Goa Vidyaprasarak Mandal's

GOPAL GOVIND POY RAITURCAR COLLEGE OF COMMERCE & ECONOMICS

FARMAGUDI, PONDA-GOA

B.C.A. CBCS (SEMESTER-II) END EXAMINATION APRIL/MAY 2023

DATA STRUCTURES

Duration: 2 Hrs **Marks: 60**

Instructions: 1. All Questions are compulsory

2. Figures to the right indicate marks

Q.1.A.State whether the following statements are true or false. **(5*1=5)**

a. Elements can be added to both ends of a stack.
b. A queue cannot be implemented using an array.
c. Binary search is always faster than linear search.
d. An O(log N) algorithm is slower than an O(N) algorithm
e. The Next component of each node in a linked list is a pointer.

Q.1.B. Define the following. **(5*1=5)**

a. Data Structure.
b. Circular queue.
c. Strictly Binary Tree.
d. Doubly Linked List.
e. Depth of a tree.

Q.2.A.State the uses of Stack Data Structures. **(2)**

Q.2.B.State and explain primitive operations on Stacks. **(3)**

Q.2.C.Write a C program to implement Queue Data structure. **(5)**

Q.3.A.What is sequential search? **(2)**

Q.3.B.Write C Representation (any 2 functions) for Linked List. **(3)**

Q.3.C.Write a C program to find largest element on a Linked List. **(5)**

Q.4.A.what is an Almost Complete Binary Tree? **(2)**

Q.4.B.what is sorting?.Discuss the efficiency of Quick sort. **(3)**

Q.4.C Explain Bubble Sort technique. **(5)**

Q.5.A.With an example define circular linked list. **(2)**

Q.5.B.Explain tree traversal techniques. **(3)**

Q.5.C.Write C Representation for Binary trees. **(5)**

P.T.O.

Q.6.A.What is a graph?. **(2)**

Q.6.B.write algorithms for LeftRotation() and RightRotation() of a tree. **(3)**

Q.6.C.Write a C program to search an element using Binary Search. **(5)**

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