



4.2.2 Queues

1) Circular queues and linear queues are examples of data structures that can be implemented using a fixed-length array.

- a) Explain why, when implemented using a fixed-length array, a circular queue is usually considered to be a better choice of data structure than a linear queue.

[2 marks]

- b) Describe the steps involved in adding an item to a linear queue that has been implemented as a static data structure using an array. Your answer should include a description of how any pointers are used and changed.

[3 marks]

- c) Describe the process that should be followed to add an item to a circular queue implemented as a static data structure using an array.

Your method should deal appropriately with any issues which could arise.

[5 marks]

- d) Describe the steps that must be completed to remove (dequeue) an item from a circular queue that has been implemented using a fixed-length array.

[5 marks]

- e) For a priority queue, the process to determine where a new item should be added is more complex than it is with a linear queue.

Describe the steps involved when adding an item to a priority queue, implemented as a static data structure using an array, that were not required when adding an item to a linear queue..

[3 marks]

