Question 1: In which case of insertion do we require double rotation to make the AVL tree balanced?

Options:

1. Insertion into the right subtree of the right child of alpha.

2. To balance the AVL tree, double rotation is never required.

3. Insertion into the left subtree of the left child of alpha.

4. Insertion into the left subtree of the right child of alpha.

Correct option: 4. Insertion into the left subtree of the right child of alpha.

Question 2: Which of the following is a property of a binary tree?

Options:

1. A binary tree of N external nodes has N+1 internal nodes.

2. A binary tree of N external nodes has N internal nodes.

3. A binary tree of N internal nodes has N+1 external nodes.

4. A binary tree of N internal nodes has N-1 external nodes.

Correct option: 4. A binary tree of N internal nodes has N-1 external nodes.

Question 3: Which of the following is a property of an expression tree?

Options:

1. Binary search tree

2. Strictly binary tree

3. AVL tree

4. Heap

Correct option: None of the given.

Question 4: An expression tree will always be a/an

Options:

1. Binary search tree

2. Strictly binary tree

3. AVL tree

4. Heap

Correct option: None of the given.

Question 5: If there are N external nodes in a binary tree, then what will be the number of internal nodes in this binary tree?

Options:

1. N-1

2. N+1

3. N+2

4. N

Correct option: N-1

Question 6: Consider a binary tree represented by the following array: 10, 7, 9, 5, 2, 1, 6, 3, 4. This is a _____.

Options:

1. Max heap

2. Threaded binary tree

3. Binary search tree

4. Min heap

Correct option: Binary search tree

Question 7: For the inorder traversal of a threaded binary tree, we introduce a dummy node. The left pointer of the dummy node is pointing to the _____ node of the tree.

Options:

1. Rightmost

2. Any of the given node

3. Leftmost

4. Root

Correct option: Rightmost

Question 8: When a complete binary tree is represented by an array, if the right child is at position 5, then the left child will be at position _____.

Options:

1. 2

2. 3

3. 4

4. 6

Correct option: 3

Question 9: To balance the following AVL tree, rotation is required on the node _____. (5(left) 7 8 10(mid) 12(right))

Options:

1. 5

2. 7

3. 8

4. 10

Correct option: 7

Question 10: We implement the heap by _____.

Options:

1. AVL tree

2. Expression tree

3. Threaded tree

4. Complete binary tree

Correct option: Complete binary tree