CS & IT ENGINEERING

Data Structures

Trees-2

DPP 02 (Discussion Notes)

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01 Question

02 Discussion

Q.1 Consider the following nested representation of binary trees: (X Y Z) indicates Y and Z are the left and right sub stress, respectively, of node X. Note that Y and Z may be NULL, or further nested. Which of the following represents a valid binary tree?

[MCQ]

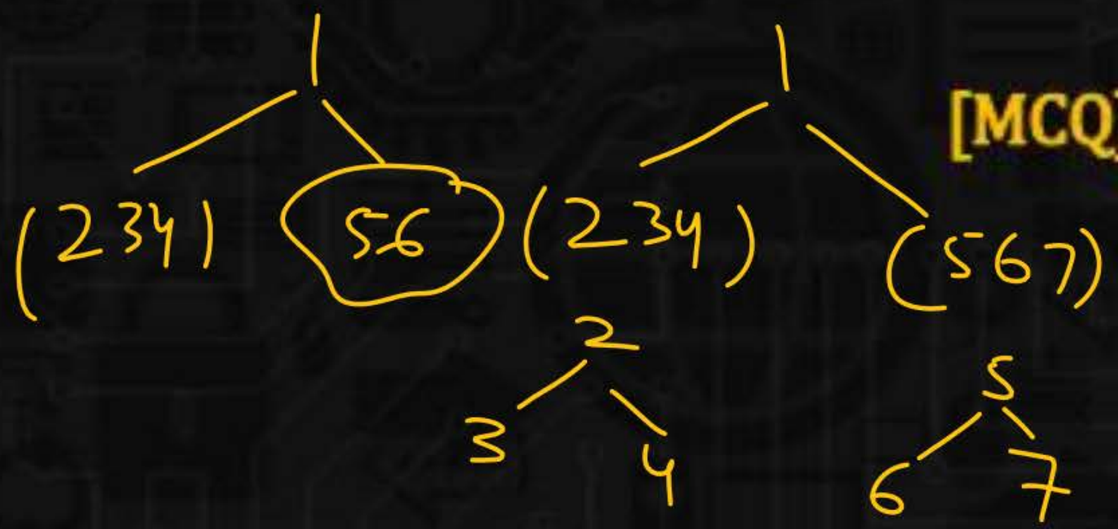
D

A. (1 2 (4 5 6 7))

B. (1 (2 3 4) 5 6) 7)

D. (1 (2 3 4) (5 6 7))

C. (1 (2 3 NULL) (4 5))



Q.2

Consider the following two statements:

S1: It is possible to construct a binary tree uniquely whose post-order and pre-order traversals are given. No

S2: It is possible to construct a binary tree uniquely whose in-order and pre-order traversals are given. ✓

S3: It is possible to construct a binary tree uniquely whose post-order and level-order traversals are given. ✗

Which of the following statement(s) IS/ARE INCORRECT?

[MCQ]

A. S1 only

B. S2 only

D. S1 and S3 ✓

C. S3 only

Q.3 Let LASTPOST, LASTIN and LASTPRE denote the last vertex visited in a postorder, inorder and preorder traversal respectively, of a complete binary tree. Which of the following is always true?

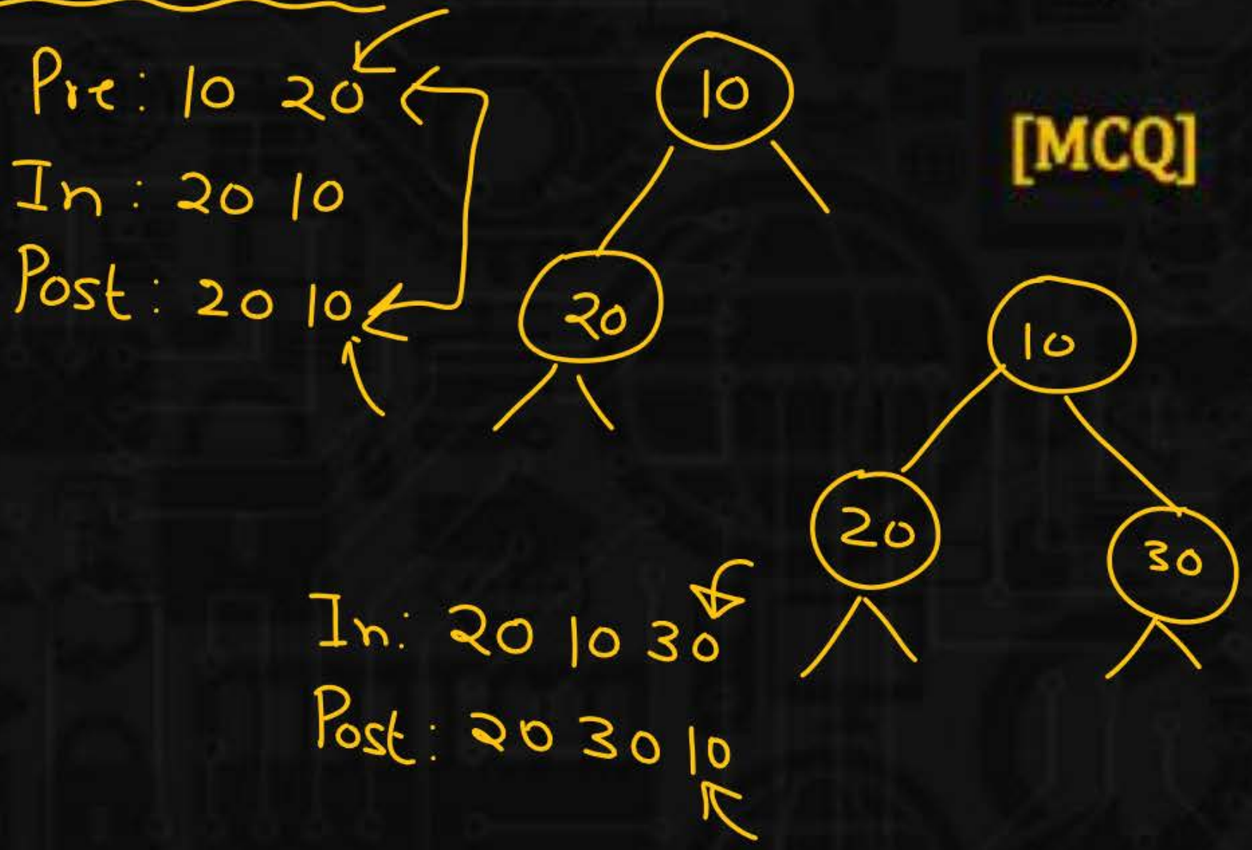
[MCQ]

