

**CSCE4133/5133 – Algorithms
Fall 2024**

**SAMPLE
Quiz 4**

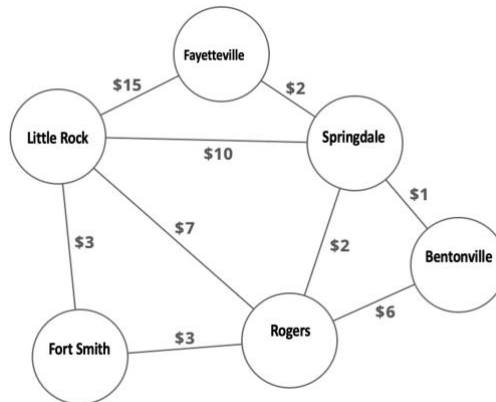
Date: Nov. 16, 2024

Time: 25 minutes

Instructions:

- Write your full name, email address and student ID in the report.
- Submission via BlackBoard or paper

The following graph represents the travel cost between different cities.



Question 1:

Use Dijkstra's algorithm to find the cheapest route from Fayetteville to all other cities in the graph above (run step by step using the table as in the class lecture).

Question 2:

From the result in Question 1, what is the cheapest route to travel from Fayetteville to Little Rock?

Question 3:

What are the limitations of Dijkstra's algorithm?

Question 4:

Given a function `int f(int n)` defined as:

```
int f(int n) {  
    if (n <= 1) {  
        return n;  
    }  
    return f(n-1) + f(n-2);  
}
```

What is the run time complexity of the function `f`?

- (A) $O(n^2)$
- (B) $O(2^n)$
- (C) $O(n!)$
- (D) None of above