

**Goa Vidyaprasarak Mandal's
GOPAL GOVIND POY RAITURCAR COLLEGE OF COMMERCE
AND ECONOMICS, PONDA-GOA
B.C.A (SEMESTER-II) EXAMINATION, APRIL 2019
DATA STRUCTURES**

Duration: 2 Hrs

Marks: 50

**Instructions: 1. All Questions are compulsory
2. Figures to the right indicate marks**

- Q.1.A. Answer the following. **(5*1=5)**
- a. What is an Almost complete binary tree?
 - b. Define Circular Queue.
 - c. Define Strictly Binary tree.
 - d. What is Linear Linked List?
 - e. What is Balanced tree?
- Q.2.B. State whether the following statements are true or false. **(5*1=5)**
- a. A node with no children is called a leaf node.
 - b. Elements can be added to both ends of a stack.
 - c. Function malloc() is used to deallocate memory.
 - d. An illegal attempt to remove elements from empty queue is called queue overflow.
 - e. The stack is also called FIFO structure.
- Q.2.A. Write any 2 C representations for operations on stack. **(2)**
- Q.2.B. Discuss getnode() and freenode() operations. **(3)**
- Q.2.C. Write a C program to convert decimal number to binary using stacks. **(5)**
- Q.3.A. What is doubly linked list? **(2)**
- Q.3.B. Write C implementation for setleft(p,x) and maketree(x). **(3)**
- Q.3.C. Write a C program to display Binary tree in ascending order. **(5)**
- Q.4.A. What is B-tree? **(2)**
- Q.4.B. Explain tree traversal techniques. **(3)**
- Q.4.C. Write C program for Quicksort. **(5)**
- Q.5.A. What is O notation? **(2)**
- Q.5.B. Write an algorithm for right rotation on trees. **(3)**
- Q.5.C. Explain the concept of general trees. **(5)**

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