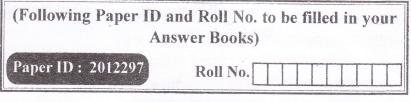
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**RCS** - 101



## **B.TECH.**

# Regular Theory Examination (Odd Semester - I), 2016-17 COMPUTER SYSTEM & PROGRAMMING IN 'C'

Time : 3 Hours

#### Section - A

Max. Marks: 100

- 1. Attempt all parts. All parts carry equal marks. Write answer of each part in short.  $(10 \times 2=20)$ 
  - a) Explain the basic structure of a C program.
  - b) What do you mean by Algorithm? Explain the characteristics of algorithm.
  - c) What are functions? What is the advantage of using multiple functions in a program?
  - d) Distinguish between int main () and void main ()?
  - e) What is the difference between pseudo code and flow chart?
  - f) Draw the memory hierarchical structure of a computer system.

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[P.T.O.

g) What will be the output of following code? Void main ()

> int a = 5, b = 6; printf("%d\t", a = b); printf("%d\t", a == b); printf("%d\t%d", a, b); }

- h) Write short notes on High level and low level languages.
- i) Write short notes on Union and enumerated data type.
- j) Write the five commands of LINUX with its architecture?

### Section - B

2. Attempt any five questions from this section.

(5×10=50)

- a) i) What is the role of SWITCH statement in C programming language. Explain with example.
  - ii) What is recursion? Write a program in C to generate the Fibonacci series.
- b) i) Differentiate between -
  - 1) actual and formal arguments.
  - 2) global and extern variables.
  - ii) Describe about the basic components of a computer with a neat block diagram.

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(2)

- c) i) What do you mean by dynamic memory allocation? Explain the malloc() and calloc() function in detail.
  - Write a program to multiply two matrices of dimension 3\*3 and store the result in another matrix.

 $= (?)_{2}$ 

 $= (?)_{10}$ 

- d) Convert the following number into :
  - i)  $(10101011101.011)_2 = (?)_{16}$
  - ii)  $(916.125)_{10} = (?)_4$
  - iii) (123)<sub>10</sub>
  - iv)  $(574.32)_{8} = (?)_{2}$
  - v) (1011.10),
- e) i) Write a program to print all prime numbers from 1 to 300.
  - ii) Any year is input through the keyboard. Write a program to determine whether the year is a leap year or not.
- f) What do you mean by parameter passing? Discuss various types of parameter passing mechanism in C with examples.
- g) i) Define data types in C. Discuss primitive data types in terms of memory occupied, format specifier and range.
  - ii) Write a program to print the following pattern:

AB ABC ABCD ABCDE ABCDEF

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(3)

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 h) List out various file operations and modes in C.
Write a program to copy the content from one file to another file.

### Section - C

### Attempt any two questions from this section.

 $(2 \times 15 = 30)$ 

- 3. a) What do you mean by sorting. Write a program in C to sort the given n positive integers. Also give the flow chart for the same.
  - b) Write a program to check whether a given number is Armstrong or not. Like  $153 = 1^3 + 5^3 + 3^3$ .
  - a) Define a structure? Write a program in C to create a data base of fifty students to store personal details such as roll no., name and marks. Print all the details of students whose name is entered by the user.
    - b) What do you mean by macro? Explain types of macro with its example.
  - a) What do you mean by pointers? How pointer variables are initialized? Write a program to sort a given numbers using pointers.

(4)

- b) A five digit positive integer is entered through the keyboard. Write a C function to calculate sum of digits of the 5-digit number :
  - i) Without using recursion.
  - ii) Using recursion.

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