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BCA-06

Bachelor of Computer Application (BCA)

(Data Structure Through C Language)

2nd Semester Examination, 2024 (June)

Time : 2:00 Hrs.   Max. Marks : 70

Note **:–** This paper is of Seventy (70) marks divided into Two (02) Sections 'A' and 'B'. Attempt the questions contained in these Sections according to the detailed instructions given therein. ***Candidates should limit their answers to the questions on the given answer sheet. No additional (B) answer sheet will be issued.***

Section–A

(Long Answer Type Questions)   2×19=38

Note **:–** Section 'A' contains Five (05) Long-answer type questions of Nineteen (19) marks each. Learners are required to answer any *two* (02) questions only.

1. How do you find complexity of an Algorithm ? What is the relation between time and space complexity of an algorithm.

2. What is Queue ? What are the various applications of queue ? Explain various operations on queue.

3. What is Graph ? Explain different types of graph.

4. Define B-tree. Explain basic operations on B-tree.

5. What is data structure ? Explain the various types of data structure with the help of the examples ?

Section–B

(Short Answer Type Questions)   4×8=32

Note :– Section 'B' contains Eight (08) Short-answer type questions of Eight (08) marks each. Learners are required to answer any *four* (04) questions only.

1. What is Sorting ? Which of the sorting technique has best performance in terms of storage and time complexity ? Justify your answer.

2. Differentiate between linked list and array in data structure. Explain with example.

3. Explain the difference between a stack and a queue.

4. What is Linked List ? Explain the types of linked list.

5. Write an algorithm for traversing a BST in order, preorder and post order form.

6. Write short notes on the following :

   (i) Data and information

   (ii) Dynamic memory allocation

7. What is Binary Search ? Write the advantages of binary search over Linear search. Illustrate binary search for searching '6' in the list 2, 4, 6, 8, 10.

8. What is Selection Sort ? Explain.

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