

Register No.: Name:

SAINTGITS COLLEGE OF ENGINEERING (AUTONOMOUS)

(AFFILIATED TO APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY, THIRUVANANTHAPURAM)

SECOND SEMESTER B.TECH DEGREE EXAMINATION (S), SEPT 2022**(2020 SCHEME)****Course Code : 20EST102****Course Name: Programming in C****Max. Marks : 100****Duration: 3 Hours****PART A***(Answer all questions. Each question carries 3 marks)*

1. Distinguish between compiler and interpreter.
2. Write an algorithm to check whether the given number is odd or even.
3. Consider the expression $x = (a+b > 10) ? (a * b) : 5$;
Identify the operator and interpret the results based on the values given
 - i) $a = 4$ and $b = 9$
 - ii) $a = 1$ and $b = 3$
4. Differentiate between entry controlled loop and exit controlled loop with an example.
5. Explain declaration and initialization of two-dimensional Arrays.
6. Write notes on the gets() and puts() with an example.
7. Define a function. What are the advantages of using a function?
8. How does an array differ from a structure? Explain with Example.
9. Write a C program to find the sum of two numbers using call by reference method.
10. What are the different file opening modes?

PART B*(Answer one full question from each module, each question carries 14 marks)***MODULE I**

11. a) Describe Von Neumann architecture of digital computer and explain different steps in execution of a program. (7)
b) Diagrammatically illustrate the memory hierarchy in computer system. (7)

OR

12. a) Write pseudo code and draw a flowchart to find the largest of three numbers. (7)
b) Write an algorithm to implement a linear search program. Illustrate the working with the help of an example. (7)

MODULE II

13. a) With suitable examples explain about various operators in C. (8)
b) Write a C program to check whether the given number is Armstrong or not. (6)
(Hint: $153 = 1^3 + 5^3 + 3^3$)

OR

14. a) Write a program to display Floyd's triangle:
- ```

1
2 3
4 5 6
7 8 9 10
11 12 13 14 15

```
- (7)
- b) Write a program to enter a number from 1 to 7 and display the corresponding day of the week using switch statement. (7)

## MODULE III

15. a) Write a program to find the largest of n numbers using arrays. (7)
- b) Develop a C program to find the transpose of a given matrix. (7)

## OR

16. a) Explain the string handling functions with suitable examples. (8)
- b) Write a C program that reads a string from the keyboard and check whether the given string is palindrome or not. (6)

## MODULE IV

17. a) Write a C program to find the value of  $nCr$  (Combination) using function. (8)
- Hints for implementation:  
 $nCr = n! / r! * (n-r)!$   
 - Read the value of n and r from user.  
 - Use a function to find the factorial of a number.
- b) Distinguish between structure and union and clearly mention the maximum memory allocated with a suitable example. (6)

## OR

18. a) Write a C program using structure to read and display the data of n employees and also display the details of employee with highest salary. (Name, Employee Id and salary). (8)
- b) With suitable examples, explain the various storage classes in C. (6)

## MODULE V

19. a) Write any four file I/O functions in C? Explain about the task performed by each function. (8)
- b) Write a C program to read an array of integers and display the array using pointer. (6)

## OR

20. a) Write a C program to write a set of numbers to a file and separate the odd and even numbers to two separate files. (8)
- b) Write a C program to swap the content of two variables using pointers. (6)

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