

Council for Technical Education and Vocational Training
Office of the Controller of Examinations
Sanothimi, Bhaktapur
Regular/Back Exam - 2074, Falgun/Chaitra

Program: Diploma in Computer Engg./Information
Technology
Year/Part: II/I [New + Old Course]
Subject: **Data Structure & Algorithm**

Full Marks: 80
Pass Marks: 32
Time: 3 hrs

www.rijankc.com.np

*Candidates are required to give their answers in their own words as far as practicable.
The figures in the margin indicates full marks.*

Attempt Any 8 Questions.

1. What are the data structure? List down various approach of data structure. Write an algorithm to push and pop element in stack. [2+2+6]
2. Explain Queue as an Abstract data type. Write algorithm to en-queue and de-queue element from circular queue. What are the application of queue? [2+6+2]
3. a] Write an algorithm to insert a node at the front and deletion at the last on sing linked list? [4]
b] Write down the advantage of doubly linked listed over singly linked list. [4]
4. a] Explain the concept of doubly linked list. [4]
b] Convert the following infix expression to postfix and prefix expression. [3+3]
 $A \& b * C - D + E / F / (G + H)$
5. What do you mean by binary search tree? Draw the BST for 14, 15, 4, 9, 7, 18, 3, 5, 16, 4, 20, 17, 9, 14, 5 (Show all necessary steps) [3+7]
6. Draw the AVL tree for the following sequence of elements. [10]
8, 9, 10, 2, 1, 5, 3, 6, 4
7. What are recursion? Write the properties of recursion? How recursion will be helpful while solving Fibonacci sequence? [2+3+5]
8. Explain the bubble short and insertion sort with an example. [10]
9. Define the term hashing and has function. How do we resolve hash collision? [10]
10. What are the difference between tree and graph? Write an algorithm for depth first traversal and breadth first traversal. [4+3+3]

Good Luck!

*For Educational Materials Don't Forget to visit:
www.rijankc.com.np
Direct Contact: +977-9855080226/9845080226*