Goa Vidyaprasarak Mandal's
GOPAL GOVIND POY RAITURCAR COLLEGE OF COMMERCE AND ECONOMICS, PONDA-GOA
B. C.A. CBCS (SEMESTER-II) EXAMINATION, JULY 2021

DATA STRUCTURES

Duration: 2 Hrs **Marks: 30**

Instructions: 1. Answer ANY FIVE questions from Q1.
2. Answer ANY FOUR questions from Q2.
3. Figures to the right indicate marks.

Q.1.	Answer ANY FIVE questions from the following	**(5*2=10)**
a.	Define Linear data structures.	**(2)**
b.	State the primitive operations on stack.	**(2)**
c.	How is Linked List different from array?	**(2)**
d.	How circular queue overcomes the problem of simple queue?	**(2)**
e.	What is Josephus problem?	**(2)**
f.	State the use of malloc() and free() functions in C.	**(2)**
g.	Define Almost complete binary tree with an example.	**(2)**
h.	Explain the tree traversals techniques.	**(2)**

Q.2.	Answer ANY FOUR questions from the following	**(4*5=20)**
Q.2.A.	Write a C representation for concatenating two lists.	**(5)**
Q.2.B.	Write a C Program to implement Queue data structure.	**(5)**
Q.2.C.	Write a C Program to validate an expression for parenthesis using stack.	**(5)**
Q.2.D.	Write a C Program to implement shell sort.	**(5)**
Q.2.E.	Write the algorithm for Binary search and apply the binary search algorithm to search a value=34 in the given array. Write a proper sequence of steps involved.	**(5)**

12	23	29	34	38

contd...2/-

Q.2.F. What is a Graph? Write the adjacency list and adjacency matrix for the following graph: **(5)**

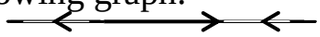

Fig:2.F.a Undirected graph Fig:2.F.b Directed graph

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