CMPT 434 A 2   Torban Peterson

1)

$$\begin{array}{r} 16\ 8\ 4\ 2\ 1 \quad 0\ 0000110111 \\ 11011\ \overline{)\ 10111010101} \\ +\ 100101 \\ \cancel{1}\cancel{0}100111 \\ +\ \ 100101 \\ \cancel{1}\cancel{0}\cancel{0}110001 \\ 100101 \\ \cancel{1}\cancel{0}1011100 \\ 100101 \\ \cancel{1}\cancel{0}1000111 \\ 100101 \\ \cancel{1}\cancel{0}\boxed{01000} = 8 \quad \text{Ans} \end{array}$$

$27\overline{)1493}$

2) i   30 meters, @ speed of light, assume one way

$$\tau = 30m \ / \ 3.00 \times 10^8 m/s = 1 \times 10^{-7} \text{ seconds}$$

$$t = 1kb \ / \ (100\,Mbps \cdot \frac{1000\,kbps}{1\,Mbps}) = 1 \times 10^{-5} \text{ seconds}$$

$$\boxed{\tau / t = 0.010}$$ — CSMA - As per textbook p 268
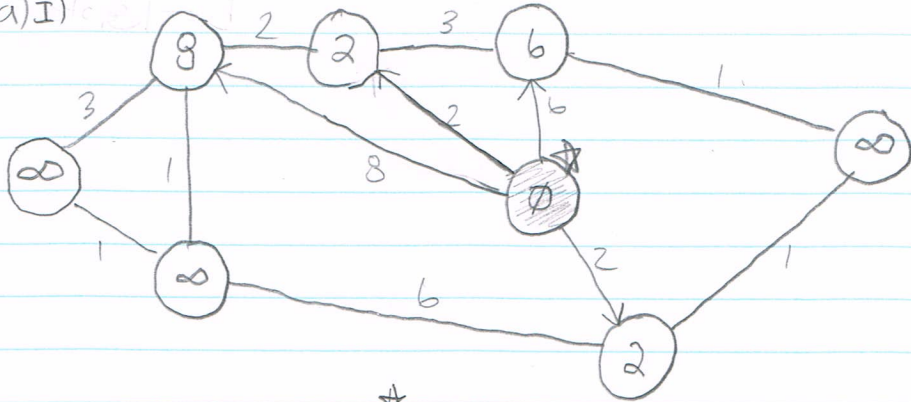   — Not Aloha

ii $\tau = 300m \ / \ 3.00 \times 10^8 m/s = 1 \times 10^{-6}$ seconds

$$t = 4 kbit \ / \ (10\,Gbps \cdot \frac{1000\,Mbps}{1\,Gbps} \cdot \frac{1000\,kbps}{1\,Mbps}) = 4 \times 10^{-7} sec$$

$$\boxed{\tau / t = 2.5}$$ — CSMA - As per textbook p 268
                          — Aloha could be concidered Tough

370 km
9 km/hr

3a) I)

II)

III)

IV)

V)

VI)

VII)

VIII)

