

B.C.A Semester - 2 (NEP-2020) Examination**MARCH/APRIL-2025****Data Structure using C (Theory) (Major-3)****Time: 2:00 Hours****Marks: 50****Instructions:**

1. All questions are compulsory.
2. Figures to the right indicate marks.

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| Que.1 | Attempt following questions.(Attempt any Two) | |
| | 1) What is Array? Explain types of array with example. | (10) |
| | 2) Explain Pointer Arithmetic with an example. | |
| | 3) What is Sort? Explain selection sort with an example. | |
| | 4) Explain types of linear data structures in detail. | |
| Que.2 | Attempt following questions.(Attempt any Two) | (10) |
| | 1) Explain push(), pop() and peep() operations on stack. | |
| | 2) Explain applications of stack in detail. | |
| | 3) Explain operations of Queue in brief. | |
| | 4) Write short note on Double Ended Queue. | |
| Que.3 | Attempt following questions.(Attempt any Two) | (10) |
| | 1) Explain malloc(), calloc() function with example. | |
| | 2) What is Linked List? Write an algorithm for push() and peep() operation on Dynamic Stack. | |
| | 3) Explain Search() and Sort() operation of Link list with example. | |
| | 4) Write an algorithm for insert_first, insert_last and insert_specific node in doubly link list. | |
| Que.4 | Attempt following questions.(Attempt any Two) | (10) |
| | 1) Explain types of binary tree in detail. | |
| | 2) What is Tree Traversal? Explain Tree Traversal techniques in detail. | |
| | 3) Explain Graph traversal method in brief. | |
| | 4) Write short note on Spanning Trees. | |
| Que.5 | Attempt following questions.(Attempt any Two) | (10) |
| | 1) Explain file system services in detail. | |
| | 2) Explain FAT file system in detail. | |
| | 3) Write note on Disk Space Allocation. | |
| | 4) Explain tree structured directory system in detail. | |
