Suppose that a client performs an intermixed sequence of (queue) enqueue and dequeue operations. The enqueue operations put the integers 0 through 9 in order onto the queue; the dequeue operations print out the return value. Which of the following sequence(s) could not occur?  
(a) 0 1 2 3 4 5 6 7 8 9  
(b) 4 6 8 7 5 3 2 9 0 1   
(c) 2 5 6 7 4 8 9 3 1 0  
(d) 4 3 2 1 0 5 6 7 8 9

Solution:

1. 0 1 2 3 4 5 6 7 8 9
   * It is Possible because after every enque of an element, we are dequing it immediately
2. 4 6 8 7 5 3 2 9 0 1
   * It is not possible because we have enqued till 4 before a deque operation. So first deque element would be 0. But given is 4
3. 2 5 6 7 4 8 9 3 1 0
   * It is not possible because we have enqued till 2 before a deque operation. So first deque element would be 0. But given is 2
4. 4 3 2 1 0 5 6 7 8 9
   * It is not possible because we have enqued till 4 before a deque operation. So first deque element would be 0. But given is 4