Elementary Data Structures and Algorithms

Queues

Concept: *input-output order*

1. These values are enqueued onto a queue in the order given: 1 5 9 4. A dequeue operation would return which value?

    A. 1

    B. 5

    C. 9

    D. 4

2. FIFO ordering is the same as:

    A. LILO

    B. LIFO

    C. FILO

Concept: *complexity*

3. Consider a queue based upon a simple fillable array with enqueues onto the front of the array. What is the time complexity of the worst case behavior for *enqueue* and *dequeue*, respectively? Assume there is room for the operations.

    A. constant and linear

    B. linear and linear

    C. constant and constant

    D. linear and constant

4. Consider a queue based upon a circular array with enqueues onto the front of the array. What is the time complexity of the worst case behavior for *enqueue* and *dequeue*, respectively? Assume there is room for the operations.

    A. linear and linear

    B. constant and constant

    C. constant and linear

    D. linear and constant

5. Consider a queue based upon a singly-linked list without a tail pointer with enqueues onto the front of the list. What is the time complexity of the worst case behavior for *enqueue* and *dequeue*, respectively?

    A. linear and constant

    B. constant and constant

    C. constant and linear

    D. linear and linear

6. Consider a queue based upon a singly-linked list with a tail pointer with enqueues onto the front of the list. What is the time complexity of the worst

case behavior for *enqueue* and *dequeue*, respectively?

A. linear and constant

B. constant and constant

C. constant and linear

D. linear and linear

7. Consider a queue based upon a doubly-linked list with a tail pointer with enqueues onto the front of the list. What is the time complexity of the worst case behavior for *enqueue* and *dequeue*, respectively?

A. constant and constant

B. linear and constant

C. linear and linear

D. constant and linear

8. Consider a queue based upon a non-circular, doubly-linked list without a tail pointer with enqueues onto the front of the list. What is the time complexity of the worst case behavior for *enqueue* and *dequeue*, respectively?

A. linear and constant

B. linear and linear

C. constant and linear

D. constant and constant