compare two strings where they are identical or not.

7. Attempt any *two* of the following: **2*5=10**

a) Define the concept of pointer? Also define the dynamic memory allocation and various functions for dynamic memory allocation, with suitable examples.

b) What is string? Also explain different string functions with examples.

c) Write a short notes on following (Any two)

a) Stack with push and pop operation

b) Linked list

c) Command line argument.