420-B31

# Lab 9 – The Queue ADT Answers

# Part A - Question 1

1. Fill in the blank entries for the following table. Remember that the object state for a queue is the front, rear, size and the contents of the queue itself.

| Method | Object State | Return value |
| --- | --- | --- |
| Queue <String> q =  new LinkedQueue<String> (); | Size = 0 | A new LinkedQueue |
| q.enqueue("C"); | Size = 1  C |  |
| q.enqueue("A"); | Size = 2  C, A |  |
| q.enqueue("M"); | Size = 3  C, A, M |  |
| q.peek(); |  | C |
| q.dequeue(); | Size = 2  A, M | C |
| q.peek(); |  | A |
| q.isEmpty(); |  | False |
| q.dequeue(); | Size = 1  M | A |
| q.dequeue(); | Size = 0 | M |
| q.peek(); |  | EmptyStackException |
| q.dequeue(); |  | EmptyStackException |

# Part B - Priority Queue using Adapter Design Pattern

## 1b. PriorityQueue operations mapped to Queue operations

|  |  |
| --- | --- |
| PriorityQueue Operation | Queue Operation Equivalent |
| void enqueue(element) | Enqueue |
| void enqueue(priority, element) |  |
| E dequeue() | Dequeuer |
| E peek() | Peek() |
| int size() | Size() |
| boolean isEmpty() | isEmpty() |
| void clear() | Clear() |