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D – 5361

Reg. No. :

Name :

**Combined First and Second Semester B.Tech. Degree
Examination, March 2018
(2013 Scheme)**

13.109 : FOUNDATIONS OF COMPUTING AND PROGRAMMING IN C (FR)

Time : 3 Hours

Max. Marks : 100

PART – A

Answer **all** questions. **Each** question carries **2** marks.

1. Write the differences between static RAM and dynamic RAM.
2. Write the binary equivalent of the following numbers :
 - a) $(101)_{10}$
 - b) $(503)_8$
3. What is meant by modular programming ?
4. Write an algorithm for checking whether a number is odd or even.
5. Write a conditional expression in C for finding the largest of 3 numbers.
6. Point out the differences between structure and union.
7. Write the syntax of switch statement in C.
8. What are the differences between the following declarations :
`int *a[3];` `int (*a)[3];`
9. Write a recursive function in C for finding n!.
10. What is meant by dynamic memory allocation ?

P.T.O.



PART - B

Answer **any one full** question from **each** Module. **Each** question carries **20** marks.

Module - I

11. a) Draw the block diagram of a digital computer and explain the function of each unit. 12
- b) Explain the different ways of representing negative numbers in a computer. 8

OR

12. a) Perform the following operations :
- i) $(1010)_2 \times (1001)_2$
 - ii) $(100001)_2 / (110)_2$
 - iii) $(8)_{10} - (12)_{10}$ using 2's complement.
 - iv) $(9)_{10} - (13)_{10}$ using 1's complement.
 - v) $(A12B)_{16} - (12A5)_{16}$. 10
- b) Write the characteristics of the following memories : 10
RAM, ROM, PROM, EPROM, EEPROM.

Module - II

13. a) Write the main features of : 10
- i) High Level Language.
 - ii) Assembly Language.
 - iii) Machine Language.
- b) Draw a flow chart for finding the smallest and largest of a set of N numbers. 10

OR

14. a) Define operating system. What are its goals and functions ? 6
- b) Write an algorithm for finding the roots of a quadratic equation. 10
- c) Point out the differences between compiler and interpreter. 4



Module – III

15. a) Explain about different operators in C language with their priority and associativity. 10
- b) Write a C program for multiplying $m \times n$ matrix with a $n \times p$ matrix. 10

OR

16. a) Write a program for displaying the binary equivalent of a positive decimal number. 10
- b) You are given a list of numbers arranged in ascending order. Write a C program to check whether a particular number is present in the list using binary search. 10

Module – IV

17. a) Write a function for finding the sum of the major diagonal elements of a square matrix passed to it. Write the main program also. 10
- b) Using command line argument, write a C program for finding the sum of digits of an input number. 10

OR

18. a) Write a C program for implementing a stack using array. 10
- b) Write a C program for converting all the lower case letters in a text file to upper case and store it in another file. 10
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