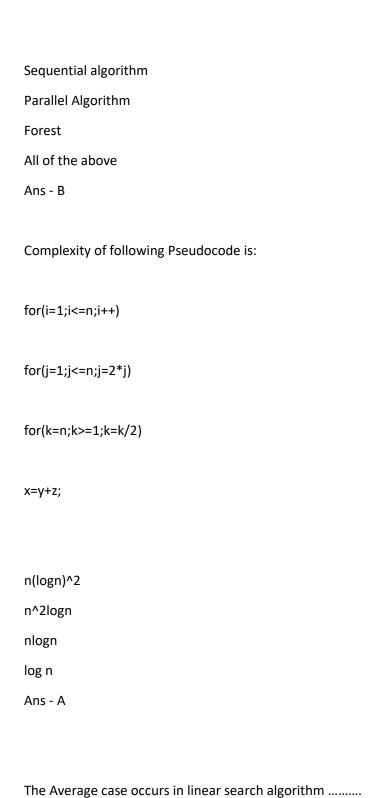
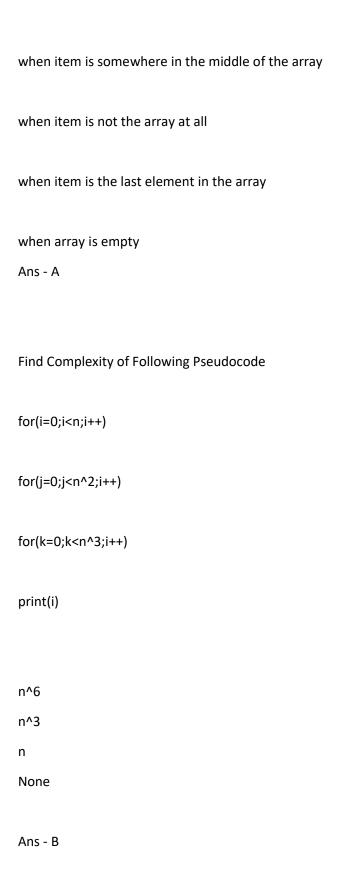


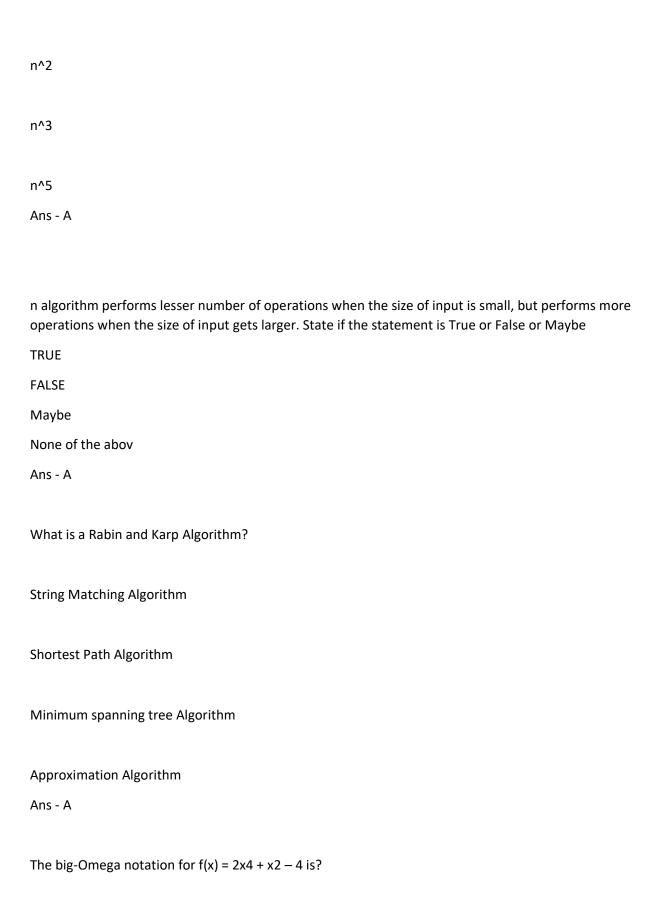
Directed graph is also called as
Digraph
Edge
Adjacent
Loop
Ans -A
Find Complexity of Following Pseudocode
for(i=0;i <n;i++)< td=""></n;i++)<>
for(i=0;i <n^2;i++)< td=""></n^2;i++)<>
for(i=0;i <n^3;i++)< td=""></n^3;i++)<>
print(i)
n^3
n^2
n
None
Ans - D

