

S. No.	Note: Start answer of a fresh question from fresh page only. Direct answer to a question will not be entertained.	Marks	course outcome (CO) CO1
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1. What is an algorithm? Discuss with the help of suitable example. What should be the Characteristics of an Algorithm? Give example(s) in support of your answer.
2. The pseudo code uses notations used in common languages like PASCAL and C language. For example, **if-else** structure, **for loop** structure, **while loop** (in Pascal While –do) structure, **do-while** (in Pascal it is Repeat –Until) loop structure. Discuss the algorithmic notations used in PASCAL and C languages with the help of suitable example.
3. Using step/statement count procedure find growth function for the following matrix algorithm. In the algorithm M, N are  $n \times m$ ,  $m \times p$  are two dimensional arrays and resulting matrix R will be  $n \times p$ .

Matrix\_Multiplication(M, N, R)

Step 1: [Perform multiplication operation]

Loop 1: **Repeat thru Step 3 for I = 1, 2, 3 ... n**

Loop 2 :**Repeat thru Step 3 for J = 1, 2, 3 ... m**  
Sum = 0.0

Loop 3: **Repeat thru Step 2 for K= 1, 2, 3 ... p**

Step 2: **Sum = Sum + M[I][K]\*N[K][J]**

Step 3: **R[I][J] = Sum**

Step 4: **[Finished]**

Exit

4. Write an algorithm for addition of two matrices. What will be space complexity for this algorithm?