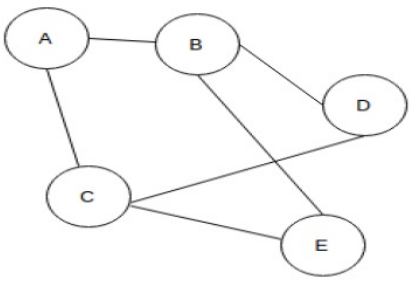
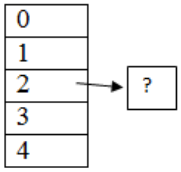
Mahatma Gandhi Mission's College of Engineering and Technology
Kamothe, Navi Mumbai

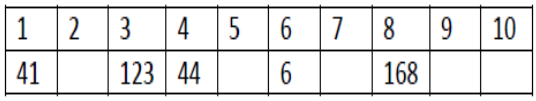
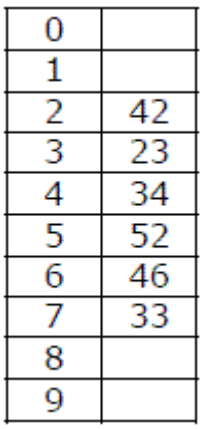
Assignment –V

Subject-DS Div-A Sem-I Class –SE

Date of Issue: 08/12/2021 Date of Submission: 15/12/2021

Q.No	Question	Module	Bloom's Taxanomy level	Program Indicator(PI)	CO
Q1.select correct answer					
1)	For the adjacency matrix of a directed graph the row sum is the _____ degree and the column sum is the _____ degree. a) in, out b) out, in c) in, total d) total, out	5			
2)	Time Complexity of Breadth First Search is? (V – number of vertices, E – number of edges) a) O(V + E) b) O(V) c) O(E) d) None of the mentioned	5			
3)	What can be the applications of topological sorting? a) Finding prerequisite of a task b) Finding Deadlock in an Operating System c) Finding Cycle in a graph d) All of the mentioned	5			
4)	For the given graph(G), which of the following statements is true?  a) G is a complete graph b) G is not a connected graph c) The vertex connectivity of the graph is 2	5			

	d) The edge connectivity of the graph is 1 View Answer				
5)	Which of the following is not an application of Breadth First Search? a) Finding shortest path between two nodes b) Finding bipartiteness of a graph c) GPS navigation system d) Path Finding	5			
Q2. Choose Correct Options					
1)	The goal of hashing is to produce a search that takes a) O(1) time b) O(n) time c) $O(n^2)$ time d) O(log n) time	6			
2)	Collision is caused when the same hash value is given by a) More than one distinct keys refer same address b) Different hash functions c) Equal keys d) Due to empty address	6			
3)	If H(k) = k mod m where m is number of slots which type of hash function it is? a) Mid square b) Multiplication c) Division d) Folding	6			
4)	Hashing gives runtime.. a) O(n) b) O(nlogn) c) O(1) d) O(n^ 2)	6			
5)	From the given table, find '?'. Given: hash(x)= x mod 10  a) 13 b) 16 c) 12 d) 14	6			
6)	In which Collision Resolution table size should be prime	6			

	a) Linear probing b) Double hashing c) Quadratic probing d) Rehashing				
7)	We are hashing some elements into given array and current position is given if hashing function is x mod 20 and we are using linear probing of type (x+1)%N, (x+3)%n, (x+5)%n…(x+2*i+1)%n then element 203 will be inserted at:  a) 2 b) 5 c) 7 d) 10	6			
8)	A hash table of length 10 uses open addressing with hash function h(k)=k mod 10, and linear probing. After inserting 6 values into an empty hash table, the table is as shown below. Which one of the following choices gives a possible order in which the key values could have been inserted in the table?  a) 46,42,34,52,23,33 b) 34,42,23,52,33,46 c) 46,34,42,23,52,33 d) 42,46,33,23,34,52	6			
9)	Which of the following is not an application of binary search? a) To find the lower/upper bound in an ordered sequence b) Union of intervals c) Debugging d) To search in unordered list	6			

1	2	3	4	5	6	7	8	9	10
41		123	44		6		168		

0	
1	
2	42
3	23
4	34
5	52
6	46
7	33
8	
9	

10)	What is the best case for linear search? a) O(nlogn) b) O(logn) c) O(n) d) O(1)	6			
Q3. Answer the following questions in brief					
1)	Explain Linear search and binary search with example	6			
2)	Write an algorithm for searching an element using binary search	6			
3)	Explain BFS and DFS Graph Traversal Techniques	5			
4)	What is hasing ? Explain types of hasing Techniueqs	6			
5)	Explain Collisoin resolution Techniques in hasing	6			