

Name :- Abdullah Bin Noman Rabid

Student ID :- 2120180031

Course ^{Title} ~~Name~~ :- Algorithm

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"Mid Term"

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Ans-to-the-Q-Nr-1(a)

Algorithm is a process or set of rules to be followed in calculations or other problem-solving operations, especially by a computer.

Categories:

- a) Brute force algorithm
- b) Greedy algorithm
- c) Recursive algorithm
- d) Backtracking algorithm
- e) Divide and Conquer algorithm
- f) Dynamic programming algorithm
- g) Randomized algorithm.

Characteristics:

Input: An algorithm requires some input values.

Output: At the end of an algorithm, you will have one or more outcomes.

Unambiguity: A perfect algorithm is defined as unambiguous.

Finiteness: An algorithm must be finite.

Effectiveness: Because each instruction in an algorithm affects the overall process, it should be adequate.

Ans-to-the-Q-No 1(b)Advantages:

- ① It is a step-wise representation of a solution to a given problem.
- ② An algorithm uses a definite procedure.
- ③ It is not dependent on any programming language.
- ④ Every step in an algorithm has its own logical sequence so it is easy to debug.
- ⑤ By using algorithm, the problem is broken down into smaller pieces.

Disadvantages:

- ① Algorithm is time consuming.
- ② Difficult to show branching and Looping in Algorithm.
- ③ Big tasks are difficult to put in Algorithms.

Ans to the Q-N-1(c)

Types:-

- ① Brute force algorithm.
- ② Greedy algorithm.
- ③ Recursive algorithm.
- ④ Backtracking algorithm.
- ⑤ Divide and Conquer algorithm.
- ⑥ Randomized algorithm.

Greedy Algorithms

A greedy algorithm is an approach for solving a problem by selecting the best option available at the moment.

Ans. to the Q. No 2 (a)

Searching Algorithms

A searching algorithm is the step by step procedure used to locate specific data among a collection of data.

Sorting algorithm?

A sorting algorithm is used to rearrange a given array or list of elements according to a comparison operator on the elements.

Ans to the Q-No-2(b)

Huffman coding is a method of data compression that is independent of the data type, that is, the data could represent an image, audio or spreadsheet.

This compression scheme is used in JPEG and MP3.

Ans. to the Q No 2(c)

Mathematical algorithm:

A mathematical algorithm is a procedure, a description of a set of steps that can be used to solve a mathematical computation.

Graph Algorithms:

Graph algorithms are a set of instructions that traverse graph. Some algorithms are used to find a specific node or the path between two given nodes.