**Code No.ES301CS**

**METHODIST COLLEGE OF ENGINEERING & TECHNOLOGY (An Autonomous Institution)**

**B.E. (EEE/MECH/CIVIL) III-Semester (AICTE) (Supplementary) Examination, AUGUST -2023**

**Subject: PROGRAMMING FOR PROBLEM SOLVING**

**Time: 3 hours Max.Marks:60**

**PART-A**

**Answer All the questions.**

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| **Q.No.** | **Questions** | **Marks** | **CO** |  |
| **1. a** | “main() function is used to execute a c program”. Justify the statement by giving proper explanation? | **2** | **1** |  |
| **b** | Define the terms algorithm and flowchart? | **2** | **1** |  |
|  **C**  | Differentiate between while and do-while with example? | **2** | **2** |  |
| **d** | Differentiate character array and string? | **2** | **2** |  |
| **e** | What are the uses with recursive functions? | **2** | **3** |  |
| **f** | Differentiate between built-in functions and user-defined functions. | **2** | **3** |  |
| **g** | Write any two merits and demerits of pointers. | **2** | **4** |  |
| **h** | Differentiate between Structure ,Union and array | **2** | **4** |  |
| **i** | Distinguish between an append mode and write mode in files. | **2** | **5** |  |
| **j** | What is a data file? Different categories of data files | **2** | **5** |  |

**PTO**

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**PART-B**

**Answer Any Five questions**.

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| **Q.No.** |  | **Questions** | **Marks** | **CO** |  |
| **2.** | **a** | What is algorithm? Explain the steps involved in the development of C algorithms? | **4** | **1** |  |
| **b** | Write a c program that takes decimal number as input and print its equivalent octal and hexadecimal number using format specifies? | **4** | **1** |  |
| **3.** | **a** | Explain the different string manipulation functions in C with proper syntax and their usage. | **4** | **2** |  |
| **b** | The following series is called fibonacci series:0 1 1 2 3 5 8 11..Analyze the series, use necessary control statements and develop a c program to generate the series | **4** | **2** |  |
| **4.** | **a** | Explain different parameter passing techniques used for functions in C.Give an example program for each. | **4** | **3** |  |
| **b** | Consider an array with an elements {45,56,67,78,89,90}.Apply the following searching mechanisms and write a c program to search for an element in the above array using Linear search mechanism | **4** | **3** |  |
| **5.** | **a** | Write short notes on:1. NULL pointer
2. Void pointer
3. Pointer to an array
 | **4** | **4** |  |
| **b** | Write a C program to find sum of array elements using pointers and functions. | **4** | **4** |  |
| **6.** | **a** | How to create a File in C?What are different file modes available in C? | **4** | **5** |  |
| **b** | Write a C program to create a text file and add some data to file and display file content**.** | **4** | **5** |  |
| **7.** | **a** | Explain bitwise, increment and decrement, conditional operators with examples | **4** | **1** |  |
| **b** | What is Array? Discuss about the initialization and accessing of array elements in one dimensional and two dimensional arrays.  | **4** | **2** |  |
| **8.** | **a** | What are the different types of functions we can create in C? | **4** | **3** |  |
| **b** | Write a C program to swap two values using call by address. | **4** | **4** |  |
| **9.** | **a** | Explain the following dynamic memory management functions with example:(i) malloc( ) (ii) calloc( ) (iii) realloc( ) (iv) free( ) | **4** | **5** |  |
| **b** | Explain the following string handling functions: (i) strcpy( ) (ii) strlen( ) (iii) strcat( ) (iv) strcmp( ). | **4** | **2** |  |

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