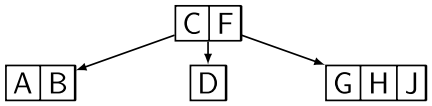
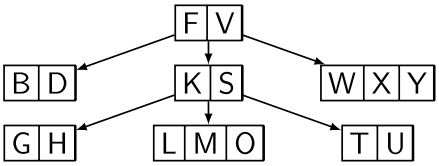
NetID: zhiyuan5 QuizID: 662812 Score: 1 / 4 Answer Source: PrairieLearn

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

1.



2.



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

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

A. $2^{30}+1$
B. $2^{35}+1$
C. $2^{30}-1$
D. [Correct Answer] [Your Answer] None of the other options is correct.
E. $2^{30}-1$

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

(i) The height of the B-tree is $O(\log_m n)$.
(ii) A node contains a maximum of $m-1$ keys, and this is an upper bound on the number of key comparisons at each level of the tree during a search.
(iii) For fixed n, decreasing m increases the number of disk seeks.

A. Only (i) is false.
B. [Your Answer] Only (ii) is false.
C. Only (iii) is false.
D. [Correct Answer] None of these characteristics is false.
E. At least two of (i), (ii) and (iii) are false.

4. What is the maximum number of keys that can be stored in a B-Tree of order 16 and height 6?

A. [Correct Answer] 16^7-1
B. [Your Answer] None of the other options are correct
C. $15\times(6^{16}-1)$
D. $15\times(16^6-1)$
E. $6\times2^{16}-1$