Igorithm that can executes operation concurrently is called



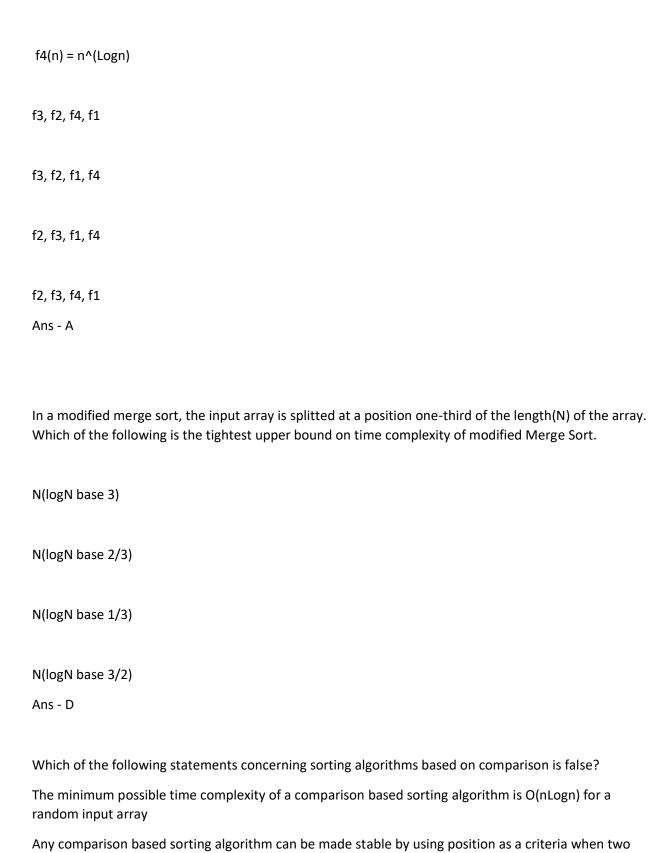


What is the basic principle in Rabin Karp algorithm? Hashing Sorting **Dynamic Programming** dividing the problem Ans - A Find worst case complexity for the following main() { for(j= 1, j<=n; j++) for (i=1; i<=n^2; i++) for (k=1; k <=n^2; k++) x=y+z}



x2
x3
X
x4
Ans - D
What is the runtime efficiency of using brute force technique for the convex Hull Problem
n
n^3
n^5
None
Ans - B
The maximum time required to perform a successful sequential search for an element in an array $A(1:n)$ is given by
n
n(n+1)/2
log n
n^2
Ans - B
The big-O notation for $f(x) = 5\log x$ is?
1
x
x2
x3

Ans - B
A best case for successful sequential search for an element in an array A(1:n) requires how much time?
1
n
n^2
None
Ans - A maybe
What is the runtime efficiency of using brute force technique for the Travelling Sales Person Problem
n
(n-1)!
n^2
None
Ans - B
Which of the given options provides the increasing order of asymptotic complexity of functions f1, f2, f3 and f4?
f1(n) = 2^n
$f2(n) = n^{3/2}$
f3(n) = nLogn



Counting Sort is not a comparison based sorting algorithm

elements are compared

Heap Sort is not a comparison based sorting algorithm.
Ans - D
The maximum time required to perform a successful sequential search for an element in an array $A(1:n)$ is given by
n
n^2
n^3
None
Ans – A
Given an array that isn't ordered. Every element in the array is at most k distance from its place in the sorted array, where k is a positive integer less than the array's size. What sorting algorithm can be simply adapted to sort this array, and what is the time complexity that can be achieved?
Insertion Sort with time complexity O(kn)
Heap Sort with time complexity O(nLogk)
Quick Sort with time complexity O(kLogk)
Merge Sort with time complexity O(kLogk)
Ans – B
Best case running time complexity of bubble sort is
N^2
NlogN
N
N(logN)^2
Ans – C

If the expected number of valid shifts is small and modulus is larger than the length of pattern what is the matching time of Rabin Karp Algorithm?
Theta(m
Big-Oh(n+m)
Theta(n-m)
Big-Oh(n)
Ans – B
Which algorithm is used to solve a maximum flow problem
Prim's algorithm (Versland's algorithm)
Kruskal's algorithm
Dijkstra's algorithm
Ford-fulkerson algorithm
Ans – D
What is the basic operation of closest pair algorithm using brute force technique?
Radius
Euclidean distance
Area
Manhattan distance

