**Code No.ES301CS**

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

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

**Subject: PROGRAMMING FOR PROBLEM SOLVING**

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

**PART-A**

**Answer All the questions.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Q.No.** | **Questions** | **Marks** | **CO** |  |
| **1. a** | List different components of computer hardware ? | **2** | **1** |  |
| **b** | Explain pre-decrement and post-decrement operation on a variable with anexample. | **2** | **1** |  |
| **C****d**  | Write a code to print the following pattern using loops.112123123412345How does the C language handle the values in an array internally?  | **2** | **2** |  |
|  |  | **2** | **2** |  |
| **e** | What is the difference between function declaration and function definition in C? | **2** | **3** |  |
| **f** | What is a command line argument? | **2** | **3** |  |
| **g** | Write the differences between structure and union. | **2** | **4** |  |
| **h** | How does a structure differ from an array? | **2** | **4** |  |
| **i** | What are the primary advantages of using data files in C language? | **2** | **5** |  |
| **j** | In what way is a file more flexible than a string in C language? | **2** | **5** |  |

PTO

**Code No.ES301CS**

**PART-B**

**Answer Any Five questions.**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Q.No.** |  |  **Questions** | **Marks** | **CO** |  |
| 2. | a | Write short notes on:a.Compiler b.interpreter c.Linker & loaderd.Source code and executable code | 4 | 1 |  |
| b | List out the datatypes and operators in C language.Explain with syntax and example. | 4 | 1 |  |
| 3. | a | Explain various selection statements available in C language with examples | 4 | 2 |  |
| b | Write a c program to declare and initialize a 1-D array with N elements and print the size of array. | 4 | 2 |  |
| 4. | a | Mr.Raju has an array of numbers {8,2,5,1,7,3}.He wants a nice code that could sort the numbers. ApplyBubble sorting technique and write a c program to sort the given elements in ascending order. | 4 | 3 |  |
| b | Define function. Explain the way to create and access functions in C with example. | 4 | 3 |  |
| 5. | a | Define pointer.How to create a pointer in C?Write a program to demonstrate it. | 4 | 4 |  |
| b | Consider an “Employee” structure with fields empName, empDesignation, empAge, empSalary. Write a C program to read and display N employees records according to sorted age using array of structure. | 4 | 4 |  |
| 6. | a | How to create a File in C?What are different file modes available in C?Explain. | 4 | 5 |  |
| b | Write a C program to read an existing file and count number of words, lines,characters in that file and display the count. | 4 | 5 |  |
| 7. | a | Distinguish between machine, assembly, low-level and high-level languages. | 4 | 1 |  |
| b | What is an array? What are the disadvantages in implementing arrays in C language? | 4 | 2 |  |
| 8. | a | Define recursion. Differentiate between iteration and recursion | 4 | 3 |  |
| b | Define structure. How to create and access structure in C?Explain with example | 4 | 4 |  |
| 9. | a | What are various storage classes in C? Discuss their uses and scope | 4 | 5 |  |
| b | Write a C program to find sum of array elements using pointers and functions. | 4 | 4 |  |

\*\*\*\*\*