

ECE 318

First Mid-Term

12th October 2021

Your name is

Your C number is

Sign here to indicate that you have followed the honour code

do not write in these boxes

Question	Out of	You got
1	33	
2	33	
3	33	
4	1	

Question 1

- a. Give the struct or class definitions required to support a hash table that uses *open hashing*.
(10 points)
- b. Give proper C++ code for resizing the table when it gets too full.
(23 points)

Question 2

Items are defined thus:

```
struct item
{ string data;
  int priority; };
```

Give proper C++ code for removing the item with the lowest priority from a Min-Heap. The heap is implemented as an array.

Question 3.

Assuming that a priority queue has already been created for you, implement Dijkstra's algorithm for finding the shortest path between two nodes in a graph.

You may use pseudo-code instead of C++ if you wish.

Question 4

- a. Have you checked your answers?
- b. What is 6×9 ?