

## Q1 Academic Honesty

1 Point

It is a violation of the Academic Integrity Code to look at any reference material other than your textbook and lecture notes, or to give inappropriate help to someone or to receive unauthorized aid by someone in person or electronically via messaging apps such as WhatsApp. Academic Integrity is expected of all students of Hacettepe University at all times, whether in the presence or absence of members of the faculty. Do NOT sign nor take this exam if you do not agree with the honor code.

Understanding this, I declare I shall not give, use or receive unauthorized aid in this examination.

Signature (Specify your name and surname as your signature)

Mehmet Taha USTA MTUSTA

## Q2

22 Points

### Q2.1

11 Points

What will be the maximum height for a complete tree that has 10 nodes?

3

### Q2.2

11 Points

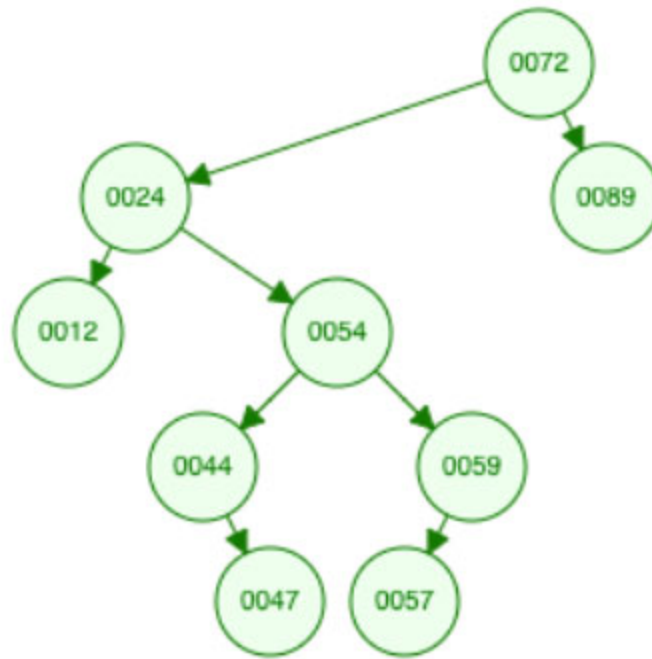
How many leaf nodes are there in a complete tree that has 10 nodes?

4

**Q3**

51 Points

Given the BST below

**Q3.1**

20 Points

What will be the left child of 0054 if we delete 0024?  
(write your answer in 00XX format)

**Q3.2**

20 Points

In the new tree formation after deleting 0024, what will be the right child of 0044 if we delete 0054?  
(write your answer in 00XX format)

**Q3.3**

11 Points

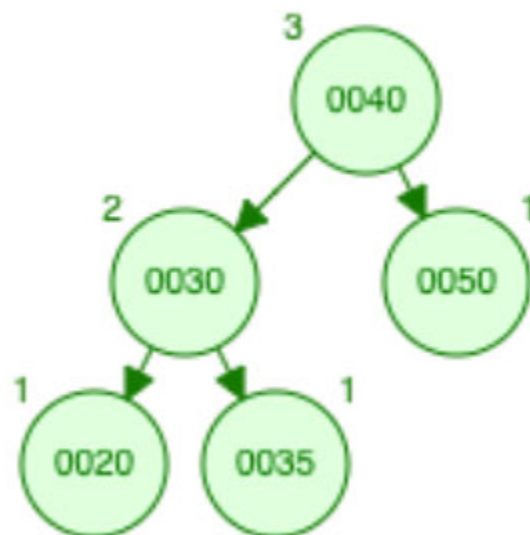
To preserve the original shape of the BST, which traversal method should be used while saving the BST to a file?

- ☒ Preorder
- ☐ Inorder
- ☐ Postorder

**Q4**

26 Points

Given the AVL tree below,



If we insert 0036;

**Q4.1**

15 Points

What will be the rotation?

- ☒ left rotation
- ☐ right rotation
- ☐ left right rotation
- ☐ right left rotation

**Q4.2**

11 Points

After rotation what will be the parent of 0036?  
(write your answer in 00XX format)

0030

Quiz 4

● GRADED

STUDENT  
MEHMET TAHA USTA

TOTAL POINTS  
**52 / 100 pts**

QUESTION 1

Academic Honesty 1 / 1 pt

QUESTION 2

(no title) 0 / 22 pts

2.1 (no title) 0 / 11 pts

2.2 (no title) 0 / 11 pts

QUESTION 3

(no title) 51 / 51 pts

3.1 (no title) 20 / 20 pts

3.2 (no title) 20 / 20 pts

3.3	(no title)	11 / 11 pts
QUESTION 4		
	(no title)	0 / 26 pts
4.1	(no title)	0 / 15 pts
4.2	(no title)	0 / 11 pts