NetID: xinran2 QuizID: 372412 Score: 1 / 4 Answer Source: PrairieLearn

1. What is the minimum number of keys that can be stored in a B-Tree of order 32 and height 8?

A. [Your Answer] $2^{26} - 1$
B. $2^{30} - 1$
C. $2^{30} + 1$
D. [Correct Answer] None of the other options is correct.
E. $2^{25} + 1$

2. Which of the following statements is true for a B-tree of order m containing n items?

(i) The height of the B-tree is $O(\log_m n)$ and this bounds the total number of disk seeks in a search for a key.
(ii) A node contains a maximum of $m - 1$ keys, and this bounds the number of disk seeks at each level of the tree in a search for a key.
(iii) An order 2 B-tree is also a Binary Search Tree.

Make one of the following choices.

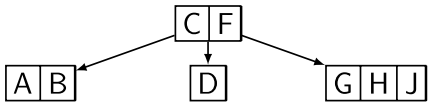
A. Only item (i) is true.
B. [Correct Answer] Two of the other choices are true.
C. [Your Answer] All choices (i), (ii), and (iii) are true.
D. Only item (iii) is true.
E. Only item (ii) is true.

3. What is the maximum number of keys that can be stored in a B-Tree of order 32 and height 6?

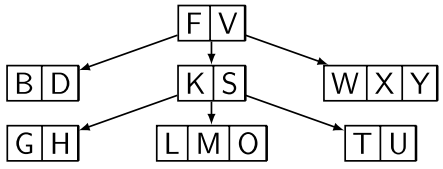
A. None of the other options are correct
B. [Your Answer] $31 \times (6^{32} - 1)$
C. $6 \times 2^{32} - 1$
D. [Correct Answer] $32^7 - 1$
E. $31 \times (32^6 - 1)$

4. Which of these two trees are valid B-Trees of order 4?

1.



2.



A. Neither (1) nor (2) is valid.
B. [Correct Answer] [Your Answer] Only (1) is valid.
C. Both (1) and (2) are valid.
D. Only (2) is valid.