

CSCI 2270 - Zagrodzki, Ashraf, Trivedi - CS2: Data Structures

[Home](#) / [My courses](#) / [Spring 2020](#) / [CSCI2270-S20](#) / [13 April - 19 April](#) / [Quiz 10 \(Bonus\)](#)

Started on Sunday, 19 April 2020, 2:03 PM

State Finished

Completed on Sunday, 19 April 2020, 8:38 PM

Time taken 6 hours 34 mins

Grade 6.25 out of 10.00 (63%)

Question 1

Correct

Mark 1.00 out of 1.00

What causes a hash collision?

Select one:

- ☐ an input key produces two distinct hash values
- ☐ when the program runs out of memory.
- ☐ a segmentation fault
- ☒ two different keys have the same hash value



Your answer is correct.

The correct answer is:

two different keys have the same hash value

Question 2

Correct

Mark 1.00 out of 1.00

Prof. Hash T. Able implemented a collision resolution procedure where, during the insertion of a new element with key x , if the index $h(x)$ (corresponding to the hash value) is already occupied then the element is inserted at by sequentially searching for the next available index (with a potential loopback from the index 0). What is this method of collision resolution called?

Select one:

- ☐ a. quadratic probing
- ☐ b. quadratic nonsense
- ☐ c. unresolvable error
- ☒ d. linear probing



Your answer is correct.

The correct answer is: linear probing

Question 3

Incorrect

Mark 0.00 out of 1.00

You are given a hash function $f(x) = x \% 2$, where x is the value to be hashed and $f(x)$ is the hash address. Linear probing is used to resolve collisions.

The hash function receives the input $\{7, 6, 4, 3, 10\}$ in that order. Place each number in the hash table at its correct address..

Address 0	1	2	3	4
1	0	0	1	0
×	×	×	×	×

Your answer is incorrect.

Question 4

Incorrect

Mark 0.00 out of 1.00

Double Hashing. You are given a hash function $f_1(x) = x \% 5$, where x is the value to be hashed and $f_1(x)$ is the hash address. Double hashing is used to resolve collisions and $f_2(x) = 1 + x \% 3$. An i^{th} probe collision is resolved by $(f_1(x) + i * f_2(x)) \% 5$

The hash function receives the input { 10, 13, 11, 20, 12} in that order. Place each number in the hash table at its correct address..

Address 0	1	2	3	4
<div>0</div>	<div>3</div>	<div>1</div>	<div>4</div>	<div>2</div>
✖	✖	✖	✖	✖

Your answer is incorrect.

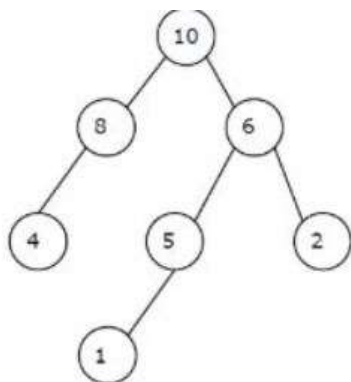
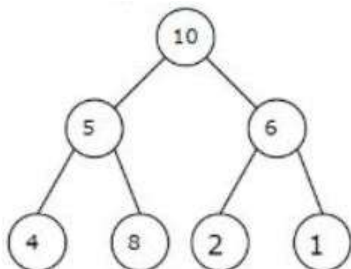
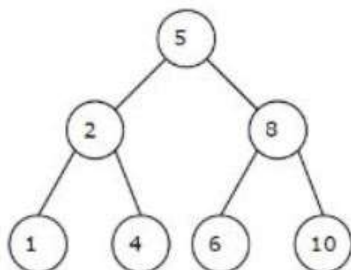
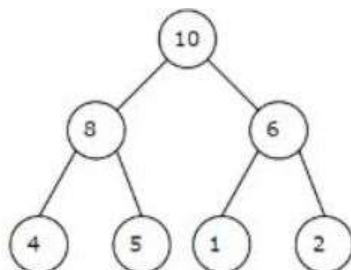
Question 5

Correct

Mark 1.00 out of 1.00

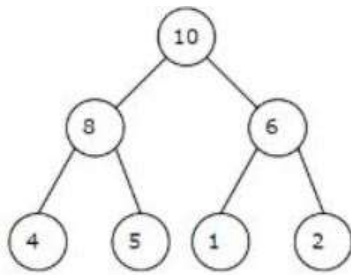
A max-heap is a heap where the value of each parent is greater than or equal to the values of its children. Which of the choices is a max-heap?

Select one:

☐ a.☐ b.☐ c.☒ d.

Your answer is correct.

The correct answer is:



Question 6

Incorrect

Mark 0.00 out of 1.00

In a min-heap, the value(priority) of a node is _____ than the value(priority) of either of its children.

The minimum value (priority) in the tree is the _____ of the tree.

In a max-heap, the value(priority) of a node is _____ than the value(priority) of either of its children.

Select one:

- ☐ a. None of these
- ☐ b. lesser, root, greater
- ☐ c. greater, root, lesser
- ☒ d. lesser, leaf, greater
- ☐ e. greater, leaf, lesser

✗

Your answer is incorrect.

The correct answer is: lesser, root, greater

Question 7

Partially correct

Mark 0.25 out of 1.00

Which data structure(s) can you use to implement a priority queue?

Select one:

- ☐ a. linked list
- ☐ b. array
- ☒ c. heap
- ☐ d. all of these



Your answer is partially correct.

The correct answer is: all of these

Question 8

Correct

Mark 1.00 out of 1.00

A heap is implemented using an array. At what index will the right child of node at index i be found?

Select one:

- ☒ a. $2i + 2$
- ☐ b. $i / 2$
- ☐ c. $2i$
- ☐ d. $i - 1$



Your answer is correct.

The correct answer is: $2i + 2$

Question 9

Correct

Mark 1.00 out of 1.00

Consider a binary max-heap implemented using an array. Which one of the following array represents a binary max-heap?

Select one:

- ☐ a. 25,12,16,13,10,8,14
- ☐ b. 25,12,16,13,10,8,14
- ☒ c. 25,14,16,13,10,8,12
- ☐ d. 25,14,12,13,10,8,16



Your answer is correct.

The correct answer is: 25,14,16,13,10,8,12

Question 10

Correct

Mark 1.00 out of 1.00

In a binary min heap, the value(priority) of one node's left child should be smaller than the right child.

Select one:

- ☐ True
- ☒ False ✓

The correct answer is 'False'.

