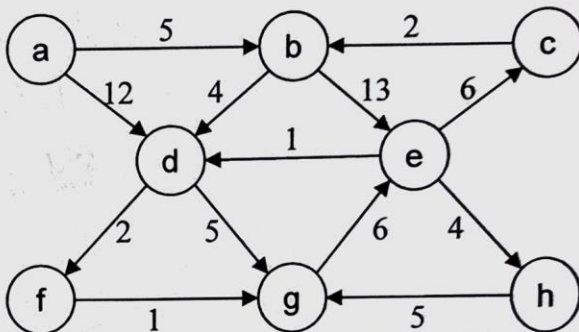# King Fahd University of Petroleum and Minerals
College of Computer Science and Engineering
Information and Computer Science Department

ICS 202-01: Data Structures
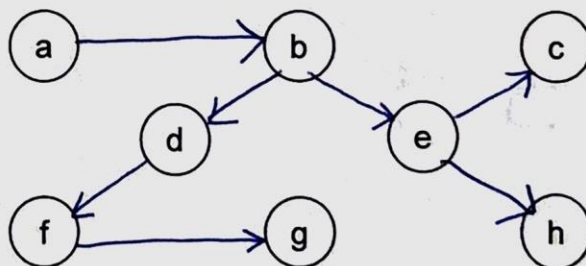Spring Semester 2017-2018
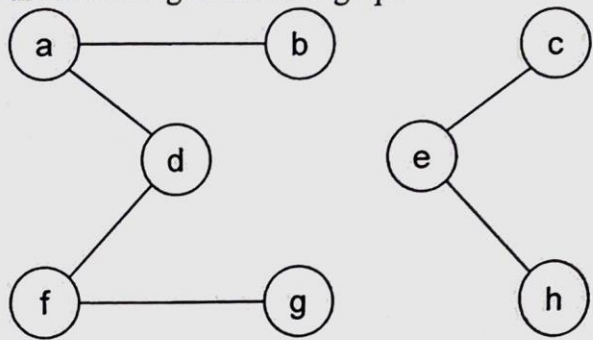Quiz#4, Sunday March 18th 2018

Name:

ID#:

1. (10 points) For the graph below, run Dijkstra's algorithm by filling the table below, to solve the single source shortest path problem starting from **vertex a**. Show the resulting vertex-weighted shortest path tree.
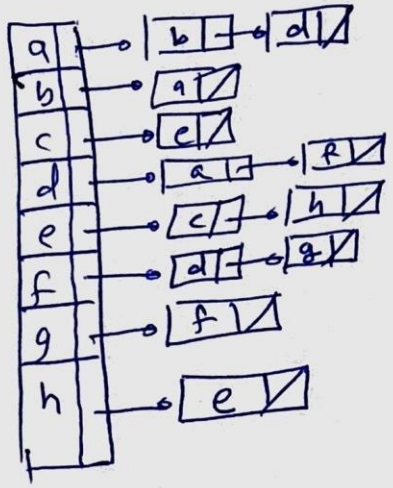

Pass	Initial distance	1	2	3	4	5	6	7	8	Shortest Distance	Predecessor
Active vertex		a	b	d	f	g	e	h	c		
a	O									O	—
b	∞	5								5	a
c	∞	∞	∞	∞	∞	∞	24	24	—	24	e
d	∞	12	9							9	b
e	∞	∞	18	18	18	18				18	b
f	∞	∞	∞	11						11	d
g	∞	∞	∞	14	12					12	f
h	∞	∞	∞	∞	∞	∞	22			22	e

2. (10 points) Consider the following undirected graph

a) Show the adjacency list representation of the above graph.

b) Show the depth first post order traversal of the above graph, printing the label of the vertex according to the order in which vertices are visited. Note that you need to process the vertices according to their alphabetical order.

b g f d a h e c