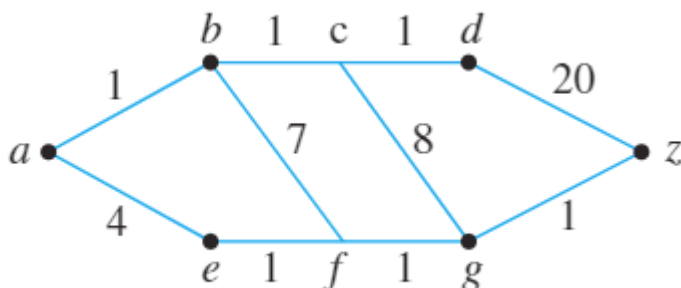**Assignment 10**
Set 10.7 – 14, 15

Use Dijkstra's algorithm to find the shortest path from a to z for each of the graphs in 13–16. In each case make tables similar to Table 10.7.1 to show the action of the algorithm.

14.

Step	V(T)	E(T)	F	L(a)	L(b)	L(c)	L(d)	L(e)	L(f)	L(g)	L(z)
0	$\{a\}$	$\emptyset$	$\{a\}$	0	∞	∞	∞	∞	∞	∞	∞
1	$\{a\}$	$\emptyset$	$\{b,e\}$	0	1	∞	∞	4	∞	∞	∞
2	$\{a,b\}$	$\{\{a,b\}\}$	$\{c,e,f\}$	0	1	2	∞	4	8	∞	∞
3	$\{a,b,c\}$	$\{\{a,b\},\{b,c\}\}$	$\{d,e,f,g\}$	0	1	2	3	4	8	10	∞
4	$\{a,b,c,d\}$	$\{\{a,b\},\{b,c\},\{c,d\}\}$	$\{e,f,g,z\}$	0	1	2	3	4	8	10	23
5	$\{a,b,c,d,e\}$	$\{\{a,b\},\{b,c\},\{c,d\},\{a,e\}\}$	$\{f,g,z\}$	0	1	2	3	4	5	10	23
6	$\{a,b,c,d,e,f\}$	$\{\{a,b\},\{b,c\},\{c,d\},\{a,e\},\{e,f\}\}$	$\{g,z\}$	0	1	2	3	4	5	6	23
7	$\{a,b,c,d,e,f,g\}$	$\{\{a,b\},\{b,c\},\{c,d\},\{a,e\},\{e,f\},\{f,g\}\}$	$\{z\}$	0	1	2	3	4	5	6	7
8	$\{a,b,c,d,e,f,g,z\}$	$\{\{a,b\},\{b,c\},\{c,d\},\{a,e\},\{e,f\},\{f,g\},\{g,z\}\}$									

The shortest path from a to z has length L(z) = 7.

15. The graph of exercise 9 with $a = a$ and $z = f$

Step	V(T)	E(T)	F	L(a)	L(b)	L(c)	L(d)	L(e)	L(g)	L(z)
0	$\{a\}$	$\emptyset$	$\{a\}$	0	∞	∞	∞	∞	∞	∞
1	$\{a\}$	$\emptyset$	$\{b,e,g\}$	0	3	∞	∞	3	4	∞
2	$\{a,b\}$	$\{\{a,b\}\}$	$\{c,e,g\}$	0	3	10	∞	3	4	∞
3	$\{a,b,e\}$	$\{\{a,b\},\{a,e\}\}$	$\{c,d,g,z\}$	0	3	10	14	3	4	7
4	$\{a,b,e,g\}$	$\{\{a,b\},\{a,e\},\{a,g\}\}$	$\{c,d,z\}$	0	3	10	14	3	4	7
5	$\{a,b,e,g,z\}$	$\{\{a,b\},\{a,e\},\{a,g\},\{e,z\}\}$								

The shortest path from a to z has length L(z) = 7.