

Register No.: ..... Name: .....

**SAINTGITS COLLEGE OF ENGINEERING (AUTONOMOUS)**

(AFFILIATED TO APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY, THIRUVANANTHAPURAM)

**SECOND SEMESTER INTEGRATED MCA DEGREE EXAMINATION (Special), AUGUST 2021****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)*

- |  | <b>CO</b> |
|--|-----------|
| 1. What is a Translator? Distinguish between Compiler and Interpreter.   | [1]       |
| 2. Explain the syntax of scanf() with example.   | [1]       |
| 3. Write a short note on control statement <i>continue</i> with an example.                                    | [2]       |
| 4. Differentiate entry controlled and exit controlled loops.   | [2]       |
| 5. How arrays can be declared and initialized? Give examples for integer, floating-point and character arrays. | [3]       |
| 6. Write a function to find the length of a string without using strlen().                                     | [3]       |
| 7. What is a function prototype? Give example.   | [4]       |
| 8. Explain recursive function with an example.   | [4]       |
| 9. What is a pointer? Give example.  | [5]       |
| 10. List and describe the various file operations in C.  | [5]       |

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

- |   | <b>CO</b> | <b>Marks</b> |
|---|-----------|--------------|
| 11. a) What is an Identifier? What are the rules to create an Identifier? Give examples for valid and invalid identifier. | [1]       | (4)          |
| b) How a floating-point value is type casted to integer type? Explain with an example.                                    | [1]       | (2)          |

**OR**

- |  | <b>CO</b> | <b>Marks</b> |
|--|-----------|--------------|
| 12. a) What is a data type? Discuss the various data types in C with examples. | [1]       | (4)          |
| b) Differentiate getch() and getche().   | [1]       | (2)          |

**MODULE II**

- |   | <b>CO</b> | <b>Marks</b> |
|---|-----------|--------------|
| 13. How switch case statement can be used to avoid the else if ladder statement? Illustrate with example. | [2]       | (6)          |

**OR**

- |   | <b>CO</b> | <b>Marks</b> |
|---|-----------|--------------|
| 14. Differentiate while and do-while loops with an example. | [2]       | (6)          |

**MODULE III**

- |   | <b>CO</b> | <b>Marks</b> |
|---|-----------|--------------|
| 15. Write a program to search an element in an array using binary search. | [3]       | (6)          |

**OR**

- |   | <b>CO</b> | <b>Marks</b> |
|---|-----------|--------------|
| 16. Explain any three string handling functions in C with examples. | [3]       | (6)          |

**MODULE IV**

- |   | <b>CO</b> | <b>Marks</b> |
|---|-----------|--------------|
| 17. Describe the various types of functions in C. | [4]       | (6)          |

**OR**

- |  | <b>CO</b> | <b>Marks</b> |
|--|-----------|--------------|
| 18. What are storage classes? Explain the various storage classes in C with example. | [4]       | (6)          |

**MODULE V**

- |  | <b>CO</b> | <b>Marks</b> |
|--|-----------|--------------|
| 19. Explain array of pointers. How array of pointers can be used to implement multidimensional arrays? | [5]       | (6)          |

**OR**

- |   | <b>CO</b> | <b>Marks</b> |
|---|-----------|--------------|
| 20. Write a program to read 'n' number of students with rollno, Name and marks for 3 subjects. These data can be read using a structure variable and store in a file called "stud.txt". Then include necessary codes to read student data and display as necessary. | [5]       | (6)          |

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