

ગુજરાત વિદ્યાપીઠ : અમદાવાદ
વ્યવસ્થાપન અને પ્રૌદ્યોગિકી વિજ્ઞાન વિદ્યાશાખા
કમ્પ્યુટર વિજ્ઞાન વિભાગ

પરીક્ષાર્થી ક્રમાંક

માસ્ટર ઓફ કમ્પ્યુટર એપ્લીકેશન (M.C.A.) : સત્ર-1 (રીપીટર)

સત્રાંત પરીક્ષા : ઓક્ટોબર-2023

MCA-102 : Data Structure

તલ. 31/10/2023

સમય : 12-00 થી 02-30

વાર : મંગલવાર

કુલગુણ : 60

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- Que-1 (A) Answer the followings. (Any 5 out of 8) 05**
1. Single dimensional array એટલે શું?
 2. Primitive data structure નું ઉદાહરણ આપો.
 3. Define Multidimensional array.
 4. Define Push operation of Stack.
 5. Queue ની application ના ઉદાહરણ આપો.
 6. Define Priority Queue.
 7. What is underflow condition in stack?
 8. What is overflow condition in stack?
- Que-1 (B) Answer the following in three or four sentences. (Any 2 out of 4) 04**
1. Discuss applications of stack.
 2. સમજાવો: Average case time complexity.
 3. Circular linked list માં એલિમેન્ટ ઇન્સર્ટ કરવાનું એક ઉદાહરણ આપો.
 4. Process queue વિષે ટૂંકનોંધ લખો.
- Que-1 (C) Explain in detail. (Any 1 out of 2) 06**
1. Infix – to – postfix conversion નો અલ્ગોરિથમ તેમજ પ્રોગ્રામ લખો.
 2. Row Major & Column major representations વિષે ટૂંકનોંધ લખો.
- Que-2 (A) Answer the followings. (Any 5 out of 8) 05**
1. Define height of the tree.
 2. Define level of the tree.
 3. Define complete binary tree.
 4. What is AVL tree?
 5. Give one application on binary Tree.
 6. What is height balance in binary tree?
 7. What is a time complexity to delete a node at the end at binary tree?
 8. Compare binary tree and full binary tree are same. (True/False)
- Que-2 (B) Answer the following in three or four sentences. (Any 2 out of 4) 04**
1. Explain deletion in binary tree.
 2. Explain traversal in threaded binary tree.
 3. Binary tree માં postorder traversal સમજાવો.
 4. B Tree ઉદાહરણ સહીત સમજાવો.
- Que-2 (C) Explain in detail. (Any 1 out of 2) 06**
1. અલ્ગોરિથમ અને પ્રોગ્રામ લખો: Insertion in Binary Search Tree.
 2. અલ્ગોરિથમ અને પ્રોગ્રામ લખો: Post order traversal in binary tree.

- Que-3 (A) Answer the followings. (Any 5 out of 8) 05**
1. Define complete graph.
 2. Directed graph એટલે શું?
 3. What is vertex in graph?
 4. What is the time complexity of Minimal algorithm?
 5. Queue data structure is used in DFS. (True/False)
 6. Stack data structure is used in BFS. (True/False)
 7. DFS and BFS are same. (True/False)
 8. What is adjacency matrix?
- Que-3 (B) Answer the following in three or four sentences. (Any 2 out of 4) 04**
1. ટ્રેક નોંધ લખો: First fit storage application.
 2. ટ્રેક નોંધ લખો: Graph traversal.
 3. ટ્રેક નોંધ લખો: Depth first search.
 4. ટ્રેક નોંધ લખો: Fixed block storage allocation.
- Que-3 (B) Explain in detail. (Any 1 out of 2) 06**
1. અલ્ગોરિથમ અને પ્રોગ્રામ લખો: Matrix Representation in Graph.
 2. અલ્ગોરિથમ અને પ્રોગ્રામ લખો: WARSHALL Algorithm.
- Que-4 (A) Answer the followings. (Any 5 out of 8) 05**
1. Symbol table એટલે શું?
 2. Write one application of hash function.
 3. What is the time complexity of bubble sort?
 4. What is the space complexity of bubble sort?
 5. What is the time complexity of Quick sort?
 6. Bubble sort is better than quick sort in terms of memory storage. (True/Flase)
 7. Quick sort is also known as partition exchange sort. (True/False)
 8. _____ is the time complexity of search an element using linear search.
- Que-4 (B) Answer the following in three or four sentences. (Any 2 out of 4) 04**
1. Sort the data using bubble sort: 12 23 25 32 01 09 10 33 28 14 37 11
 2. ટ્રેક નોંધ લખો: Radix Sort.
 3. ટ્રેક નોંધ લખો: Binary Search.
 4. ટ્રેક નોંધ લખો: Quick Sort.
- Que-4 (C) Explain in detail. (Any 1 out of 2) 06**
1. અલ્ગોરિથમ અને પ્રોગ્રામ લખો: Insertion sort.
 2. અલ્ગોરિથમ અને પ્રોગ્રામ લખો: Heap Sort.
