Started on	Tuesday, 12 March 2024, 10:32 AM
State	Finished
Completed on	Tuesday, 12 March 2024, 10:33 AM
Time taken	1 min 2 secs
Grade	**12.00** out of 30.00 (**40**%)

Question **1**

Correct

Mark 1.00 out of 1.00

Which of the below is true?

- a. All full binary trees are complete binary trees
- b. A binary tree may be neither complete binary tree nor full binary tree ✔
- c. A binary tree can never be both complete binary tree and full binary tree together
- d. All complete binary trees are full binary trees

Your answer is correct.

The correct answer is:
A binary tree may be neither complete binary tree nor full binary tree

Question **2**

Incorrect

Mark 0.00 out of 1.00

What can be the maximum height of a binary tree having **n** nodes?

Please note that **a tree with only one node will have height of 0.**

- a. $n-1$
- b. $nlog(n)$
- c. $log(n)$ ✖
- d. $(n-1)log(n)$

Your answer is incorrect.

The correct answer is:
$n-1$

Question **3**

Correct

Mark 1.00 out of 1.00

Consider a complete graph G with 4 vertices. The graph G has ___ spanning trees.

- a. 15
- b. 16 ✔
- c. 13
- d. 8

Your answer is correct.

The correct answer is:
16

Question **4**

Incorrect

Mark 0.00 out of 1.00

Let *T* be a tree with *N* nodes, and let C_p denote the number of children of a node *p* of *T*. then the total number of children of tree *T* shall be _____ .

- a. N
- b. N-1
- c. N+1 ✖
- d. N^2
- e. None of these

Your answer is incorrect.

The correct answer is:
N-1

Question **5**

Correct

Mark 1.00 out of 1.00

Given an expression tree T. Which traversal in this T will give us the infix expression?

- a. Preorder Traversal
- b. Inorder Traversal ✔
- c. Postorder Traversal
- d. Level order Traversal
- e. None of these

Your answer is correct.

The correct answer is:
Inorder Traversal

Question **6**

Incorrect

Mark 0.00 out of 1.00

The preorder traversal of a binary search tree is 15, 10, 12, 11, 20, 18, 16, 19. What is the postorder traversal of this tree?

- a. 20, 19, 18, 16, 15, 12, 11, 10
- b. 11, 12, 10, 16, 19, 18, 20, 15
- c. 10, 11, 12, 15, 16, 18, 19, 20
- d. 19, 16, 18, 20, 11, 12, 10, 15 ✖
- e. None of these

Your answer is incorrect.

The correct answer is:
11, 12, 10, 16, 19, 18, 20, 15

Question **7**

Incorrect

Mark 0.00 out of 1.00

A binary tree in which if all its levels except possibly the last, have the maximum number of nodes and all the nodes at the last level appear as far left as possible, is known as

Select one:

- 1. 2-3-4 tree ✖ Incorrect
- 2. Full binary tree
- 3. Complete binary tree
- 4. AVL tree

Incorrect

The correct answer is: Complete binary tree

Question **8**

Incorrect

Mark 0.00 out of 1.00

Consider a binary tree having 12 nodes, what is the minimum depth of the binary tree?

Note: A binary tree with only root node has depth 0.

Select one:

- 1. 2
- 2. 4 ✖ Incorrect
- 3. 1
- 4. 3

Incorrect

The correct answer is: 3

Question **9**

Incorrect

Mark 0.00 out of 1.00

Consider a binary tree in which every node has a value greater than value of any node in its left subtree but less than value of all nodes in its right subtree. An inorder traversal of this binary tree shall result in

Select one:

- 1. a sorted sequence in ascending order
- 2. a sorted sequence in descending order
- 3. sequence is sorted only of tree is a complete or full binary tree ✖ Incorrect
- 4. sequence is not always sorted

Incorrect

The correct answer is: a sorted sequence in ascending order

Question **10**

Incorrect

Mark 0.00 out of 1.00

Consider a node X in a Binary Tree. Given that X has two children, let Y be Inorder successor of X. Which of the following is true about Y?

Select one:

- 1. Y has left child
- 2. None of these

3. Y has both children ✖ Incorrect

4. Y has no left child

Incorrect

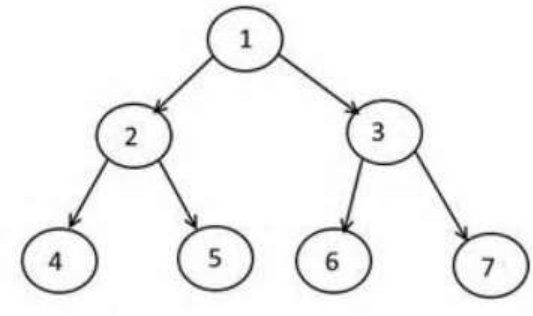
The correct answer is: Y has no left child

Question **11**

Incorrect

Mark 0.00 out of 1.00

Consider the above binary tree, if the postorder traversal gives a b - c d * + then the label of nodes 1,2,3,4,5,6,7 respectively will be.



