CS200 Algorithms and Data Structures : Quiz 6 and 7

Problem 1 ~ 10: 5 pts each

1) In an unsorted array-based implementation of a table, a new item is inserted at location _____.
   a) items[# of items] b) items[# of items -1]
   c) items[# of items +1] d)items[# of items +2]

2) A priority queue orders its items by their _____.
   a) Position b) value c) priority value d) size

3) A heap is a _____.
   a) general tree b) binary search tree c) full binary tree d) complete binary tree

4) In an array-based implementation of a heap, the heapDelete (delete and adjust) operation is _____.
   a) O(1) b) O(n) c) $O(n^2)$ d) O(log n)

5) The heapsort is _____ in the average case.
   a) O(1) b) O(n) c) O(log n) d) O(n log n)

6) The mergesort is more efficient than the heapsort in the worst case.
   (True/False)

7) A sorted implementation of a table can insert a new item into any convenient location.
   (True/False)

8) The search key of an item must not change for as long as the item is stored in a table.
   (True/False)

9) What are the differences between a heap and a binary search tree?

10) What is a collision in hashing?

11) A subset of a graph's vertices and edges is known as a _____.
a) bar graph b) line graph c) subgraph d) circuit

12) A graph is _____ if each pair of distinct vertices has a path between them.
a) Complete b) disconnected c) connected d) full

13) A complete graph has a(n) _____ between each pair of distinct vertices.
a) Edge b) path c) cycle d) circuit

14) An iterative DFS traversal algorithm uses a(n) _____.
a) List b) array c) queue d) stack

15) An iterative BFS traversal algorithm uses a(n) _____.
a) List b) array c) queue d) stack

16) All paths begin and end at the same vertex.
(True/False)

17) All complete graphs are connected.
(True/False)

18) The adjacency matrix for an undirected graph is symmetrical.
(True/False)

19) In a digraph, there can be only one edge between a pair of vertices.
(True/False)

20) What are the two most common implementations of a graph?