18CAU07

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BCA DEGREE EXAMINATION MAY 2022
(Second Semester)

Branch – **COMPUTER APPLICATIONS**

DATA STRUCTURES

Time: Three Hours Maximum: 50 Marks

SECTION-A (5 Marks)
Answer **ALL** questions
ALL questions carry **EQUAL** marks

(5 x 1 = 5)

1 _____ is the range of values that the data may have.
(i) Axioms (ii) Domain
(iii) Function (iv) Data value

2 The insertion sort consists of _____ passes.
(i) n (ii) n-1
(iii) n-2 (iv) n^2

3 _____is a linked list where all nodes are connected to form a circle.
(i) Singly Linked list (ii) Doubly Linked list
(iii) Circular Linked list (iv) Null List

4 A stack is _____
(i) FIFO (ii) LILO
(iii) LIFO (iv) None

5 _____of a tree stores the data and links to the other node.
(i) Node (ii) Link
(iii) Pointer (iv) Root

SECTION - B (15 Marks)
Answer **ALL** Questions
ALL Questions Carry **EQUAL** Marks

(5 x 3 = 15)

6 a Describe on the overview of data structures and its types.
OR
b Explain on the operations performed over an array with example.

7 a Narrate a brief on merge sorting.
OR
b Explain about insertion sort in a brief.

8 a Analyze on how a node can be inserted in a specific position in to a single linked list.
OR
b Sketch a note on the representation of a linked list in memory.

9 a State a note on queue representation using arrays.
OR
b Outline a note on circular queues in a brief.

10 a How binary trees are represented in memory? Explain.
OR
b Explain in detail on the linked representation of graphs.

Cont...

SECTION -C (30 Marks)

Answer **ALL** questions

ALL questions carry **EQUAL** Marks

(5 x 6 = 30)

11 a Categorize a detailed note on the abstract data types.

OR

b What are pointers? Distinguish its uses in detail.

12 a Discuss the sorting algorithm of circular double linked list.

OR

b Summarize on Bubble sort and its algorithm in detail.

13 a Discuss about traversing a linked list.

OR

b Describe on deleting from a linked list.

14 a Illustrate about the linked representation of Queues in detail.

OR

b Discuss on the various operations of stacks.

15 a Enumerate the searching process of an item in a binary search tree.

OR

b Discuss about sequential representation of graphs.

Z-Z-Z END