Select one:

1. +,a,-,b,+,c,*,d ✖ Incorrect

2. +,-,*,a,b,c,d

3. -,a,b,+,*,c,d

4. +,-,a,b,*,c,d,-

Incorrect

The correct answer is: +,-,*,a,b,c,d

Question **12**

Correct

Mark 1.00 out of 1.00

Evaluate the following prefix expression. Assume that numbers are of 1 digit size. * - + 4 3 5 / + 2 4 3

Select one:

- 1. 1
- 2. 4 ✔ Correct
- 3. 8
- 4. 0

Correct

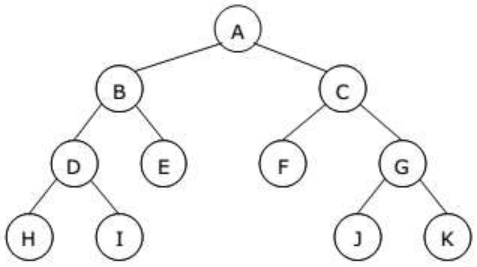
The correct answer is: 4

Question **13**

Incorrect

Mark 0.00 out of 1.00

For the Binary tree shown in figure, the post-order traversal sequence is:



Select one:

- 1. A B D H I E C F G J K
- 2. H D I B E A F C J G K ✖ Incorrect
- 3. H I D E B F J K G C A
- 4. A B C D E F G H I J K

Incorrect

The correct answer is: H I D E B F J K G C A

Question **14**

Incorrect

Mark 0.00 out of 1.00

Given a postfix expression abcd^^-ghi*-/, which can be the infix expression :

Select one:

- 1. (a-b^c^d)/(g-h*i)
- 2. (a-b^c^d/g-h*i) ✖
- 3. (b^c^d-a)/(h*i-g)
- 4. (a-b^d^c)*(g-h/i)

The correct answer is: (a-b^c^d)/(g-h*i)

Question **15**

Correct

Mark 1.00 out of 1.00

Least time needed to solve tower of hanoi puzzle with 6 disks, considering one move takes 5 seconds, is _____

Select one:

- 1. 325 sec.
- 2. 320 sec.
- 3. 310 sec.
- 4. 315 sec. ✔

The correct answer is: 315 sec.

Question **16**

Incorrect

Mark 0.00 out of 1.00

Prefix of the following infix expression is: Z – ((((X + 6) * 9) –7) / Y)

Select one:

- 1. / - * + X 8 9 7 Y ✖ Incorrect
- 2. Y 7 9 6 X + * - /
- 3. / * - + X 6 9 7 Y
- 4. None of these

Incorrect

The correct answer is: None of these

Question **17**

Correct

Mark 1.00 out of 1.00

The maximum number of nodes in a binary tree of height h is:

Select one:

- 1. 2*(h+1)
- 2. 2^h-1
- 3. 2^(h+1)-1 ✔ Correct
- 4. 2^(h-1)-1

Correct

The correct answer is: 2^(h+1)-1

Question **18**

Incorrect

Mark 0.00 out of 1.00

The number of rotations needed to insert the sequence of elements 16, 14, 10, 18, 25 into an empty AVL Tree:

Select one:

- 1. 0
- 2. 2
- 3. 3 ✖ Incorrect
- 4. 1

Incorrect

The correct answer is: 2

Question **19**

Correct

Mark 1.00 out of 1.00

The postfix form of an expression (A + B)*(C*D − E)*F / G is

Select one:

- 1. AB + CD * E − FG /** ✔ Correct
- 2. / AB + CDE * − * F * G
- 3. AB + CD * E − F **G /
- 4. AB + CD * E − *F * G /

Correct

The correct answer is: AB + CD * E − FG /**

Question **20**

Incorrect

Mark 0.00 out of 1.00

The pre-order traversal of a binary search tree is given by 11, 8, 6, 1, 7, 9, 10, 16, 15, 19, 17, 21. Then the post-order traversal of this tree is:

Select one:

- 1. 1, 6, 7, 8, 9, 10, 11, 15, 16, 17, 19, 21
- 2. 7, 1, 6, 8, 9, 10, 21, 17, 19, 15, 16, 11 ✖ Incorrect
- 3. 1, 7, 6, 10, 9, 8, 15, 17, 21, 19, 16, 11
- 4. 7, 6, 1, 10, 9, 8, 15, 16, 17, 21, 19, 11

Incorrect

The correct answer is: 1, 7, 6, 10, 9, 8, 15, 17, 21, 19, 16, 11

Question **21**

Incorrect

Mark 0.00 out of 1.00

The result evaluating the prefix expression + – * 7 3 / 6 2 ^ 5 2 (assume that numbers are of 1 digit size) is

Select one:

