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***MCs final (Morning)***

**Paper-2016**

**SECTION-A**

**Ans 1**

**(a)**

*Important features of Algorithm*

* ***Precision:***

***It is a step by step process to solve and define the problem.***

***The process of the algorithm work on step’s and on each step it sove some part of the algorithm.***

* ***Uniqueness***

***The result of the each step of an algorithm can sove some part of the algoritm which is unique form previous one and on each it can define the problem and it’s result depend upon the input. The each step in the alogorithm are unique it may depend previous input and its result are unique in each step’s.***

* ***Finiteness***

***This is the important feature of the algoritm that each algorithm most be terminate after finit number of time .if this feature is not in the algorithm then it is dangours for the software and for hardware and also for the uer, In this case the it well goto the undefine loop, which is non terminating.***

* ***Input***

***Each algortim must reveive in input data for the problem. The algorithm receive the input and procees upon it***

* ***Output***

***The algorithm must prodeuce some result after processing on some onput data.***

* ***Generality***

***The algorithm must use for accpetence to the set of the input data.***

*Factor effecting on the effieiency of an algorithm*

* ***Time complexity:***

***This is very important factor in the scope of an alogorithm.the time is very for the effieiency of an algorithm.we find the time for an algorithm that how much it time to comple the algorithm set.***

***In this way we find the time complexity for the algorithm to solve the problem .it is the time by the algorithm to process on some input data and produce the output according to the given requirement.***

* ***Space complexity***

***It is the second factor that are important for and algorithm that how much memory bytes it take to represent the data and solve the problem .it is some time unimportant where the memory are grearter .it important where memory is limted .the example for them is merge sort, it use greater memory for the sorting of the data. The anther example where limted memory is then it use the bubble sort. For the Effeciency of an algorithm the time complexity is important.***

**Ans Q1**

**(b):**

***The Basic theme beyond analysis of algorithm***

***The analysis of an is important and it measure the performance of an algorithm .the use of algorithm for some data is efficient that, we must know about the perforamnce of an algorithm.***

***The analysis provide the way to measure the effeciency of algorithm.In the analysis we check the effeciency of an algorithm for different input and finde the running for that algorithm that it take to process the data and sove the problem.***

***We check the algorithm for different input and we analysize them, such we check them for the best case of input and we fine has ruuning time complexity , and we also check for the avarage case that how much time it take to solove the paritcular problem of the input data. In analysis we check and measure the time complexity for the worst case .***

***In the base of that case and also for the time complexty and space it taken to solve a problem.***

**Paper-2015**

**Q : 1**

**Ans (a)****Algorithm:**

***Algorithm is the particular way and techinique to solve the particular problem for the given problem.***

**Difference Between Data Structure and Algortihm**

* + ***Data structure the particular way to visiualize the certain object in the programming laguage for solving the problem.the data structure also provide that how the data is store internally in the computer.***

**For Example:**

***If we define the list for the student which are new admited in the class, we should know the Name ,Father Name, Marks ,Address,Phone No and we store them. To store them the data structure are use such charactor , integer and variable charactor to store them in a system.***

* + ***The algorithm is the particular method or technique of prgramming for the problem to make work on them. There are many algorithm, such as for sorting of data from the data base to arrange the list. An algorithm is a specific way that the programmer write the prgram to performe execution of the information . Algorithm can be messure there perforamce according to running time thah it take to process the data.***
* ***A data structure is the identification for your that it has not a bugs,traffic, and errors.***
  + ***Algorithm is the mathematical way that it messure the computation and it work for the solving of the problem and it is the computation for problem.***
  + ***Data structure is the flow of data that is use an the algorithm on a high speed.that store and being processing on them.***

**Q-1**

**Ans (b)**

**Asymptotic time complexity of an algorithm**

***The Asymptotic time complexity show the behaviour of an algorithm that how it works for the problem. There are the following Aysmptotic time complexity for the algorithm.***

**Big(oh ) time Complexity**

***It is also called O notation .it is use for the worst case, or upper limit for the growth for a given function. It provide the upper bound for the running time for an algorithm such that f(n) is the run-time of the algorithm and g(n) is the time complexity for the algorithm and n is the number of input which are to solve for the problem.***

***The function is f(n) is O(g(n)) for some constant c ,where c greater then zero and n0  of f(n) lessthen or equal to c g(n) for every input size n such is ( n greater then n).***

**Big-Omega time Complexity**

***It is the second aysmptotic time complexity for an algorithm and it is writen as Ω ,it is use for the floor growth rate of a funtion .it define the lower bound for the running time of the algorithm.it mean that the algorithm will take at least this mush time to completes its execution.***

***f(n) is the function for an algorithm and it is Ω of g(n) for some real value c such that c greater then 0 and n0 such that (n0 greater then 0) and f(n) is geater then or equal to c and g(n) for every n such is (n>n0).***

***0<=c(g(n)) <=f(n) for all n>=n0***

**Theta time complexity**

***Ѳ (thata) it is asmptotic time complexity to detiermine and provide the boundry between upper bound and lower bound .it determine the asymptotic tight bount of the algorithm on run time grouth of the algorithm.the theta behave like a function above and below, so that it show the exact asymptotic behavior.***

**Paper-2018**

***There is no such related Question found in paper.***