A. LASTIN = LASTPOST

B. LASTIN = LASTPRE

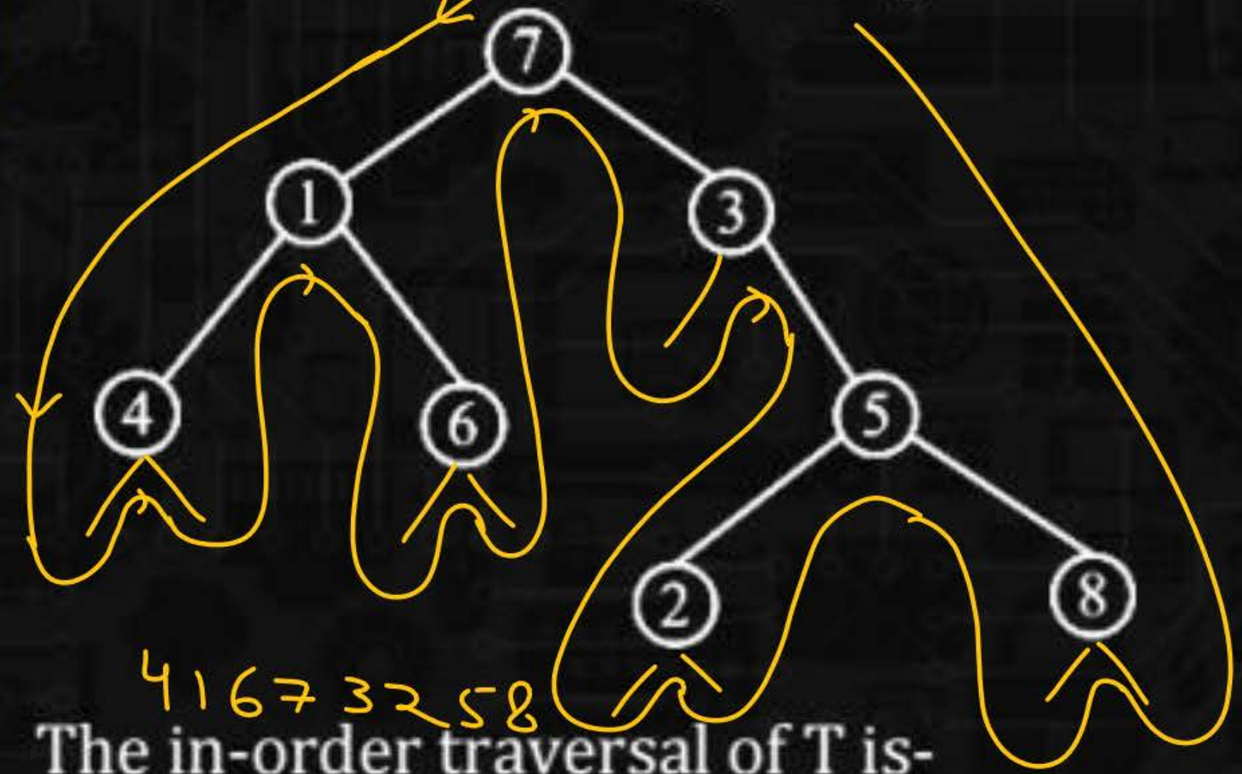
D. LASTPRE = LASTPOST

C. None of the above



Q.4

Consider the following binary tree T-



41673258

The in-order traversal of T is-

[MCQ]

