ZJU–ADS–HQM2020–WK2

A. 单选题 **5**   </> 编程题 **1**

2-1 In the red–black tree that results after successively inserting the keys 41; 38; 31; 12; 19; 8 into an initially empty red–black tree, which one of the following statements is FALSE? (2分)
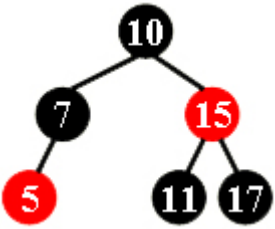
- A. 38 is the root
- ⊙ B. 19 and 41 are siblings, and they are both red
- C. 12 and 31 are siblings, and they are both black
- D. 8 is red

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2-1 答案正确   (2 分)   💡 创建提问

2-2 After deleting 15 from the red–black tree given in the figure, which one of the following statements must be FALSE? (2分)

- A. 11 is the parent of 17, and 11 is black
- B. 17 is the parent of 11, and 11 is red
- ⊙ C. 11 is the parent of 17, and 11 is red
- D. 17 is the parent of 11, and 17 is black

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2-2 答案正确   (2 分)   💡 创建提问

2-3 Insert 3, 1, 4, 5, 9, 2, 6, 8, 7, 0 into an initially empty 2–3 tree (with splitting). Which one of the following statements is FALSE? (2分)
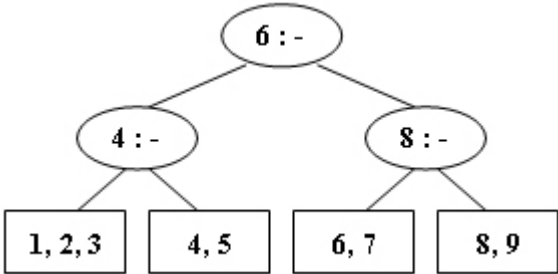
- ⊙ A. 7 and 8 are in the same node
- B. the parent of the node containing 5 has 3 children
- C. the first key stored in the root is 6
- D. there are 5 leaf nodes

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2-3 答案正确   (2 分)   💡 创建提问

2-4 After deleting 9 from the 2–3 tree given in the figure, which one of the following statements is FALSE? (2分)

- A. the root is full
- B. the second key stored in the root is 6
- C. 6 and 8 are in the same node
- ⊙ D. 6 and 5 are in the same node

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2-4 答案正确   (2 分)   💡 创建提问

2-5 Which of the following statements concerning a B+ tree of order M is TRUE? (2分)

- A. the root always has between 2 and M children
- B. not all leaves are at the same depth
- ⊙ C. leaves and nonleaf nodes have some key values in common
- D. all nonleaf nodes have between $\lceil M/2 \rceil$ and M children

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2-5 答案正确   (2 分)   💡 创建提问