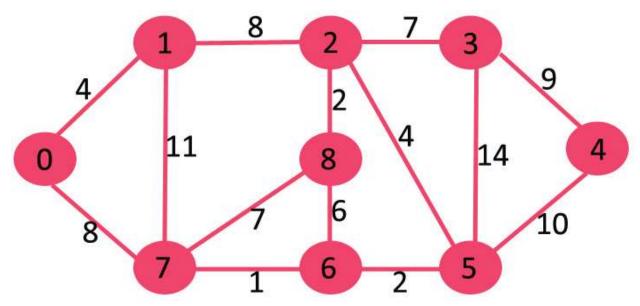**Department of CIS**
Subject: Algorithm
Assignment Title: Find the Way
Fall 2018

A renowned company is going to design a circuit board for its own programable electric circuit board. They are facing problem with managing the connections among different points in the circuit board. Assume you are the assigned person to solve the problem. Consider the following diagram:

Here each point is marked as circle. They are named as 0,1,2,3,4,5,6,7,8. The path costs are also shown in the diagram. Your work is to develop a program which will take them as variable inputs with a single source point. In output, your program will show the shortest connecting way from source to all other points. You are requested to use KRUSKAL algorithm to solve this problem.

Task -1 (35 Marks)

1. First describe with example how you can implement graph in you program.
2. Describe the data structure's you are going to use to implement the map and algorithm in your program, justify your reason with valid description.

3. Write the KRUSKAL algorithm along with its best case, worst case and average case.
4. Write the advantages and dis-advantages of KRUSKAL algorithm.

Task -2 (25 Marks)

1. Write a program that will solve the above mention problem using KRUSKAL algorithm.

Input:

1. Take input the graph information in your program, vertices and edges.
2. Take source vertex as input.

Output:

1. Print the shortest path from source vertex to all other vertex.