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| **Started on** | Tuesday, 12 March 2024, 10:17 AM |
| **State** | Finished |
| **Completed on** | Tuesday, 12 March 2024, 10:27 AM |
| **Time taken** | 9 mins 38 secs |
| **Grade** | **6.00** out of 15.00 (**40**%) |

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**Question 1**

Correct

Mark 1.00 out of 1.00

Evaluate the postfix expression "**10  5 + 60  6 / * 8 −** ".

○ a. 242

◉ b. 142 ✔

○ c. 217

○ d. 71

○ e. None of these

Your answer is correct.

The correct answer is:
142

A B-tree of order 3 is built from scratch by 10 successive insertions. What is the maximum number of node splitting operations that may take place?

Select one:

○ 1. 4    ✖   Incorrect

○ 2. 5

○ 3. 3

○ 4. 6

Incorrect

The correct answer is: 5

Consider a hash table of size seven, with starting index zero, and a hash function is $(5x + 4) \mod 7$. Assuming the hash table is initially empty, Which of the following is the contents of the table when the values of x in sequence 1, 3, 8, 10 is inserted into the table using closed hashing? Note that '_' denotes an empty location in the table.

Select one:

&#9673; 1. 1, 10, 8, _ _ _ 3                                                      &#10007;   Incorrect

&#9711; 2. _ _,1,8, _3,10

&#9711; 3. 1, 8, 10, _ _ _ 3

&#9711; 4. 8, _ _ _ _ _ 10

Incorrect

The correct answer is: _, _,1,8, _3,10

Consider the following C program segment.

```c
struct Node {
    struct Node *lChild;
    int val;
    struct Node *rChild;
};
int GetVal(struct Node *p)
{
    int info = 0;
    if (p != NULL) {
        if ((p->lChild == NULL) && (p->rChild == NULL))
            info = 1;
        else info = info + GetVal(p->lChild) + GetVal(p->rChild);
    }
    return(info);
}
```

The value returned by function GetVal when a pointer to the root of a binary tree is passed as an argument to this:

Select one:

◉ 1. the height of the tree                                              ✖   Incorrect

○ 2. the number of leaf nodes in the tree

○ 3. the number of non-leaf nodes in the tree

○ 4. Total number of nodes in the tree

Incorrect

The correct answer is: the number of leaf nodes in the tree

Consider the following function to traverse a linked list. Head is a pointer pointing to the first node of the list. void traverse(struct Node *head) { while (head->next != NULL) { printf("%d", head->data); head = head->next; } }
Which of the following is FALSE about above function?

Select one:

  ○ 1. The function may return segmentation fault when the linked list is empty

  ◉ 2. The function doesn't print data of the last node when the linked list is not empty    ✖   Incorrect

  ○ 3. The function prints data of all the nodes of the link list when the list is not empty

  ○ 4. None of these

Incorrect

The correct answer is: The function prints data of all the nodes of the link list when the list is not empty

Given the following input (522, 334, 171, 979, 189, 671, 673, 419) and the hash function x mod 10, which of the following statements are true? i. 979, 189, 419 hash to the same value ii. 171, 671 hash to the same value iii. All elements hash to the same value iv. Each element hashes to a different value

Select one:

○ 1. i only

◉ 2. i and ii only ✔ Correct

○ 3. ii only

○ 4. iii or iv

Correct

The correct answer is: i and ii only

If a node having two children is deleted from a binary search tree, it is replaced by its

Select one:

○ 1. Postorder predecessor

○ 2. None of these

○ 3. Preorder predecessor

◉ 4. Inorder successor ✔

The correct answer is: Inorder successor

If the numbers 11, 1, 2, 5, 4, 14, 6, 12, 20 are inserted into an empty binary search tree as per the order given, then the height of the binary search tree is:

Select one:

○ 1. 4

○ 2. 6

⦿ 3. 5      ✖ Incorrect

○ 4. 3

Incorrect

The correct answer is: 4

Let LPRE, LIN and LPOST denote the node visited last in a preorder, inorder and postorder traversal respectively, of a complete binary tree. Which of the following is always true?

Select one:

○ 1. None of these

○ 2. LIN = LPOST

○ 3. LIN = LPRE

⦿ 4. LPRE = LPOST      ✖ Incorrect

Incorrect

The correct answer is: None of these

**Question 10**

Correct

Mark 1.00 out of 1.00

State true or false. i) The degree of root node is always zero. ii) Nodes that are not root and not leaf are called as internal nodes.

Select one:

○ 1. False, False

○ 2. True, False

⦿ 3. False, True          ✔ Correct

○ 4. True, True

Correct

The correct answer is: False, True

**Question 11**

Correct

Mark 1.00 out of 1.00

The maximum and minimum number of nodes in a binary tree of height 4 are

Select one:

○ 1. 64 and 5, respectively

○ 2. 63 and 6, respectively

○ 3. 32 and 6, respectively

⦿ 4. 31 and 5, respectively          ✔ Correct

Correct

The correct answer is: 31 and 5, respectively

The maximum number of binary trees that can be formed with three unlabeled nodes is:

Select one:

○ 1. 5

○ 2. 4

◉ 3. 1        ✖ Incorrect

○ 4. 3

Incorrect

The correct answer is: 5

Which of the following is true?

Select one:

○ 1. smaller the order of B-tree, more frequently the split occurs

○ 2. larger the order of B-tree, less frequently the split occurs

○ 3. smaller the order of B-tree, less frequently the split occurs

◉ 4. larger the order of B-tree, more frequently the split occurs      ✖ Incorrect

Incorrect

The correct answer is: larger the order of B-tree, less frequently the split occurs

**Question 14**

Incorrect

Mark 0.00 out of 1.00

In a binary tree, there exists only a single path from a root node to any other node.

Select one:

○ True

◉ False ✖

Incorrect

The correct answer is 'True'.

**Question 15**

Correct

Mark 1.00 out of 1.00

In an expression tree, all leaf nodes of tree are operators of expression.

Select one:

○ True

◉ False ✔

Correct

The correct answer is 'False'.