

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

Duration: 2 Hrs

Marks: 50

---

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

- Q.1. Define the following. **(5\*2=10)**
- a. Pushdown list.
  - b. Strictly Binary tree.
  - c. Doubly circular linked List .
  - d. Level of a node.
  - e. Graph.
- Q.2.A. What is queue data structure? **(2)**
- Q.2.B. Write C implementation for stacks. **(3)**
- Q.2.C. Write a C program to implement queue data structure. **(5)**
- Q.3.A. What is an available list? **(2)**
- Q.3.B. Explain various tree traversal techniques. **(3)**
- Q.3.C. Write C program to create and display linear linked list. **(5)**
- Q.4.A. What is the efficiency of quicksort ? **(2)**
- Q.4.B. What are balanced trees. **(3)**
- Q.4.C. Write C program for bubble sort. **(5)**
- Q.5.A. Write C implementation for getnode() and freenode(). **(2)**
- Q.5.B. What is a multiway search tree? **(3)**
- Q.5.C. Explain graphs. **(5)**

XXXXXXXXXXXXXXXXXX