GATE CRASH COURSE 2025 DS AI

Data Structure & Algorithm

Tree Fundamentals

Q1 The Minimum number of nodes with height 2^n in a binary tree will be _____

(A) 2^n (B) $2^n + 1$

(C) $2^n - 1$ (D) $2^{(n+1)}$

Q2 The number of leaf nodes in a binary tree, if there are 16 nodes with 2 children is ____

(A) 15 (B) 16

(C) 17 (D) 8

Q3 The Number Of Nodes in a Perfect binary tree at level 8 will be _____

(NOTE: Level Numbering started from 1)

(A) 127 (B) 128

(C) 255 (D) 256

Q4 The number Of labelled binary trees with 5 nodes is _____

Q5 Consider a Left Skewed Binary Tree with elements labelled A to H, while A being root and H being leaf node (In Alphabetical order, level wise). Then, For such tree, Pick Correct statement from below:

(A) In Order Traversal == Level Order Traversal

(B) Pre Order Traversal == In Order Traversal

(C) In Order Traversal == Post Order Traversal

(D) Post Order Traversal == Level Order Traversal

Q6 Consider a Right Skewed Binary Tree with elements labelled A to E, while A being root and E being leaf node (In Alphabetical order, level wise). Then, For such tree, Pick Correct statement from below:

(A) In Order Traversal == Level Order Traversal == Post Order Traversal

(B) Pre Order Traversal == In Order Traversal == Level Order Traversal

(C) In Order Traversal == Post Order Traversal == Pre Order Traversal

(D) Post Order Traversal == Level Order Traversal == Pre Order Traversal

Q7 Which of the below statement(s) is/are Invalid?

(A) Every Perfect Binary Tree is a Complete Binary Tree

(B) Every Complete Binary Tree is a Full Binary Tree

(C) Every Full Binary Tree is a Complete Binary Tree

(D) Every Full Binary Tree is a Perfect Binary Tree

Q8 Consider a binary tree with Nodes N. Then Which of the below statements is Valid ?

(A) Minimum Height possible is $\log^{(N-1)}-1$

(B) Maximum Height possible is N+1

(C) Maximum Height possible is $2^N - 1$

(D) Minimum Height possible is $\log^{(N+1)}-1$

Q9 For a Binary Tree, The In order Traversal Sequence is B,A,D,C,E,F,G,I,H,J and Pre Order Sequence is E,A,B,C,D,F,G,H,I,J. The Post Order Traversal Sequence is _____

(A) B,D,C,A,I,J,H,G,F,E

(B) B,D,C,I,A,J,H,G,F,E

(C) B,D,C,A,J,I,H,G,F,E

(D) B,D,C,A,I,J,H,F,G,E

Q10 The number Of unlabelled binary trees with 4 nodes is _____

Answer Key

Q1	B
Q2	C
Q3	B
Q4	5040
Q5	C
Q6	B
Q7	B, C, D
Q8	D
Q9	A
Q10	14

Hints & Solutions

Note: scan the QR code to watch video solution

Q1 Text Solution:
B

Q2 Text Solution:
C

Q3 Text Solution:
B

Q4 Text Solution:
5040

Q5 Text Solution:
C

Q6 Text Solution:
B

Q7 Text Solution:
BCD

Q8 Text Solution:
D

Q9 Text Solution:
A

Q10 Text Solution:
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