- 1. 43
- 2. 37
- 3. -2 ✖
- 4. 50

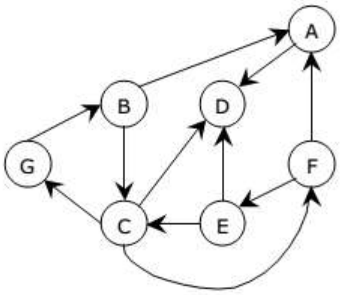
The correct answer is: 43

Question **22**

Incorrect

Mark 0.00 out of 1.00

Traversing sequence generated by Depth First Search(DFS) for the given graphs, if starting at node B is:



Select one:

- 1. B A C D G F E
- 2. B G D C A F E ✖ Incorrect
- 3. B A D C G F E
- 4. Cannot be generated

Incorrect

The correct answer is: B A D C G F E

Question **23**

Correct

Mark 1.00 out of 1.00

What can be the contents of stack from bottom to top, at one of the time instants while evaluating a postfix expression: 5 8 4 / + 3 2 * - (assume that numbers are of 1 digit size) ?

Select one:

- 7, 6 ✔
- 7, 5
- 5, 0
- 7, 1

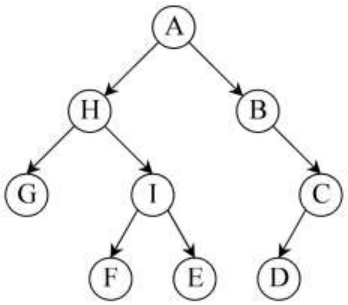
The correct answer is: 7, 6

Question **24**

Incorrect

Mark 0.00 out of 1.00

What is the inorder traversal sequence of the above binary tree?



Select one:

- 1. A H B G I C F E D
- 2. G F E I H D C B A ✖ Incorrect
- 3. G H F I E A B D C
- 4. A H G I F E B C D

Incorrect

The correct answer is: G H F I E A B D C

Question **25**

Correct

Mark 1.00 out of 1.00

What is the maximum height possible of any AVL-tree with 7 nodes? Assume that the height of a tree with a single node is 0.

Select one:

- 1. 3 ✔ Correct
- 2. 4
- 3. 2
- 4. 5

Correct

The correct answer is: 3

Question **26**

Correct

Mark 1.00 out of 1.00

What is the maximum number of nodes in a binary tree at level l, assume root node is at level 0?

Select one:

- 1. 2^l-1
- 2. 2^l ✔ Correct
- 3. None of these
- 4. 2^(l-1)

Correct

The correct answer is: 2^l

Question **27**

Correct

Mark 1.00 out of 1.00

Which of the following is/are correct inorder traversal sequence(s) of any given binary search tree(s)?

I. 4, 5, 7, 8, 16, 17, 35

II. 5, 8, 9, 14, 10, 15, 34

III. 24, 20, 18, 16, 12, 8, 4

IV. 3, 6, 7, 19, 20, 25, 28

Select one:

- 1. II and III only
- 2. I and IV only ✔ Correct
- 3. II and IV only
- 4. II only

Correct

The correct answer is: I and IV only

Question **28**

Incorrect

Mark 0.00 out of 1.00

Which of the following statements about binary trees is NOT true?

Select one:

- 1. Every non-empty tree has exactly one root node ✖ Incorrect
- 2. Every non-root node has exactly one parent
- 3. Every node has exactly two children
- 4. Every node has at most two children

Incorrect

The correct answer is: Every node has exactly two children

Question **29**

Correct

Mark 1.00 out of 1.00

Which of the following tree traversal techniques visits root node last?

Select one:

- 1. inorder
- 2. level order
- 3. postorder ✔ Correct
- 4. preorder

Correct

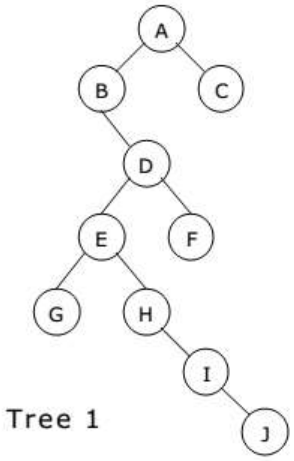
The correct answer is: postorder

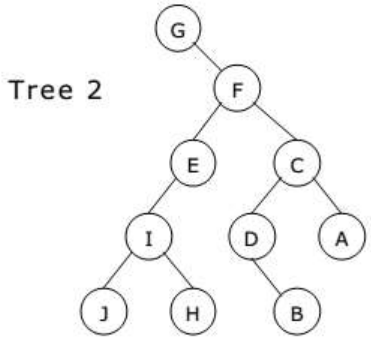
Question **30**

Incorrect

Mark 0.00 out of 1.00

Which traversals of Tree 1 and Tree 2 respectively, will produce the same sequence of node names?





Select one:

- 1. Postorder, Inorder
- 2. Postorder, Postorder ✖ Incorrect
- 3. Inorder, Preorder
- 4. Preorder, Postorder

Incorrect

The correct answer is: Postorder, Inorder

◄ Trees (New)

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Heap (New) ►