| Seat No. | |
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Total No of Pages: 03



# Kamala College, Kolhapur

**(Autonomous)**

**B.C.A. (Part-II) (Semester-III)**

**Examination November, 2023.**

**Data Structure using C**

**Subject Code: CC 317**

**Day and Date: Thursday, 30/11/2023** **Total Marks: 80**

**Time: 08.00 a.m. to 11.00 a.m.**

**Instructions:**

1. **Question 1 and 8 is compulsory.**
2. **Attempt any three questions from Que. No 2 to Que. 7**
3. **Figures to the right indicate total marks for the question.**

**Q. 1 Multiple choice Questions.** **12**

1) Which of the following is not a type of Linked List?
   A. Circular linked list B. Double linked list
   C. Hybrid linked list D. singly linked list

2) The situation when in a linked list START=NULL is....
   A. Underflow B. Overflow
   C. Houseful D.Saturated

3) What happens when you push a new node onto a stack?
   A. The new node is placed at the front of the linked list
   B. The new node is placed at the back of the linked list
   C. The new node is placed at the middle of the linked list
   D. No Changes happens

4) Each node in singly linked list has..... fields.
   A. 2 B. 3
   C. 1 D. 4

5) Which data structure allows deleting data elements from front and inserting at rear?
   A) Stacks B) Queues
   C) Dequeues D) Binary search tree

6) To represent hierarchical relationship between elements, Which data structure is suitable?

A) Dequeue B) Priority

C) Tree D) Graph

7) Inserting an item into the stack when stack is not full is called ……. Operation and deletion of item form the stack, when stack is not empty is called ……..operation.

A) push, pop B) pop, push

C) insert, delete D) delete, insert

8) Which of the following sorting algorithm is of divide and conquer type?

A) Bubble sort B) Insertion sort

C) Selection sort D) Merge sort

9) To represent hierarchical relationship between elements, Which data structure is suitable?

A) Dequeue B) Priority

C) Tree D) Graph

10) Inserting an item into the stack when stack is not full is called ……. Operation and deletion of item form the stack, when stack is not empty is called ……..operation.

A) push, pop B) pop, push

C) insert, delete D) delete, insert

11) Stack is also called as.....

A. Last in first out

B. First in first out

C. Last in last out

D. All of these.

12) When inorder traversing a tree resulted E A C K F H D B G; the preorder traversal would return

A. FAEKCDBHG B. FAEKCDHGB.

C. EAFKHDCBG D. FEAKDCHBG

Q 2 A) Write an algorithm to insert new node at the beginning, at middle position and at the end of a Singly Linked List. 8

B) What is data structure? Explain its types. 8

Q 3A) What is stack? How to represent stacks? Explain. 8

B) Convert the given Infix expression to Postfix expression using Stack and show the details of Stack at each step of conversion.

Expression: A - B / C ^ D * E + F / G 8

Q 4 A) Explain Applications of Stack. 8

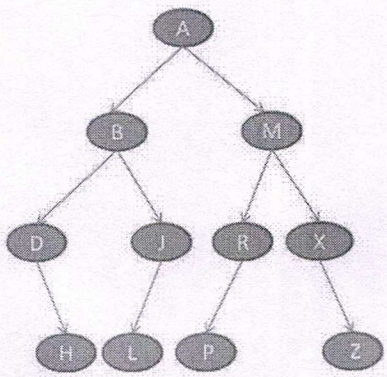
B) Write a note on Queue implementation using C. 8

Q 5A) Write a note on bubble sort with help of example. 8

B) Sort the following example using Insertion sort. 8

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 82 | 42 | 49 | 8 | 25 | 52 | 36 | 93 | 59 |

Q 6 A) For the given Binary Tree, perform Inorder, Preorder and Postorder traversal. 8






B) Construct binary search tree from the following numbers. 8

14,17,18,25,10,54,42,38,22,63,35.

Q 7 What is tree Data Structure? Explain the types of tree. 16

Q 8 Write short note on any four of the following. (5X4=20)

A) Applications of Queue.

B) Doubly linked lists.

C) Merge sort.

D) Leaner Search

E) Types of insertion in linked list

F) Data Structure operations.

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