CPE 348 EXAM I (50+3 pts) ~~Feb.~~ Sept. 30, 2020

Solution

1. a)

```
          1100010
     ____________
1011 | 1110110000
       1011
       ----
        1011
        1011
        ----
           1000
           1011
           ----
            110
```

CRC = 110

b) 01111110.10011111**0**0110110.01111110

↑ stuffed bit

2. a) Network layer

b) baseline wander & clock recovery

c) hidden / exposed node problem

d) 1 ; 0 ; 0 ; 0 ; 1

e) Yes, no problem.

3. a) $t_{tx} = \frac{2400}{40 \times 10^6} = 60\,\mu s$

b) $t_{prop} = \frac{5000}{2.5 \times 10^8} = 20\,\mu s$

c) $t = t_{tx} + t_{prop} = 80\,\mu s$

d) $t_{tx} > 2 t_{prop}$ (or $60 > 40\,\mu s$), so <u>Yes</u>!

4.

Switch 1 (S1)

Msg	Incoming Interface	Incoming VCI	Outgoing Interface	Outgoing VCI
A→Z	3	4	2	7
Z→A	2	5	3	2

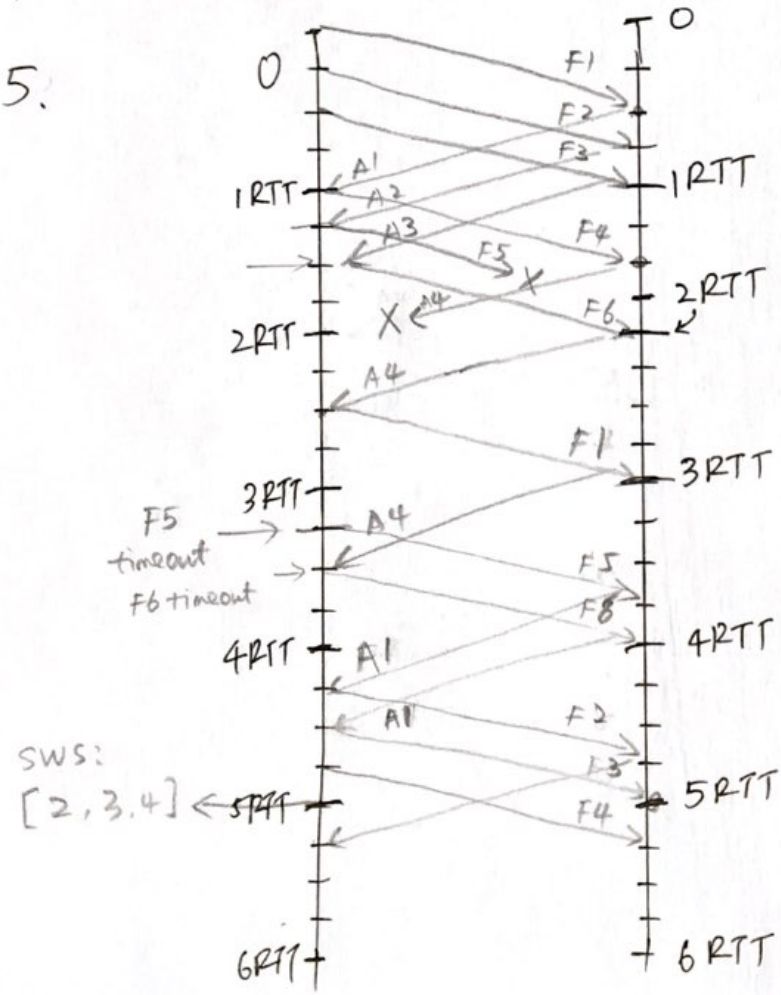
Switch 2 (S2)

Msg	Incoming Interface	Incoming VCI	Outgoing Interface	Outgoing VCI
A→Z	4	1	2	8
Z→A	2	2	4	5

Switch 3 (S3)

Msg	Incoming Interface	Incoming VCI	Outgoing Interface	Outgoing VCI
A→Z	0	8	1	3
Z→A	1	7	0	2

5.



(a) 3.¼ RTT

(b) 2, 3, 4

(c) 4