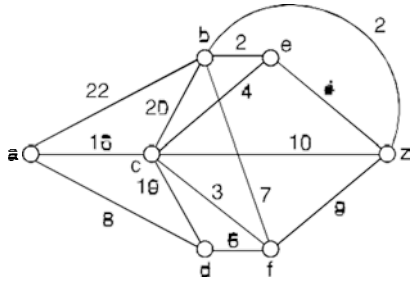
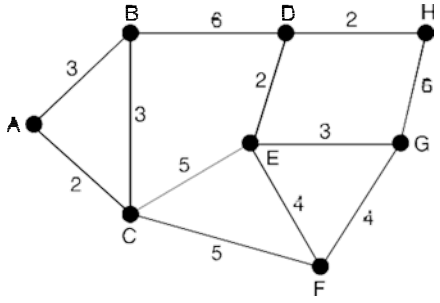
ASSIGNMENT 2

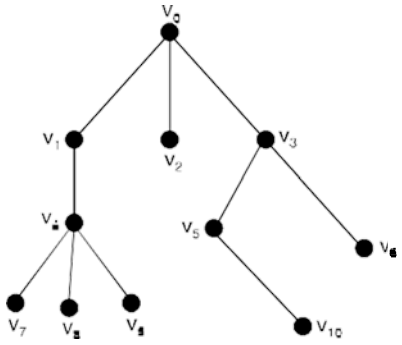
Problem 1. *Determine a shortest path between the vertices a to z as shown below.*



Problem 2. *Using Kruskal's algorithm, find the minimum spanning tree for the weighted graph of the Fig. given below.*



Problem 3. Consider the tree with root v_0 shown in Figure.

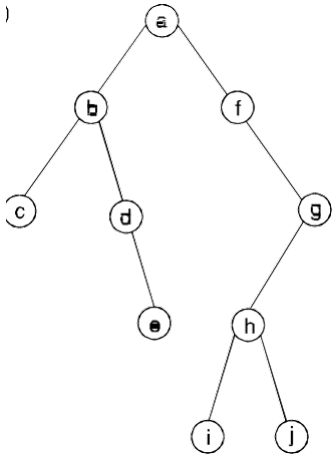


(*a*) what are the levels of v_0 and v_4 ?
(*b*) what are the children of v_3 ?
(*c*) what is the height of this rooted tree ?
(*d*) what is the parent of v_5 ?
(*e*) what are the siblings of v_7 ?
(*f*) what are the descendants of v_3 ?

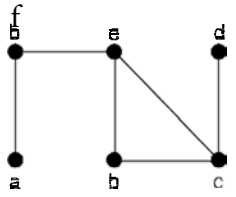
Problem 4. *Construct a binary tree whose in-order and pre-order traversal is given below*

(i) In-order : 5, 1, 3, 11, 6, 8, 2, 4, 7
(ii) Pre-order : 6, 1, 5, 11, 3, 4, 8, 7, 2

Problem 5. *Determine the order in which the vertices of the binary tree given below will be visited under (i) In-order (ii) pre-order (iii) post-order.*



Problem 6. *Find all spanning trees for the graph G shown in Figure given below.*



1,

Vertex V	a	b	c	d	e	f	g
L(v)	0	2	2	2	2	2	2
T	{a,	b,	c,	d,	e,	f,	g}

L(b) = min {a, of 22} = 22
L(c) = 16
L(d) = 8

Vertex V	a	b	c	d	e	f	g
L(v)	0	22	16	8	2	2	2
T	{	b,	c,	d,	e,	f,	g}

L(c) = 16
L(f) = 14

vertex v	a	b	c	d	e	f	g
L(v)	0	22	16	8	2	14	2
T	{	b,	c,		e,	f,	21

L(c) = 16
L(b) = 21
L(g) = 23

vertex v	a	b	c	d	e	f	g
L(v)	0	21	16	8	a	14	23
T	{	b,	c,		e,		g}

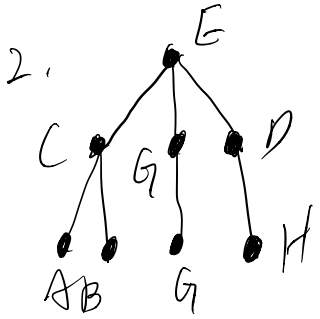
L(b) = 21
L(e) = 20
L(g) = 23

Vertex v	a	b	c	d	e	f	g
L(v)	0	21	16	8	20	14	23
T		b,			e		g

L(b) = 21
L(g) = 23

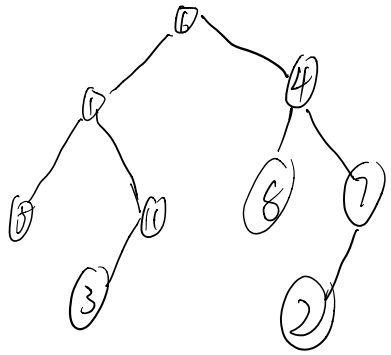
Vertex V	a	b	c	d	e	f	g
L(v)	0	21	16	8	20	14	23
T		b,					g

2.



3. (a) 0, 2 (c) = 3 (e) V_8, V_9
(b) V_5, V_6 (d) V_3 (f) V_5, V_6, V_{10}

4.



5. I) cbdeafighjg

II) abdefghij

III) cedbijhgfa

6.