3b
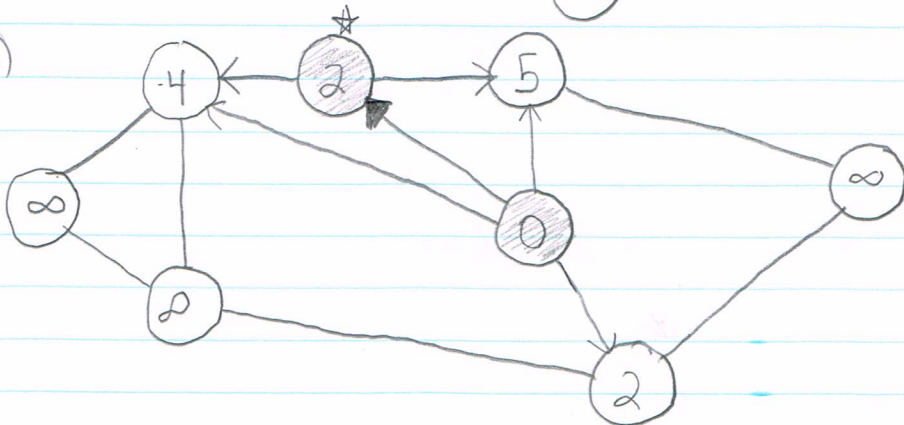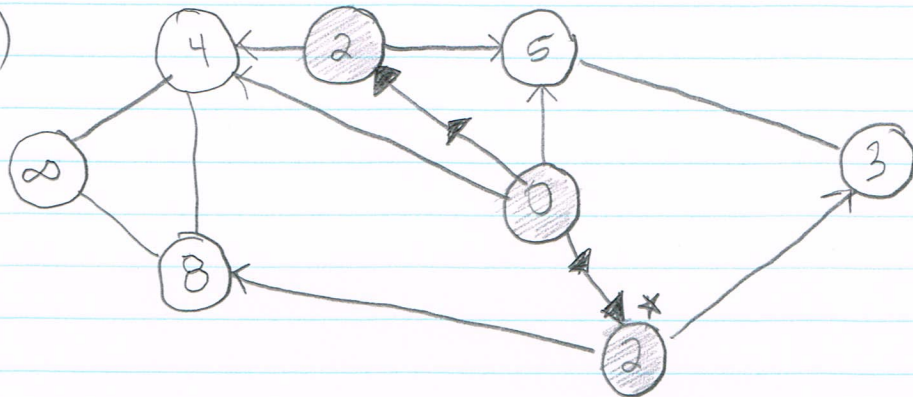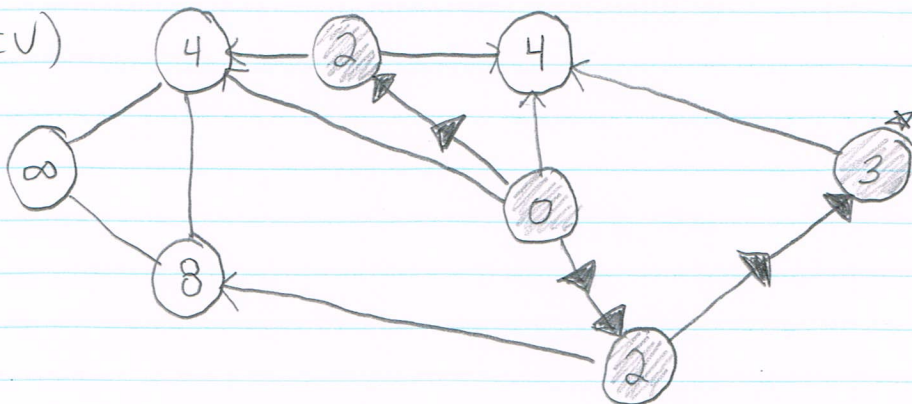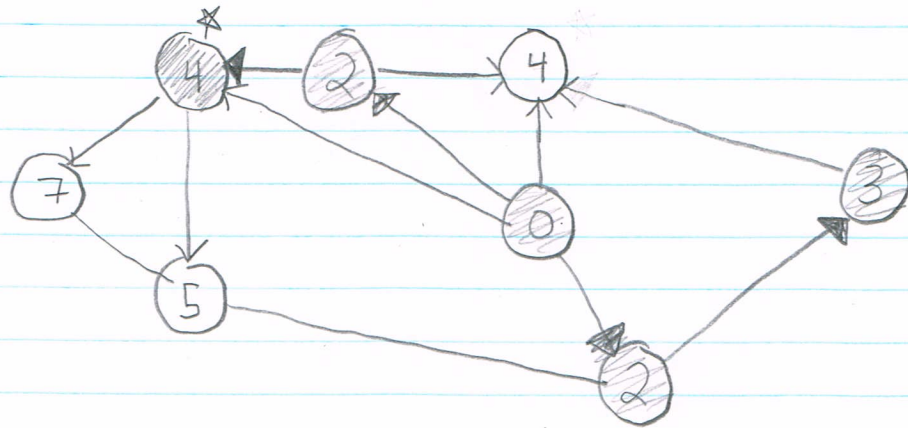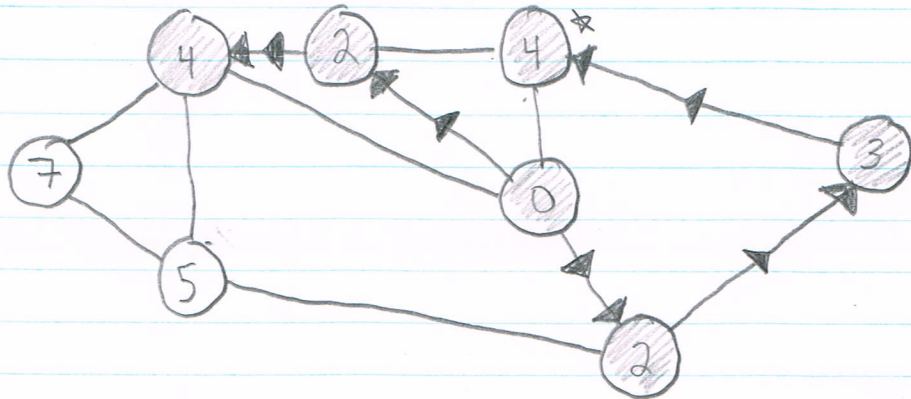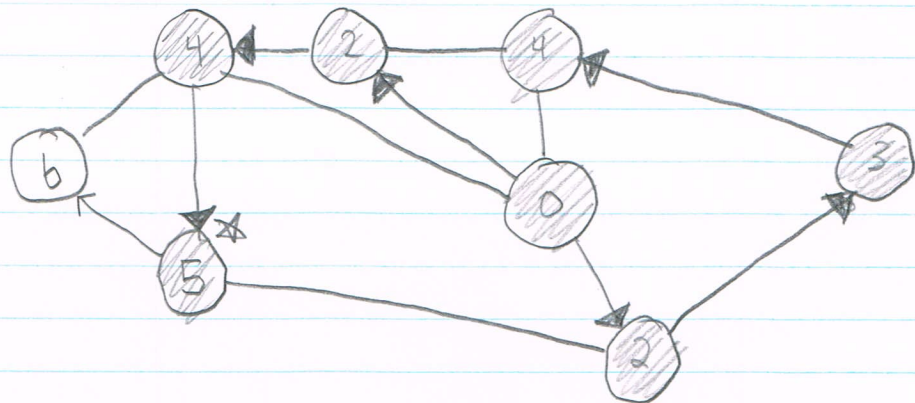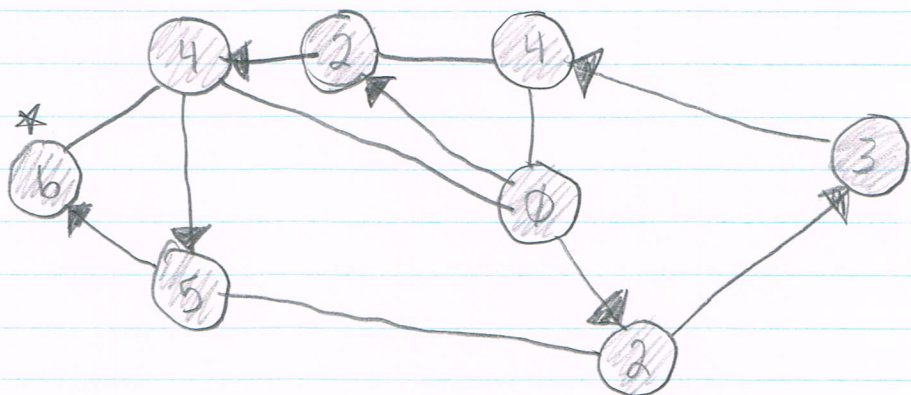
From E	a	b	c	d	e	f	g	h
to a		1.1						
to b		8		4				
to c								
to d				2		9		
to e								
to f						6		
g							2	
h						3		

4)a)Min weight steiner from g
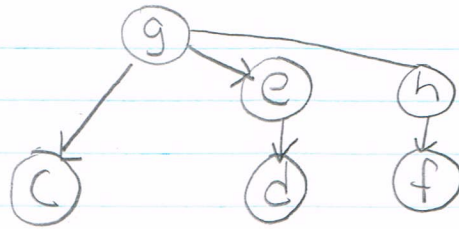
$g \rightarrow c = 6$
$g \rightarrow d = 4$
$g \rightarrow f = 2$

b) i) $a \rightarrow c$, $c \rightarrow b$, $b \rightarrow d$, $d \rightarrow f$ (Multicast)
$g \rightarrow c$, $c \rightarrow a$ (encapsulated?) conflicting ideas here

ii) need $e \rightarrow a$, so, $e \rightarrow d \rightarrow b \rightarrow c \rightarrow a$

c) Shortest paths from ⓖ to ©,ⓓ,ⓕ
$g \rightarrow c$, $g \rightarrow e$, $e \rightarrow d$, $g \rightarrow h$, $h \rightarrow f$
⚹Assumption: e, h accepting multicast traffic