

Register No.: Name:

SAINTGITS COLLEGE OF ENGINEERING (AUTONOMOUS)

(AFFILIATED TO APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY, THIRUVANANTHAPURAM)

SECOND SEMESTER INTEGRATED MCA DEGREE EXAMINATION (R,S), MAY 2024**(2020 SCHEME)****Course Code: 20IMCAT108****Course Name: Problem Solving and Structured Programming****Max. Marks: 60****Duration: 3 Hours****PART A***(Answer all questions. Each question carries 3 marks)*

1. What is a translator? Distinguish between compiler and interpreter.
2. What is type conversion? Explain with an example.
3. Is break statement mandatory for switch case? Justify your answer.
4. Differentiate entry controlled and exit controlled loops.
5. List any three string handling functions with examples.
6. Write a C program to search an element from a list of integers using linear search method.
7. Explain union with an example. What are its uses?
8. What is recursion? Differentiate recursion and iteration.
9. Explain any three file opening modes.
10. Explain the difference between `*ptr++` and `(*ptr)++`, if ptr is pointing to the first element of an integer array.

PART B*(Answer one full question from each module, each question carries 6 marks)***MODULE I**

11. What is an Identifier? What are the rules to create an Identifier? Give examples for valid and invalid identifier. (6)

OR

12. a) Which are the types of computer programming languages? Explain any two. (4)
b) Write a C program to find largest among two numbers using conditional operator. (2)

MODULE II

13. a) Write a C program to generate the pattern of numbers as given below (3)
- ```
1
2 3
4 5 6
7 8 9 10
```

- b) How switch case statement can be used to avoid the else if ladder statement? (3)  
Illustrate with an example.

**OR**

14. a) Explain nested for loop statement with suitable example. (2)  
b) Write a C program to check whether the given number is Armstrong or not. (4)

**MODULE III**

15. a) How arrays can be declared and initialized? Give examples for integer, floating point and character arrays. (3)  
b) Write a C program to delete an element from a given position in a given array of elements. (3)

**OR**

16. a) Write a C program to compare two strings without using any standard library function. (4)  
b) Explain string. How is string declared and initialized? (2)

**MODULE IV**

17. Explain about different storage classes with examples. Write their uses and scope. (6)

**OR**

18. Let there be two matrices of order 'm x n' and 'n x q'. Write a C program to get the inputs for the elements of the matrices. Develop a function to multiply the matrices and display the output in the main program. (6)

**MODULE V**

19. a) Write a C program to swap the content of two variables using pointers. (3)  
b) What is the use of fseek() function in files? Write its syntax. (3)

**OR**

20. Write a C program to write a set of numbers to a file and separate the odd and even numbers to two separate files. (6)

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