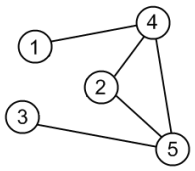
Spring 2013: CS 3329/5549 Midterm Exam 2

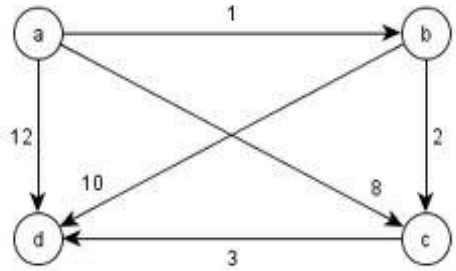
Total Time: 40 minutes Total Points: 30

Name:_____ **Date:**_____

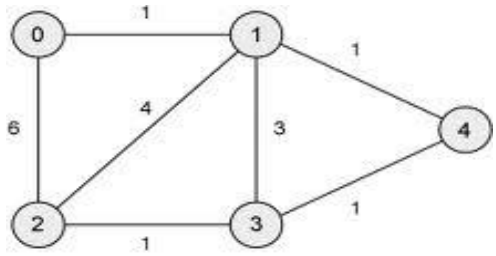
1. **[6]** Describe and analyze naïve pattern search algorithm.
2. **[3+3]** perform (a) Depth First and (b) Breadth First Traversals on graph shown in figure below. Starting point is node 1 (show all your steps)



3. **[5]** Use Dijkstra's algorithm to find shortest path between source 'a' and destination 'd' for the weighted graph shown below, showing all the steps



4. **[4+4]** Use Kruskal's algorithm to find a minimal spanning tree for the weighted graph shown below, showing steps. Then, use Prim's algorithm to do the same thing, using the same weighted graph, again showing steps.



5. **[5]** Suppose you run a day care for an office building and there are seven children A, B, C, D, E, F. You need to assign a locker where each child's parent can put the child's food. The children come and leave so they are not all there at the same time. You have 1 hour time slots starting 7:00 a.m. to 9:00 a.m. A star in the table means a child is present at that time. What is the minimum number of lockers necessary? Show how you would assign the lockers.

	A	B	C	D	E	F
7:00	*	-	*	-	*	-
8:00	-	*	*	-	-	-
9:00	-	-	-	*	*	*