

4. a) Describe the four types of switching in networks.

b) What are their advantages and disadvantages?

5. a) Describe three types of internal switching for circuit switches.

b) What are their advantages and disadvantages?

6. a) What is the relationship between the degree d of a graph, its node-connectivity n , and its edge-connectivity e ? Why?

b) What is the edge connectivity of the graph at right?

c) What is its node-connectivity?

d) What is its degree?

7. a) Using the numbers on the edges as capacities, give the max flow from A to B (with flow assignment).

Show work on a separate sheet.

b) Give a minimum cut set (using the edge weights) between A and B.

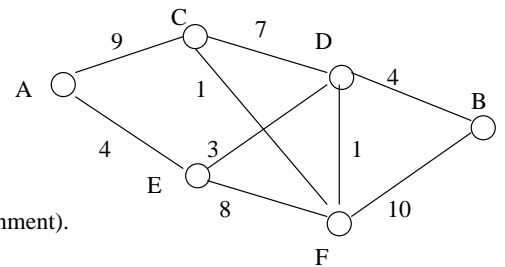
c) Is this a minimum cut set for the graph? If not, give one.

8. a) Using the traffic matrix below and using the edge weights as capacities in packets per second, estimate the delay from A to B if the shortest path (in hops) routes are used (use node id to break ties). Assume exponential arrivals and message sizes.

Assume negligible propagation delays and node processing times.

b) Is there a way to decrease the expected delay without altering the routes taken by the other pairs of nodes?

If so, give it and estimate the delay. (Show work on separate sheet).



	A	B	C	D	E	F
A	-	2	3	1	1	1
B	1	-	1	1	2	2
C	3	0	-	1	0	1
D	1	0	1	-	1	1
E	1	0	1	1	-	3
F	1	3	1	0	1	-

c) Are there any dangerous situations here? If so, where?

TRAFFIC MATRIX (mean arrivals/sec)