Reg. No. : ....

Name : ....

Combined First and Second Semester B.Tech. Degree Examination, May 2015
(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. Point out the main differences between primary and secondary storage in a computer system.

2. Do the following arithmetic operations.

   a) $(1101)_2 + (10110)_2$

   b) $(2A3)_{16} + (BAD)_{16}$

3. What is an operating system ?

4. Draw the flowchart for finding the area and circumference of a circle with radius R.

5. Write a for statement in C for displaying all the 2 digit odd numbers.

6. Define an array of structures for storing the register number, name and 4 marks of a set 50 students.

7. Write notes on enumerated data type in C.

8. What are the basic operations that can be performed on pointers ?

9. Define a function which returns the smallest of 3 numbers passed to it.

10. What is meant by command line arguments in C ?
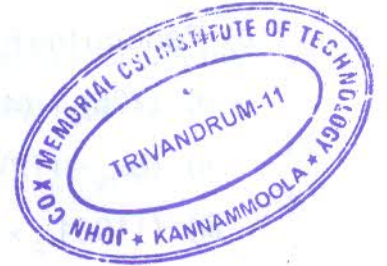
PART – B

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

Module – I

11. a) Explain how floating point numbers are stored in a computer system. 6

   b) Explain about the BCD representation of numbers. 4

   c) Convert the following numbers into decimal.

   i) $(10011)_2$ ii) $(101)_8$ iii) $(65)_{16}$ iv) $(A02)_{16}$ 4

   d) Briefly explain about the different secondary storage devices used in a computer system. 6

OR

12. a) Explain how characters are represented in a computer system. 4

   b) Draw the block diagram of a digital computer and explain the function of each unit. 12

   c) Perform the following arithmetic operations.

   i) $(706)_8 - (457)_8$

   ii) $(8)_{10} - (12)_{10}$ using 1^s complement

   iii) $(11001)_2 \times (110)_2$

   iv) $(2DC3)_{16} + (A9B)_{16}$ 4

Module – II

13. a) What is an algorithm ? Point out its main features. 6

   b) Write an algorithm for finding the average of a set of N numbers. 8

   c) Write notes on :

   i) Compiler

   ii) Interpreter

   iii) Assembler. 6

OR

14. a) Briefly explain about the different types of errors that may occur in a program.   6

b) What is meant by debugging in computer programming ?   3

c) Write the importance of program documentation.   4

d) Draw a flowchart for finding the sum of digits of a 3 digit number.   7

Module – III

15. a) Write a C program for arranging a set of N integer numbers in descending order.   10

b) Write a C program to check whether a particular element is present in a m × n matrix. If present, display its position.   10

OR

16. a) Write the syntax and working of each iterative statement in C.   10

b) Write a C program to check whether a given string is a palindrome.   10

Module – IV

17. a) Write a function for checking whether a number is prime or not. Using this function write a C program for displaying the prime numbers in first N natural numbers.   10

b) Write a C program for implementing a queue using array.   10

OR

18. a) Explain about different bitwise operators in C with suitable examples.   6

b) Point out the differences between automatic variables and static variables.   4

c) Write a recursive function for finding x^n where x is a floating point value and n is an integer value. Write the main program also.   10

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