Computer Networks HW#2

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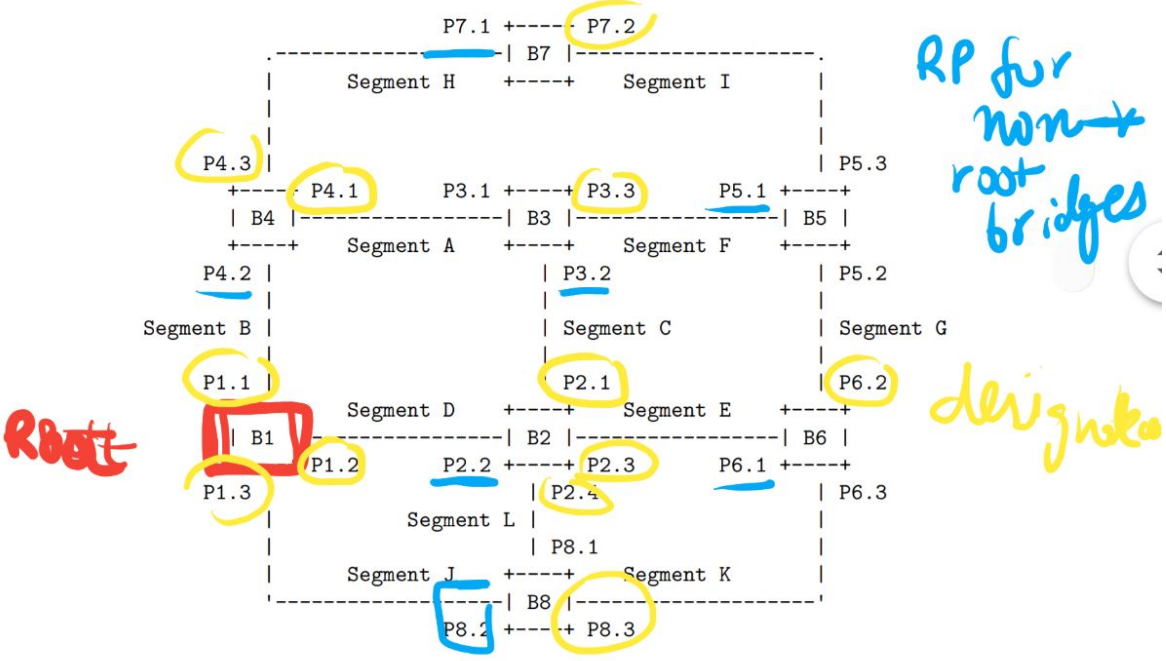
Problem 2.1

(a)



i. Root Bridge: B1

Root ports for non-root bridges (which connect to the root bridge):
B2 -> P2.2
B3 -> P3.2
B4 -> P4.2.
B5 -> P5.1
B6 -> P6.1
B7 -> P7.1
B8 -> P8.2

ii.

Segment	Designated Port
A	P4.1
B	P1.1
C	P2.1
D	P1.2
E	P2.3
F	P3.3
G	P6.2
H	P4.3
I	P7.2
J	P1.3
K	P8.3
L	P2.4

The designated bridge is determined for each segment. The designated bridge of a segment is the bridge which connects the segment to the root bridge with the lowest costs on its root port. The ports used to reach designated bridges are called designated ports.

