

CS 14 - Summer 2004 - Quiz 3

August 26, 2004

1. If every custom exception type were derived from `std::exception`, then
`catch (exception& e)`
would catch everything caught by
`catch (...)`
 - (a) True
 - (b) False
2. The compiler will issue a warning if you throw `std::bad_alloc` for anything other than a memory allocation problem.
 - (a) True
 - (b) False
3. In order to use `try`, `throw`, and `catch`, you must include:
 - (a) `exception` or `exception.h`
 - (b) `stdexcept` or `stdexcept.h`
 - (c) `stdlib` or `stdlib.h`
 - (d) `iostream`
 - (e) Nothing
4. Heaps are useful in the same situations as Binary Search Trees
 - (a) True
 - (b) False
5. Heaps are useful in the same situations as Lists
 - (a) True
 - (b) False

6. Heapsort has a worst-case running time of

- (a) $O(\log n)$
- (b) $O(n)$
- (c) $O(n \log n)$
- (d) $O(n^2)$
- (e) Depends on if this is a min-heap or max-heap

7. 2,3 Trees and 2,3,4 Trees are both types of B-Trees.

- (a) True
- (b) False

8. Which of the following is false

- (a) The leaves of a 2,3 Tree are at the same level
- (b) The height of a 2,3 tree is always equal to the $\log_2 n$, where n is the number of values in the tree
- (c) The root value in a 2,3 tree may change
- (d) A 2,3 tree with 4 values must have only 1 value in the root.
- (e) It is impossible for the depth of the tree to increase twice in a row

9. Insert into a 2,3 tree has a worst-case of $O(n)$

- (a) True
- (b) False

10. Heapsort using a Binomial Heap will

- (a) Take $O(n \log n)$ and can be done in place
- (b) Take $O(n \log n)$ and cannot be done in place
- (c) Take $O(n^2)$ and can be done in place
- (d) Take $O(n^2)$ and cannot be done in place
- (e) Take $O(n^2 \log n)$ and cannot be done in place
- (f) Heapsort cannot be done using a Binomial Heap