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## SAINTGITS COLLEGE OF ENGINEERING (AUTONOMOUS)

(AFFILIATED TO APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY, THIRUVANANTHAPURAM)

SECOND SEMESTER B.TECH DEGREE EXAMINATION (Regular), JULY 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. Differentiate between System Software and Application Software.
2. Write short note on System Translators.
3. Briefly describe the structure of a C Program with an example.
4. Explain Bitwise Operators (any three) with suitable examples.
5. List any three standard library string functions and briefly explain with examples.
6. Write a C program to find the smallest and largest numbers in a given set of numbers using array.
7. What is Function definition in C? List the advantages of Functions in C.
8. Differentiate between Structure and Union with special mention on maximum memory allocated.
9. Write a C program to display the file contents.
10. Describe the concept of pointers with a suitable example.

### PART B

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

#### MODULE I

11. a) Write the Pseudo code and draw the flow chart to search an element sequentially in a given set of elements with an example. (10)  
b) Write note on Memory Unit. (4)

OR

12. a) With the help of flow chart explain Bubble sort. Using Bubble sort, sort the following numbers 25,2,20,5,11,81,74,19. (10)  
b) Write the algorithm for Bubble sort. (4)

#### MODULE II

13. a) Explain the different types of Control Statements in C with syntax and suitable example codes. (10)  
b) Write a C program to read n natural numbers and find largest even number and largest odd number without using division or modulo. (4)

**OR**

14. a) With examples and syntax explain different operators in C. (10)  
b) Write a C program to read a number and check whether the number is Armstrong or not. (4)  
[hint:  $153=1^3+5^3+3^3$ ]

**MODULE III**

15. a) Write a C program to find the transpose of a matrix. (4)  
b) Describe the different unformatted console input/output functions with suitable examples. (10)

**OR**

16. a) Write a C program to count vowels, consonants, digit, and whitespaces in a given string. (7)  
b) Define an array. Explain in detail the types of arrays with examples. (7)

**MODULE IV**

17. a) Write a C program to create a structure employee with member variables name, age, bs, da, hra and tsalary. Total Salary is calculated by the equation  $tsalary=(1+da+hra)*bs$ . Read the values of 3 employees and display the details based on descending order of tsalary. Write the sample output. (8)  
b) What is a function? With examples write note on different types of functions in C. (6)

**OR**

18. a) With suitable example differentiate between call by value and call by reference. (8)  
b) What is a recursive function? Write a C program to find factorial of a number using recursive function. (6)

**MODULE V**

19. a) Write a C program to sort the content of an array using pointers. (6)  
b) Explain file operations in detail with examples. (8)

**OR**

20. a) Write notes on File handling Functions in c. List and describe any 5 file handling functions. (7)  
b) Consider you are a content writer in Wikipedia. You are the person who writes the known facts about APJ Abdul Kalam. After his death, you need to change all 'is' to 'was'. Write a C program to replace all 'is' to 'was' to a new file. With example explain the working of your program. (7)

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