PART C — (5 × 8 = 40 marks)

Answer ALL questions by choosing either (a) or (b).

Each answer should not exceed 600 words.

16. (a) Explain the two basic structures used to implement an ADT list.

Or

(b) Describe big-O analysis.

17. (a) Describe the concepts of a linked list.

Or

(b) Describe the processing of a linked list.

18. (a) Explain the implementation of a stack linked list.

Or

(b) Explain the design of a queue linked list.

19. (a) Discuss the concept of a general tree.

Or

(b) Describe heap algorithm.

20. (a) Briefly explain the general sort concepts.

Or

(b) Describe the graph storage structure.

———————

Reg. No. : .....

Code No. : 20425 E **Sub. Code : CACA 31**

B.C.A. (CBCS) DEGREE EXAMINATION, NOVEMBER 2022.

Third Semester

Computer Applications — Allied

DATA STRUCTURES

(For those who joined in July 2021 onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. Which is the most common tool for defining algorithms?

(a) Abstract data type (b) Pseudocode

(c) Source code (d) Object code

2. Which statement iterates a block of code?

(a) Control (b) Decision

(c) Loop (d) Break

3. Which field within a structure identifies the data?
   (a) row (b) cell
   (c) record (d) key

4. ———— is needed to traverse a list.
   (a) Moving linker (b) Walking pointer
   (c) Pointer (d) Linker

5. Which of the following is last in first out data structure?
   (a) line (b) queue
   (c) list (d) stack

6. Which is queue delete operation?
   (a) push (b) insert
   (c) enqueue (d) dequeue

7. The number of branches associated with a node is the ———— of the node.
   (a) rank (b) degree
   (c) grade (d) indegree

8. To search for a value in a binary search tree, first compare the target value with ———— node.
   (a) root (b) leaf
   (c) far right (d) far left

9. The ———— of a vertex is the number of vertices adjacent to it.
   (a) path (b) loop
   (c) cycle (d) degree

10. A ———— is a graph whose lines are weighted.
   (a) Network (b) Direct graph
   (c) Undirected graph (d) Spanning tree

PART B — (5 × 5 = 25 marks)

Answer ALL questions by choosing either (a) or (b).

Each answer should not exceed 250 words.

11. (a) Write a note on abstract data type.

Or

(b) Write a note on atomic and composite data.

12. (a) Discuss about pointer to void.

Or

(b) Write the procedure for creating a node in a linked list.

13. (a) List the applications of a stack.

Or

(b) Write a note on the operations of a queue.

14. (a) Compare binary tree and binary search tree.

Or

(b) Explain the structure of a heap.

15. (a) Write a note on external sort.

Or

(b) Write a note on networks.