

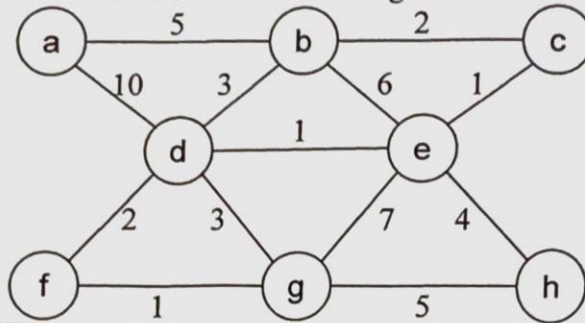
King Fahd University of Petroleum and Minerals
 College of Computer Science and Engineering
 Information and Computer Science Department

ICS 202-01: Data Structures
 Spring Semester 2017-2018
 Quiz#5, Sunday April 1st 2018

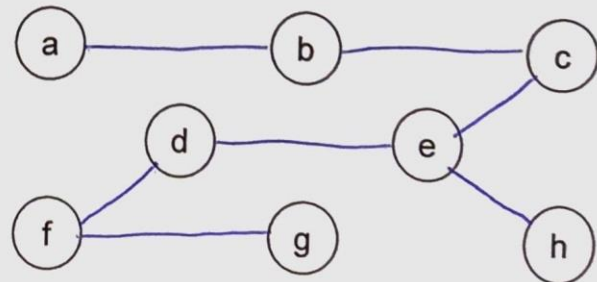
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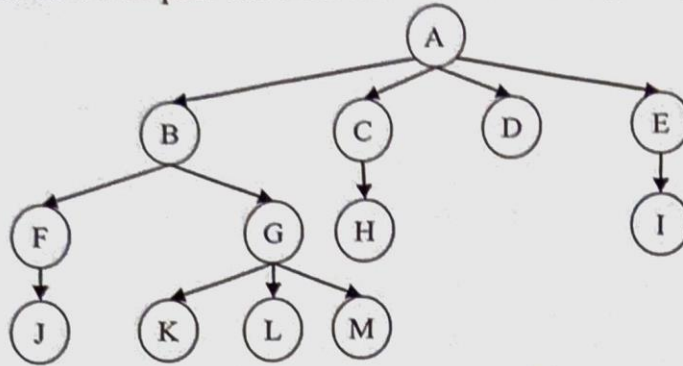
1. (8 points) For the graph below, run Prim's algorithm by filling the table below, to find the MST starting from vertex a. Show the resulting MST below.



Pass	Initial distance	1	2	3	4	5	6	7	8	Edge Weight	Predecessor
Active vertex		a	b	c	e	d	f	g	h		
a	0	—	—	—	—	—	—	—	—	—	—
b	∞	5	—	—	—	—	—	—	—	5	a
c	∞	∞	2	—	—	—	—	—	—	2	b
d	∞	10	3	3	1	—	—	—	—	1	e
e	∞	∞	6	1	—	—	—	—	—	1	c
f	∞	∞	∞	∞	∞	2	—	—	—	2	d
g	∞	∞	∞	∞	7	3	1	—	—	1	f
h	∞	∞	∞	∞	4	4	4	4	—	4	e

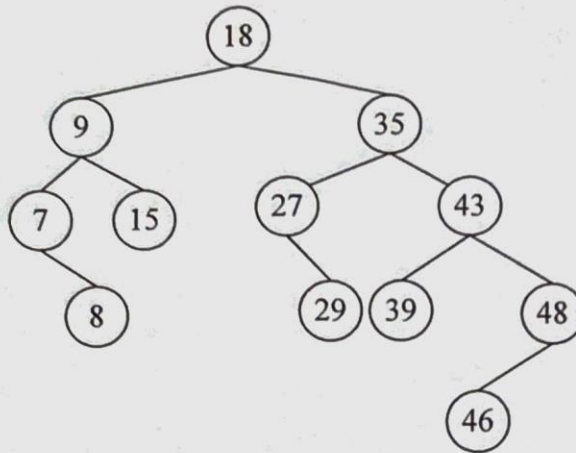


2. (4 points) Write down the post-order traversal of the following n -ary tree.



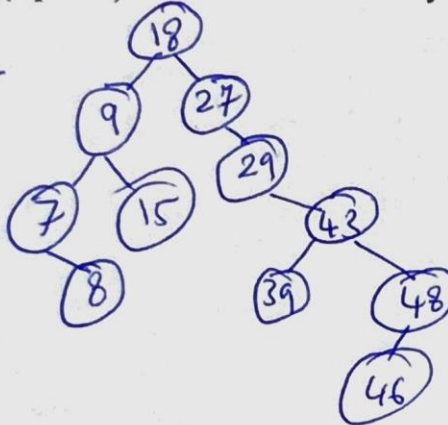
JFKLMGBHCDEIA

3. (8 points) Consider the following BST tree T.

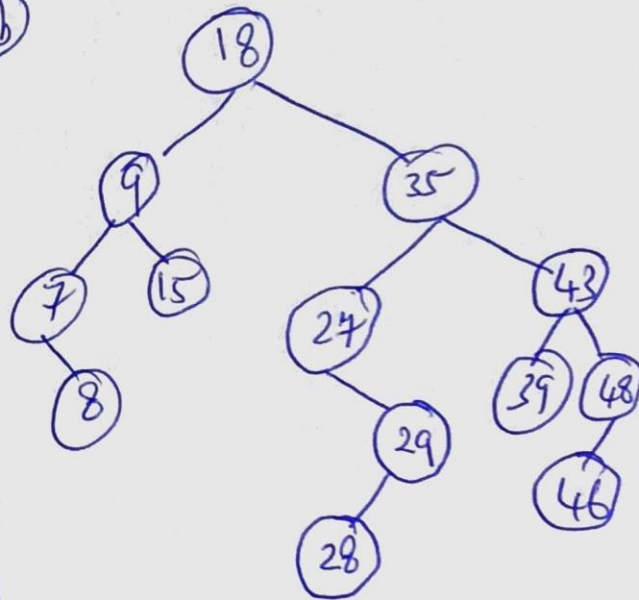


- a) (4 points) Delete the node with key 35 using deletion by merging from T.
- b) (4 points) Insert the node with key 28 into T.

a) Sol 1



b)



Sol 2

