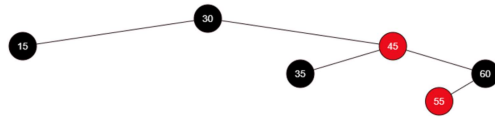


Started on Thursday, September 21, 2023, 8:22 PM
State Finished
Completed on Thursday, September 21, 2023, 8:34 PM
Time taken 11 mins 21 secs
Grade 4.00 out of 10.00 (40%)

Question 1

Incorrect
 0.00 points out of 1.00



If we insert 50 into the above red-black tree, which node is its parent?

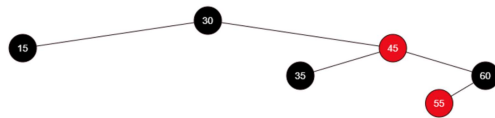
- ☐ a. 15
☐ b. 35
☐ c. 55
☒ d. 60 ✖
☐ e. None of the above

Your answer is incorrect.

The correct answer is:
 55

Question 2

Correct
 1.00 points out of 1.00



If we insert 50 into the above red-black tree, before any nodes are potentially rotated or colored, what color is the node containing 50?

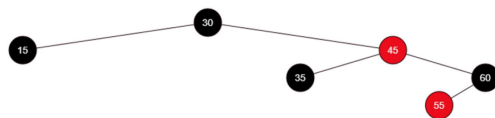
- ☒ a. red ✔
☐ b. black
☐ c. none of the above

Your answer is correct.

The correct answer is:
 red

Question 3

Incorrect
 0.00 points out of 1.00



Given the above Red Black Tree, which case will the insertion of 50 initially correspond to?

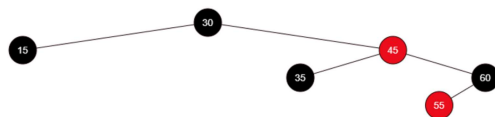
- ☒ a. Case 0: Insertion with black parent. ✖
☐ b. Case 1: Presence of red uncle.
☐ c. Case 2: Black uncle with zig-zag.
☐ d. Case 3: Black uncle without zig-zag
☐ e. None of the above

Your answer is incorrect.

The correct answer is: Case 3: Black uncle without zig-zag

Question 4

Incorrect
 0.00 points out of 1.00



If 50 is inserted into the above Red-Black tree, which nodes are recolored?

- ☐ a. 45 and 60
☐ b. 45 and 55
☐ c. 55 and 60
☐ d. 35, 55 and 60
☒ e. None of the above ✖

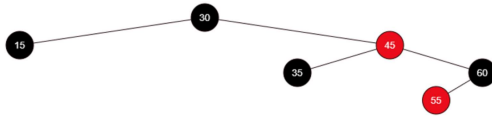
Your answer is incorrect.

The correct answer is: 55 and 60

Question 5

Correct

1.00 points out of 1.00



Given the above Red Black Tree, which case will the insertion of 10 initially correspond to?

- ☒ a. Case 0: Insertion with black parent. ✓
- ☐ b. Case 1: Presence of red uncle.
- ☐ c. Case 2: Black uncle with zig-zag.
- ☐ d. Case 3: Black uncle without zig-zag
- ☐ e. None of the above

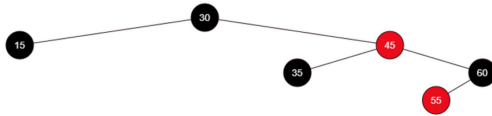
Your answer is correct.

The correct answer is: Case 0: Insertion with black parent.

Question 6

Correct

1.00 points out of 1.00



If 10 is inserted into the above Red-Black tree, which nodes are recolored?

- ☐ a. 45 and 60
- ☐ b. 45 and 55
- ☐ c. 55 and 60
- ☐ d. 35, 55 and 60
- ☒ e. None of the above ✓

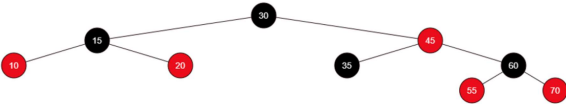
Your answer is correct.

The correct answer is: None of the above

Question 7

Incorrect

0.00 points out of 1.00



Which case will the insertion of 65 into the above red-black tree initially correspond to?

- ☐ a. Case 0: Insertion with black parent.
- ☐ b. Case 1: Presence of red uncle.
- ☐ c. Case 2: Black uncle with zig-zag.
- ☒ d. Case 3: Black uncle without zig-zag. ✗
- ☐ e. None of the above.

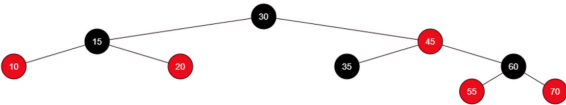
Your answer is incorrect.

The correct answer is: Case 1: Presence of red uncle.

Question 8

Incorrect

0.00 points out of 1.00



If 65 is inserted into the above Red-Black Tree, which nodes are ultimately recolored?

- ☐ a. 65 recolored to black.
- ☒ b. 70 and 55 recolored to black, 60 recolored to red. ✗
- ☐ c. 70, 55 and 45 recolored to black, 60 and 30 recolored to red.
- ☐ d. 15 recolored to red, 10 and 20 recolored to black.
- ☐ e. 30 recolored to red.

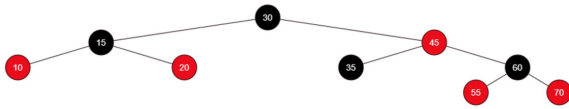
Your answer is incorrect.

The correct answer is: 70, 55 and 45 recolored to black, 60 and 30 recolored to red.

Question 9

Correct

1.00 points out of 1.00



After completing the insertion of 65 into the above Red-Black Tree, which node will be the left child of 70?

- ☐ a. 35
- ☐ b. 45
- ☐ c. 55
- ☐ d. 60
- ☒ e. 65 ✓

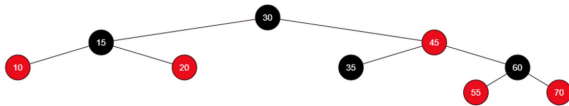
Your answer is correct.

The correct answer is: 65

Question 10

Incorrect

0.00 points out of 1.00



After the insertion of 65 into the above Red-Black tree is completed, what color will the node containing 65 be?

- ☐ a. red
- ☒ b. black ✗
- ☐ c. none of the above

Your answer is incorrect.

The correct answer is: red