NetID: xinran2 QuizID: 370610 Score: 3 / 4 Answer Source: PrairieLearn

1. Which of the following is a correct way to declare an instance of a `list` whose parameterized type is a `sphere` pointer?

A. `sphere<list> * s;`
B. More than one of the declarations are correct.
C. None of the declarations are correct.
D. `list s(sphere *);`
E. [Correct Answer] [Your Answer] `list<sphere *> s;`

2. How many data structures in this list can used to implement a Dictionary so that all of its functions have a worst case running time strictly better than $O(n)$?

- Stack
- Queue
- Binary-Search Tree
- AVL Tree
- Linked List

A. 5
B. 4
C. 2
D. 3
E. [Correct Answer] [Your Answer] 1

3. Which of the following is not a fundamental capability of a dictionary?

A. find
B. [Correct Answer] [Your Answer] traverse
C. delete
D. all of these are part of the Dictionary ADT
E. insert

4. Suppose that the set of loans made by a library is to be represented in a data structure. Each book in the library may be electronically checked out by multiple patrons at a time. Moreover, a single patron may be able to check out multiple books. To be able to efficiently determine whether a patron has a given book, the library data structure is best represented by a dictionary where:

A. None of the other answers are correct.
B. unique indices starting from 0 are the keys and the pair (books,patrons) is the value.
C. [Correct Answer] a concatenated string `books+patrons` is the key and a boolean is the value.
D. [Your Answer] the patrons are the keys and the books are the values.
E. the books are the keys and the patrons are the values.