Ans -B
What is the worst case time complexity of KMP algorithm for pattern searching (m = length of text, n = length of pattern)?
O(n)
O(n*m)
O(m)
O(log n)
Ans – C
Which of the below mentioned algorithms does not use Dynamic Programming for finding out the optimal solution .
Prim's Minimum Spanning Tree
0-1 Knapsack problem 0-2
Optimal Binary Search Tree
Matrix Chain Multiplication
Ans – A

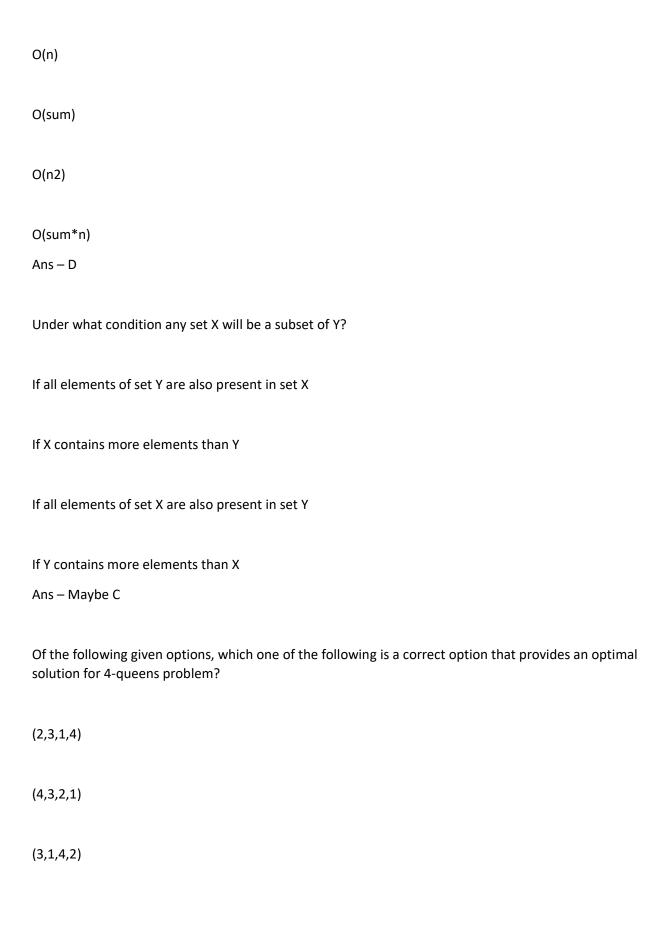
Backtracking algorithm is implemented by constructing a tree of choice s called as?
State-space tree
State-chart tree
Node tree
Backtracking tree
Ans – A
For implementing a LIFO branch and bound strategy, which of the following data structure is most suitable ?
a) Stack
b) Queue

c)	Array linked list
Ans - A	
For imp	elementing a FIFO branch and bound strategy, Which of the following data structure is used?
a)	Stackm
b) c)	Queue Array
	Linked list
Ans – B	
, 1113	
Which	of the following is true
a)	Backtracking is more efficient than dynamic Programming b) branch and bound is not suitable
	where a greedy algorithm
Not ap	olicable
h۱	Branch and bound divides a problem into at least 2 new
IJ,	Branch and bound divides a problem into at least 2 new
Restric	ted sub problems d) backtracking divides a problem into at least 2 new restricted sub problems
Ans – C	
The op	timization problem of finding least-cost cyclic route all node of a weighted graph is
NP	
NP-Cor	nplete
Р	
NP-har	d
Ans – D	

Which of the following is/are property/properties of a dynamic programming problem?
Optimal substructure
Overlapping subproblems
Greedy approach
Both optimal substructure and overlapping subproblems Ans – D
Which of the following problem set can be efficiently solved by backtracking approach but cannot be solved by
Exhaustive search algorithms a) Numerical problems
c) Exhaustive search
d) Combinatorial problems d) Graph coloring problems
Ans – A
Each optimization problem must have certain parameters called
Linear variables
Dummy variables
Design variables
Ans – C

