**CSE221 - Lab Final Exam**

**Duration: 70 Minutes | Total Marks: 20**

**Start: 8.40 AM  
End: 9.50 AM**

Adam studies in Kentucky Medical College. During his Eid vacation, he is planning to visit his family and relatives in Florida. But he feels really bad during the journey. As a result, he is planning to take the shortest route possible from Kentucky to Washington.

The road network (between various states) available to him are listed below:

| **Division 1** | **Division 2** | **Road Length (km)** |
| --- | --- | --- |
| Kentucky | Texas | 80 |
| Kentucky | Alabama | 50 |
| Alabama | Kentucky | 50 |
| Alabama | Washington | 50 |
| Texas | Kansas | 85 |
| Texas | Washington | 100 |
| Washington | Delaware | 75 |
| Washington | California | 60 |
| Washington | Florida | 125 |
| Florida | Alabama | 75 |

**Task A:** Find the shortest route that Adam can take to reach **Florida**. Find both the total distance of the route and the divisions Adam will pass through.

**Task B:** Adam wants to meet her friend Lisa on her way back. Adam starts from **Kentucky** and Lisa starts from **Florida**. Help her to find the shortest route in this case. They want to find a common place where they can meet each other as quickly as possible.

**Output format for Task A (showing Washington to Kentucky):**

d km #Here d stands for Distance value

Washington Alabama Kentucky

**Output format for Task B (starting from Kentucky and Florida):**

Alabama

Kentucky Alabama

Florida Alabama

You can print the output in the console.

| **Marks Distribution** | **Allocated Points** |
| --- | --- |
| Construction of Road Network | 4 points |
| Applying the appropriate Algorithm | 3 + 2 = 5 points |
| Output A -> Shortest distance | 4 points |
| Output A -> Route | 2 points |
| Output B -> The Meeting District | 3 points |
| Output B -> Route | 2 points |

**Viva Instructions will be provided after the Final Exam**