5902

Reg. No. :

Name:

Combined First and Second Semester B.Tech. Degree Examination, October 2014 (2013 Scheme)

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

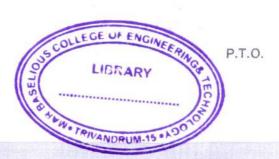
Time: 3 Hours Max. Marks: 100

PART-A

Answer all questions. Each question carries 2 marks.

- "In the case of Von Neumann architecture, both the program and the data are stored in RAM". What is the disadvantage of this?
- 2. Find the decimal equivalent of the BCD number 1001 0101 0010 0111.
- 3. What is debugging? Give the name of a debugger.
- 4. Mention any 4 objectives of Operating System.
- 5. Write an algorithm to count the negative numbers in the given set of n numbers.
- 6. Arrange the following operators in the increasing order of precedence (priority)

- 7. Write the syntax of for loop.
- 8. Mention the advantage of Binary search over Linear search.
- 9. Discuss call-by-reference.
- 10. What are the data types of the two arguments of the main function of a C program?





PART-B

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

Module - I

		Module – I	
11.	a)	Compare primary and secondary storages in terms of speed of access, cost per byte, power requirements and the technology used.	4
	b)	With a block diagram explain the functional units of a computer.	10
	c)	Find the result.	
		i) (1010 1101) ₂ - (1100 1101) ₂ using 2's complement	
		ii) $(1101\ 1101)_2 \times (1000\ 1000)_2$	
		iii) $(1110\ 1100)_2 \div (1000\ 0000)_2$	6
		OR	
12.	a)	Find the normalized results.	
		i) 0.1100 1010 E 0000 1001 + 0.1010 1111 E 0000 0011	2
		ii) 0.1001 1000 E 0001 0000 - 0.1111 0011 E 0000 1111	2
		iii) 0.1010 1000 E 0000 1100 × 0.1110 0000 E 0001 0000	4
	b)	Describe ASCII and EBCDIC codes.	6
	c)	Change the base :	
		i) (253.75) ₁₀ to Binary	
		ii) (101101.11) ₂ to Hexadecimal	
		iii) (737.421) ₈ to Decimal.	6
		Module – II	
13.	a)	Compare Assembly Language, Machine Language and High level language.	6
	b)	Discuss how modular programming is amenable to top down design strategy.	4
	c)	Draw the flowchart to find the sum of positive numbers and the sum of negative numbers in the given set of n numbers. Then add these sums to find the grand total.	10
		OR	
14.	a)	Discuss the purpose of the various symbols and shapes used in flow charts.	5
	b)	Write an algorithm to generate the first n Fibonacci numbers.	10
	c)	Differentiate between compiler and Interpreter.	5

Module - III

15.	a)	Write a C program to find $X = Y + kZ$ where X, Y and Z are $n \times n$ matrices and K is an integer.	10
	b)	What is the difference between using $<>$ and " " for including a header file ?	2
	c)	Write a C program to search for an element in the given array. Display the position (s) and the number of occurrence of the element.	8
		OR	
16.	a)	Write a C program to read a string and check whether it is a palindrome or not.	10
	b)	Illustrate the difference between structure and union.	10
		Module - IV	
17.	a)	Write functions for Push and Pop operations. Assume a global integer array 'stack' and a global integer variable 'top'.	6
	b)	Write a C program that reads two strings, dynamically allocate memory and store the concatenation of these strings. Display the resultant string.	10
	c)	Write a recursive function with an integer parameter n, to return the factorial of n.	4
		OR	
18.	a)	Illustrate the use of -> operator. Mention an alternate combination of operators that serve the same purpose.	4
	b)	Explain the different storage classes in C.	8
	c)	Write a C program that reads the contents of a file and writes the same to a new file.	8

