Register No.: …… Name: ……

SAINTGITS COLLEGE OF ENGINEERING (AUTONOMOUS)

(AFFILIATED TO APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY, THIRUVANANTHAPURAM)

SECOND SEMESTER B.TECH DEGREE EXAMINATION (S), December 2021

Common to all branches

Course Code: **20EST102**

Course Name: **Programming in C**

Max. Marks: **100** **Duration: 3 Hours**

PART A

(Answer all questions. Each question carries 3 marks)

		CO
1.	Compare between compiler and interpreter.	[1]
2.	Describe the memory hierarchy in terms of speed, cost and storage.	[1]
3.	Compare between while and do while loop with suitable diagram.	[2]

4.	What will be the output for the following program?
	`#include <stdio.h>`
	`int main()`
	`{`
	`int d, a = 1, b = 2;`
	`d = a++ + ++b;`
	`printf("%d %d %d", d, a, b);`
	`return 0;`
	`}`
		[2]

5.	Explain any two ways to declare and initialize a two-dimensional array.	[3]
6.	Write a C program to read ‘n’ integers into an array and print the sum of odd numbers.	[3]
7.	Compare between actual parameters and formal parameters.	[4]
8.	Explain about the need of modular programming.	[4]
9.	What is a pointer? Explain how a pointer variable is declared and initialized.	[5]
10.	Compare between sequential files and random access files.	[6]

PART B

(Answer one full question from each module, each question carries 14 marks)

MODULE I

			CO	Marks
11.	a)	Explain the architecture of a computer with suitable diagram.	[1]	(7)
	b)	Draw a flowchart to find the largest of three numbers.	[1]	(7)

OR

			CO	Marks
12.	a)	Write an algorithm and draw the flow chart to check whether the given number is odd or even.	[1]	(6)
	b)	Write the pseudo code to compute the roots of a quadratic equation $ax^2+bx+c=0$	[1]	(8)

MODULE II

			CO	Marks
13.	a)	Write a C program to print the following pattern. 1 2 3 4 5 1 2 3 4 1 2 3 1 2 1	[2]	(7)
	b)	Write a C program to print all the prime numbers between 1 and 100.	[2]	(7)

OR

			CO	Marks
14.	a)	Explain about various operators in C.	[2]	(8)
	b)	Write a C program to check whether the given number is palindrome or not.	[2]	(6)

MODULE III

			CO	Marks
15.	a)	Explain any three String handling functions with suitable examples.	[3]	(6)
	b)	Write a C program to sort numbers in ascending order using bubble sort.	[3]	(8)

OR

			CO	Marks
16.	a)	Write a C program to perform linear search.	[3]	(6)
	b)	Write a C program to perform matrix multiplication.	[3]	(8)

MODULE IV

			CO	Marks
17.	a)	Explain about the various storage classes in C.	[4]	(6)
	b)	What is Recursion? Write a C program to compute the factorial of a number using recursion.	[4]	(8)

OR

			CO	Marks
18.	a)	Explain how the structure variable passed as a parameter to a function with example.	[4]	(6)
	b)	Write a program to maintain a record of 'n' employee details using an array of structures with four fields (id, name, designation, salary) and print the details of employees whose salary is above 30000.	[3]	(8)

MODULE V

			CO	Marks
19.	a)	Explain pass by reference. Write a C program to swap two numbers using pass by reference method.	[5]	(8)
	b)	Explain how we can access array elements using pointers with suitable examples.	[5]	(6)

OR

			CO	Marks
20.	a)	Explain the various file operations in C.	[6]	(5)
	b)	Write a C program that opens a text input file and count number of characters, words and lines in it; and store the results in an output file.	[6]	(9)

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