Consider the matrices P, Q, R and S which are 20×15 , 15×30 , 30×5 and 5×40 matrices respectively. What is the minimum number of multiplications required to multiply the four matrices?
7750
6050
7500
12000
Ans – A
The choice of polynomial class has led to the development of an extensive theory called
Time complexity
Computational complexity
Problem complexity
Decision complexity
Ans – B
Let S be an NP-complete problem and Q and R be two other problems not known to be in NP. Q is polynomial time reducible to S and S is polynomial-time reducible to R. Which one of the following statements is true?
R is NP-complete
R is NP-hard
Q is NP-complete
Q is NP-hard
Ans – B

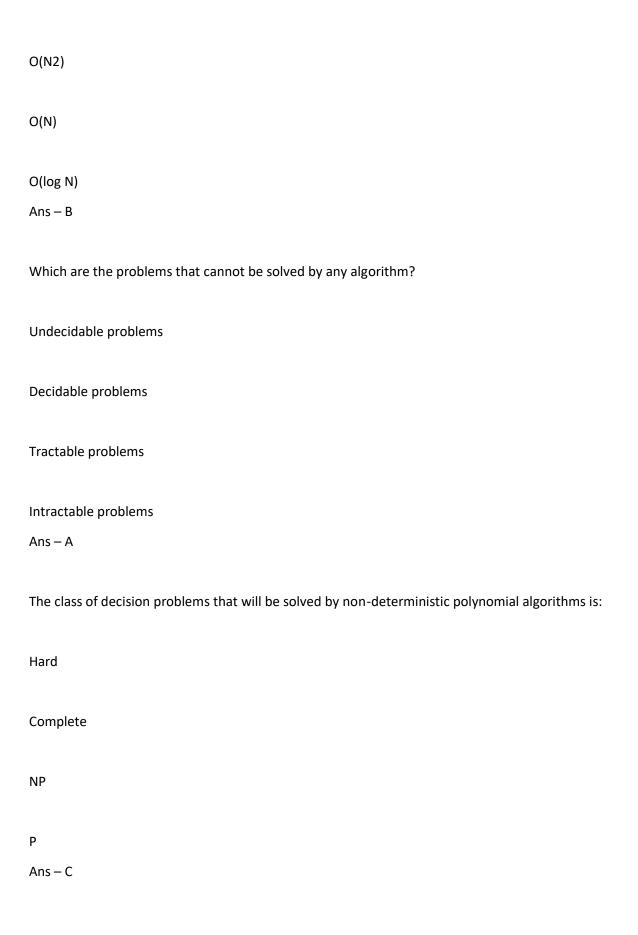
Which statement about NP-Complete and NP-Hard is correct?
The first problem that was proved as NP-complete was the circuit satisfiability problem.
If we want to prove that a problem X is NP-Hard, we take a known NP-Hard problem Y and reduce Y to X
NP-complete is a subset of NP Hard
All of the above
Ans – D
The problem 2-Sat is in
P
NP
NP-complete
NP-hard
Ans – C
The directions in which queens attack each other in n-queens problem are?
1
2
3
4
Ans – C
What is the worst case time complexity of dynamic programming solution of the subset sum problem(sum=given subset sum)?



(4,2,3,1)
Ans – A
Which is the problem of finding a path in a graph that visits every vertex exactly once?
Hamiltonian cycle problem
Hamiltonian path problem
Subset sum problem
Turnpike reconstruction problem
Ans – B
Halting problem by Alan Turing cannot be solved by any algorithm, So it is an example for
Undecidable problem
Decidable problem
bediausie prosiem
Complete problem
complete problem
Trackable problem
Ans – A
UIS U
A non-deterministic algorithm consist of how many stages of procedure?
A non-deterministic algorithm consist of how many stages of procedure?

4
5
6
Ans – 3
Which of the following statements are TRUE?(1) The problem of determining whether there exists a cycle in an undirected graph is in P.(2) The problem of determining whether there exists a cycle in an undirected graph is in NP.(3) If a problem A is NP-Complete, there exists a non-deterministic polynomial time algorithm to solve A.
1,2
1,3
1,2,3
2,3
Ans – C
The CNF satisfiability problem belongs toclass. It deals with Boolean expressions.
NP class
P class
NP complete
NP hard

Ans – C
The Problems that we can solve in polynomial time are
Decision
Complete
Intractable
Tractable
Ans – D
If an NP- complete problem is polynomially reducible, how many conditions it has to be?
1
2
3
4
Ans – B
What is the time complexity in which the Euler's circuit problem can be solved?
O(N log N)



Which is the choice of polynomial class that led to the development of an extensive theory?
Decision complexity
Problem complexity
Time complexity
Computational complexity
Ans – D