A 71346528

B 41673258

D 46128537

C 71463528

Q.5

Consider the following binary tree T-

The pre-order traversal of T is-

[MCQ]

7 1 4 6 3 5 2 8

A 7 1 3 4 6 5 2 8

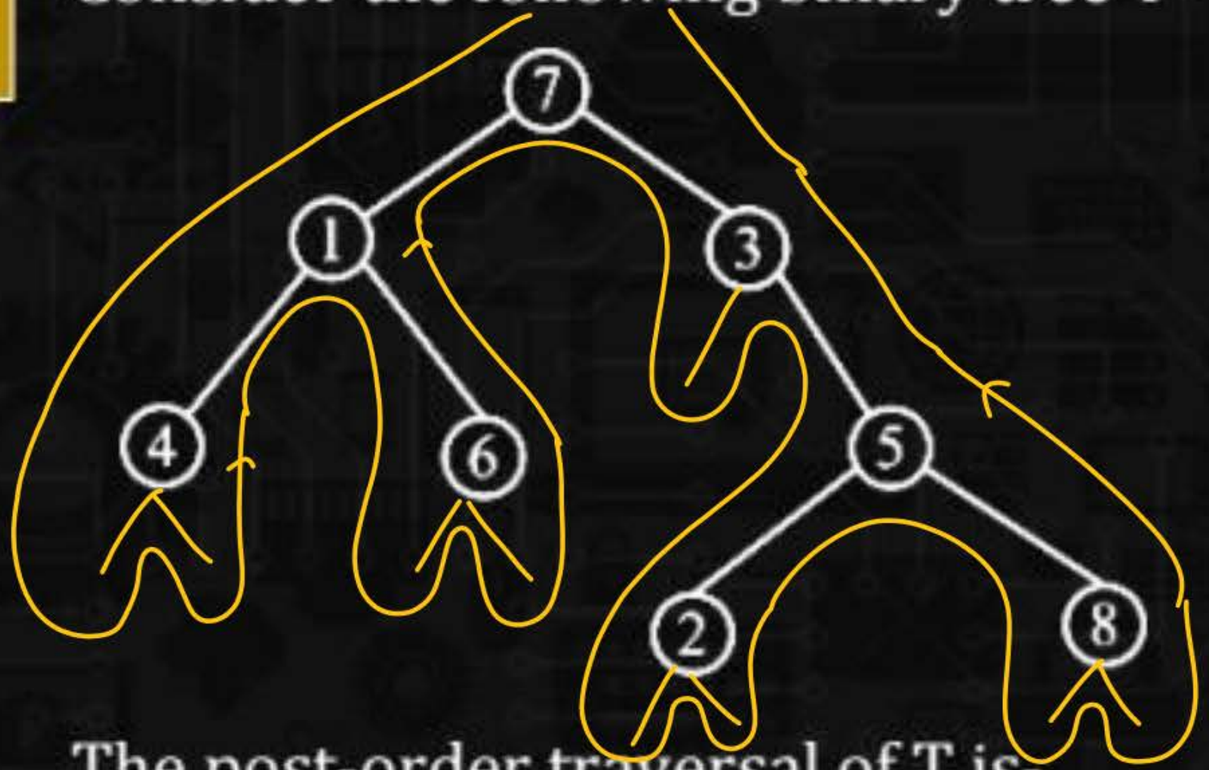
B 4 1 6 7 3 2 5 8

D 4 6 1 2 8 5 3 7

C 7 1 4 6 3 5 2 8

Q.6

Consider the following binary tree T-



The post-order traversal of T is-

4 6 1 2 8 5 3 7

[MCQ]

A 7 1 3 4 6 5 2 8

B 4 1 6 7 3 2 5 8

D 4 6 1 2 8 5 3 7

C 7 1 4 6 3 5 2 8

Q.7

The pre-order traversal of a binary tree is 1, 2, 4, 7, 8, 3, 5, 6, 9. The in-order traversal of the same tree is 7 4 8 2 1 5 3 6 9. The height of a tree is the length of the longest path from the root to any leaf. The height of the binary tree above is 3.

[NAT]

Pre : 1 2 4 7 8 3 5 6 9

In : 7 4 8 2 1 5 3 6 9

Q.8

The post-order traversal of a binary tree is 9, 7, 4, 8, 2, 5, 1, 3, 6.
The in-order traversal of the same tree is 9, 7, 8, 4, 5, 2, 6, 3, 1.
The pre-order traversal of the above binary tree is-

[MCQ]

Post : 9 7 4 8 2 5 1 3 6

In : 9 7 8 4 5 2 6 3 1

6 5 8 7 9 4 2 3 1

(A) 1, 2, 4, 7, 9, 8, 5, 3, 6

(B) 1, 2, 4, 7, 8, 9, 5, 3, 6

(D) 1, 2, 3, 4, 5, 6, 7, 8, 9

(C) None of the above.


THANK YOU GW
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