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B.TECH
(SEM II) THEORY EXAMINATION 2018-19
COMPUTER SYSTEM AND PROGRAMMING IN 'C'

Time: 3 Hours**Total Marks: 70****Note: 1.** Attempt all Sections. If require any missing data; then choose suitably.**SECTION A****1. Attempt all questions in brief.****2 x 7 = 14**

- a. What may be the possible value of x for following number system?
 $(101)_x = (5)_8$
- b. Define enumerated data type with example.
- c. Describe calling function, called function, actual arguments, formal parameter, and prototype with the help of a single program.
- d. What will be the output of following code? Explain your answer

```
printf("%d", strcmp("there", "their"));
```
- e. Define Standard Preprocessor in C.
- f. Differentiate between break and continue statement.
- g. Find value of s
 $s = q + p / 4 - 6 / 2 + 2 / 3 * 6 / g + g > p \& \& q != g$
(q = 4, p = 2, g = 2, assume s to be an int)

SECTION B**2. Attempt any three of the following:****7 x 3 = 21**

- a. Write a program to sort list of names in lexicography(dictionary) order.
- b. What are standard C preprocessor directives? What do you mean by conditional compilation?
Write a C program to calculate area of circle using macro.
- c. Show and justify with example how arguments are passed using 'call by value' and 'call by reference'
- d. Define Array. Write a program to reverse the array element.
- e. Convert the following number system:
 - (i) $(51B.A4)_{16} = (?)_{10}$
 - (ii) $(473.45)_{10} = (?)_2$
 - (iii) $(10010101.11)_2 = (?)_{16}$
 - (iv) $(626)_{10} = (?)_8$
 - (v) $(735)_8 = (?)_{16}$

SECTION C**3. Attempt any one part of the following:****7 x 1 = 7**

- a. Draw a neat diagram of digital computer and explain the role of each functional unit.
- b. Define Operating System ,also explain different types and functions of operating system.

4. Attempt any one part of the following:**7 x 1 = 7**

- a. Write a C program and flow chart to determine whether a given number is prime or not
- b. Write various data types and storage classes supported in C with example

5. Attempt any *one* part of the following:**7 x 1 = 7**

- a. Draw a flow chart and write a program to find greatest number among three distinct numbers.
- b. The digital root of a positive integer is found by summing the digits of the integer.
If the resulting value is a single digit then that digit is the digital root.
If the resulting value contains two or more digits, those digits are summed and the process is repeated. This is continued as long as necessary to obtain a single digit.
Write a program to print the digital root of a number entered by the user.

6. Attempt any *one* part of the following:**7 x 1 = 7**

- a. 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, also display the transpose of resultant matrix.
- b. 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.

7. Attempt any *one* part of the following:**7 x 1 = 7**

- a. Explain macros and how it call with certain program as example.
- b. Write a program to copy the contents of one text file into another text file.