

N.G.M. COLLEGE (AUTONOMOUS): POLLACHI

END-OF-SEMESTER EXAMINATIONS: MAY – 2023

B.Sc. – COMPUTER TECHNOLOGY

MAXIMUM MARKS: 50

II SEMESTER

TIME: 3 HOURS

PART - III

CORE IV: DATA STRUCTURES

SECTION – A

(10 X 1 = 10 MARKS)

ANSWER THE FOLLOWING QUESTIONS.

MULTIPLE CHOICE QUESTIONS.

1. When the user tries to delete the element from the empty stack then the condition is said to be a __
 - a) Underflow
 - b) Garbage collection
 - c) Overflow
 - d) None of the above
2. Which one of the following is not the type of the Queue?
 - a) Linear Queue
 - b) Circular Queue
 - c) Double ended Queue
 - d) Single ended Queue
3. Which of the following statement is not true about the doubly linked list?
 - a) It requires extra space.
 - b) It can traverse in both the directions.
 - c) Implementation of doubly linked list is easier than the singly linked list.
 - d) It stores the addresses of the next and the previous node.
4. Which one of the following techniques is not used in the Binary tree?
 - a) Randomized traversal
 - b) Preorder traversal
 - c) Postorder traversal
 - d) Inorder traversal
5. Which of the following sorting algorithms is the fastest?
 - a) Merge sort
 - b) Quick sort
 - c) Insertion sort
 - d) Shell sort

ANSWER THE FOLLOWING IN ONE (OR) TWO SENTENCES.

(K2)

6. Define Data Structures.
7. List any two Queue applications.
8. What is Circular Linked List?
9. Define Inorder Traversal.
10. Define File structure

SECTION – B**(5 X 3 = 15 MARKS)**

**ANSWER EITHER (a) OR (b) IN EACH OF THE
FOLLOWING QUESTIONS.**

(K3)

11. a) Describe LIFO and FIFO.
(OR)
- b) List the application of array.
12. a) Describe any three Queue operations
(OR)
- b) Describe any three Stack Operations.
13. a) Show Linked list in a graphical view with short explanation.
(OR)
- b) Describe any three applications of Linked list.
14. a) Explain binary trees.
(OR)
- b) Describe Postorder traversal.
15. a) Describe any three advantages and three disadvantages of sequential file.
(OR)
- b) Explain Direct access file organization.

SECTION - C**(5 X 5 = 25 MARKS)**

**ANSWER EITHER (a) OR (b) IN EACH OF THE
FOLLOWING QUESTIONS**

(K4/K5)

16. a) Outline the Structure and properties of Algorithms
(OR)
- b) Illustrate Array Operations
17. a) Discuss Circular Queues
(OR)
- b) Summarize Priority Queues
18. a) Discuss –Singly Linked Lists
(OR)
- b) Discuss Doubly Linked Lists
19. a) Discuss Tree Basic Terminologies with diagram
(OR)
- b) Categorize, Graph Basic Terminologies with diagram
20. a) Explain Sequential File Organizations
(OR)
- b) Explain Linear search and Binary search.
