

(Autonomous Institute under Visvesvaraya Technological University, Belagavi)

Course Code	2	2	C	S	6	4	1
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DATA STRUCTURES AND APPLICATIONS

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| 6. | a. | Define linked List. Write the C structure to represent a node of a linked list. | 05 | (2 :3: 1.7.1) |
| | b. | Write an algorithm to perform the following operations on singly linked list
(i) Insert a node at the beginning of the linked list
(ii) Delete a node at the beginning of the linked list
(iii) Display content of the linked list | 09 | (2 :3: 1.7.1) |
| | c. | Discuss the types of linked lists in detail. | 06 | (2 :3: 1.7.1) |

Module-4

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| 7. | a. | Define the following terms and give examples
(i) Binary Tree (ii) Strictly Binary Tree
(iii) Complete Binary Tree (iv) Skewed Binary Tree | 08 | (2 :4: 1.6.1) |
| | b. | Write the function to perform inorder, preorder and postorder traversals on binary tree. | 06 | (3 :4: 1.6.1) |
| | c. | Explain the properties of binary trees. | 06 | (2 :4: 1.6.1) |

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| 8. | a. | Define BST. Construct BST for the following sequence of nodes and perform inorder, preorder and post order traversals.
65, 12, 48,53,85,39,92,25,8 | 08 | (3 :4: 2.5.3) |
| | b. | Discuss the various methods of representing binary tree with an example. | 06 | (3 :4: 2.5.3) |
| | c. | Write the recursive procedure to search an element in BST and explain with an example. | 06 | (3 :4: 2.5.3) |

Module-5

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| 9. | a. | Define the following terms and give examples
(i) Graph (ii) Directed graph (iii) Undirected graph
(iv) simple path (v) Sub graph | 10 | (2 :5: 1.6.1) |
| | b. | Explain the two representations of the graph with respect to the graph given in Fig. Q 9(b). | 10 | (3 :5: 1.7.1) |

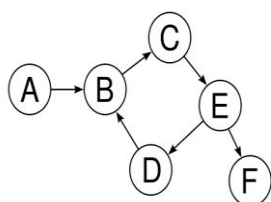


Fig. Q9 (b)
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| 10. | a. | Write the algorithm for depth first search traversal in a graph and explain with an example. | 08 | (3 :5: 2.6.1) |
| | b. | Define hashing. Explain with an example. | 06 | (2 :5: 1.7.1) |
| | c. | Describe different types of hash functions with an example. | 06 | (2 :5: 1.7.1) |

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