|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | | | **Reg. No.:** | |  | | | |
| **Name :** | |  | | | |
|  | | | | | | | | | | |
| **TERM END EXAMINATIONS (TEE) – December 2021- January 2022** | | | | | | | | | | |
| **Programme** | | | **:** | **B. Tech** | | **Semester** | | **:** | **Fall 2021-22** | |
| **Course Name** | | | **:** | **Introduction to Problem Solving and Programming** | | **Course Code** | | **:** | **CSE1021** | |
| **Faculty Name** | | | **:** | **Dr A V R Mayuri** | | **Slot / Class No** | | **:** | **A21+A22+A23 / 0115** | |
| **Time** | | | **:** | **1½ hours** | | **Max. Marks** | | **:** | **50** | |
| **Answer ALL the Questions** | | | | | | | | | | |
| **Q. No.** | **Question Description** | | | | | | | | | **Marks** |
| **PART - A ( 30 Marks)** | | | | | | | | | | |
| 1 | (a) | Discuss the sequence of steps that one typically goes through in designing and analysing an algorithm. | | | | | | | | 10 |
| OR | | | | | | | | | |
| (b) | Illustrate with examples how functions are categorized based on the arguments and return type. | | | | | | | | 10 |
| 2 | (a) | (I) Implement python program to compute factorial of a given number using recursion  (II) Implement python program to swap two numbers without using third variable and arithmetic operator. | | | | | | | | 5  5 |
| OR | | | | | | | | | |
| (b) | **Find all the prime factors of 627 using factor tree and short division method and implement in python language how to compute prime factors of the given number.** | | | | | | | | 10 |
| 3 | (a) | Write the algorithm, flowchart and program to find the smallest divisor of a given integer | | | | | | | | 10 |
| OR | | | | | | | | | |
| (b) | (I) Implement python program to remove duplicates from the given array {2,1,3,5,4,1,3,2,4,5}.  (II) Implement python program to perform array pair sum | | | | | | | | 5  5 |
| **PART - B (20 Marks)** | | | | | | | | | | |
| 4 | | Illustrate with sample programs in python language for conditional and iteration control statements. | | | | | | | | 10 |
| 5 | | Write a Python Program to perform various list operations.  (Slicing, appending, find index of element, sorting, popping, removing, insert, count occurrences, extend, reverse) | | | | | | | | 10 |
| ⇔⇔⇔ | | | | | | | | | | |