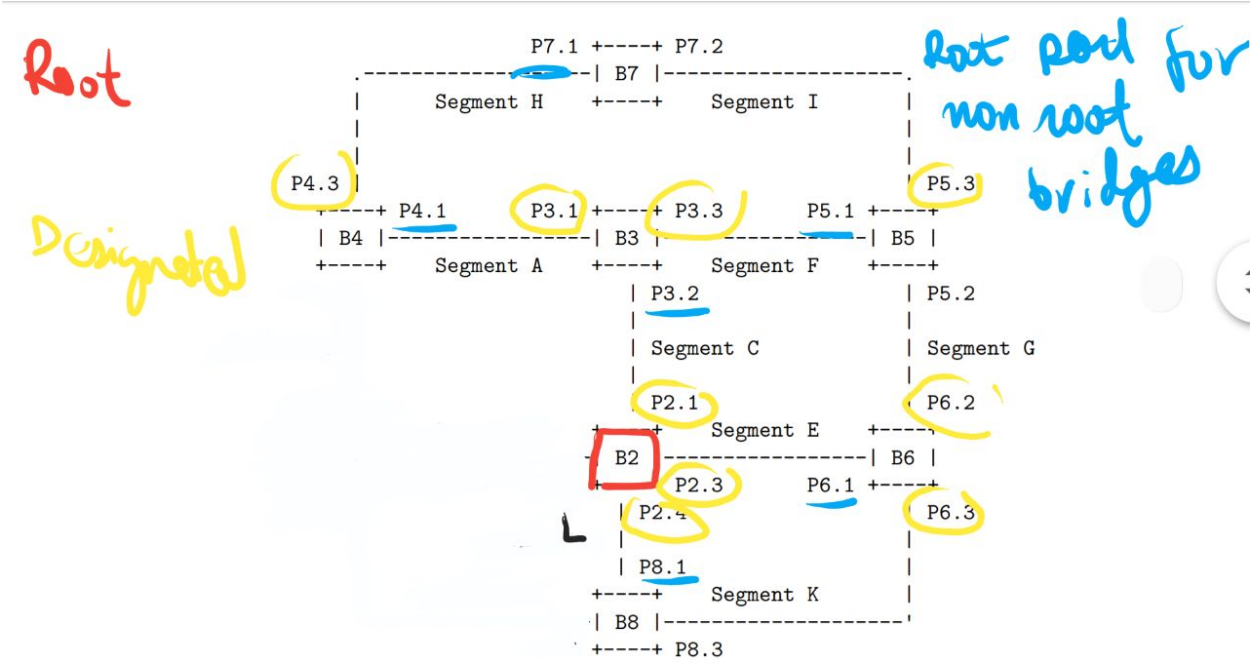
iii. All ports are blocked which are not designated ports or root ports. In the diagrams, the unmarked ones are blocked ports.

Blocked Ports:

Bridge	Blocked Port
B1	
B2	
B3	P3.1
B4	
B5	P5.2, P5.3

B6	P6.3
B7	
B8	P8.1

(b)



i. Root Bridge: B2
Root ports for non-root bridges (which connect to the root bridge):
B3 -> P3.2
B4 -> P4.1
B5 -> P5.1
B6 -> P6.1
B7 -> P7.1
B8 -> P8.1

ii. Considering that segments B, D, and J don’t exist anymore.

Segment	Designated Port
A	P3.1
C	P2.1
E	P2.3
F	P3.3
G	P6.2
H	P4.3
I	P5.3
K	P6.3
L	P2.4

iii. Blocked Ports:

Bridge	Blocked Port
B1	
B2	
B3	
B4	
B5	P5.2
B6	
B7	P7.2
B8	P8.3

Problem 2.2:

a) Total Packets (written at the bottom of the screen): 106280
Bytes (Statistics -> Capture File Properties): 19689056

Endpoint Statistics (Statistics -> Endpoints -> Last Line):
Bytes Broadcasted: 6,826k
Packets Broadcasted: 52,837

Percentage of Broadcast Packets: (52,837/106280) * 100 = 49.715% = approx 49.7%
Percentage of Broadcast Bytes: (6826000/19689056) * 100 = 34.669% = approx 34.7%

b) Which MAC address is sending bridge PDUs?

Source: Cisco_80:d5:55 or 0:0c:30:80:d5:55 (can be checked by clicking on any filtered row and then highlighting the address).

To which destination address are bridge PDUs sent?

01:80:c2:00:00:00

How frequently are bridge PDUs sent?
Approximately 2 packets/second.

What is the bridge identifier (priority plus MAC address) of the root bridge?

Bridge Identifier: 32768 / 5 / 00:0c:30:80:d5:40
where 32768 is the bridge priority (the root priority was 24576) and 00:0c:30:80:d5:40 is the address from the bridge identifier.

c) Other protocols include:

- IPX RIP:Internetwork Packet Exchange Routing Information Protocol
- IPX SAP: Internetwork Packet Exchange Service Advertisement Protocol
- NBIPX: NetBIOS over Internetwork Packet Exchange
- BROWSER: Microsoft Windows Browser Protocol
- CDP: Cisco Discovery Protocol
- SMB: Server Message Block Protocol
- SMB: MailSlot Protocol

Greyed Out Ones:

- DTP: Dynamic Trunk Protocol
- ZIP: Zone Information Protocol