

Networks Hw7

56 / 80

Problem A

a.)

Prefix	link
11100000 00...	0
11100000 01000000	1
1110000...	2
Otherwise	3

11100001 1***** 3

- 6 points

- b.) The Prefix of addresses is matched to a link in the table
- First address is a match to otherwise, so link 3 ✓
 - Second address is a match for link 1 ✗ link interface 2
 - Third address is a match for link 2 ✗ link interface 3
- 2 points

Problem B

1100 0000 - 11011111 ✓	0	32 addresses
1110 0000 - 10000000 - 11111111 10111111 ✗	1	64 addresses - 2 points
1110 0000 - 1111 1111 ✓	2	32 addresses
0000 0000 - 0111 1111 ✓	3	128 addresses

Problem C. 2400 bytes = datagrams, 700 bytes = MTU, id = 422, IP header = 20 bytes

$$\frac{\text{Datagram} - \text{IP header}}{\text{MTU} - \text{IP header}} = \frac{2400 - 20}{700 - 20} = \frac{2380}{680} = 3.5 \rightarrow 4 \text{ fragments}$$

what are the four related header field values of each of those four segments??? See next page for details. - 14 points

Problem D. 134.39.176.0/22 ← Subnet bits → 1011 0000 →

1 1100 0010 = 450, need 4 host bits

- Subnet 1 = 134.39.176.0/23 → 511 addresses > 450
- 134.39.178.0/24 → 255 addresses > 200
- 134.39.179.0/24 → 255 addresses > 160

-24 points

Problem E

224.0.0.0/10	0
224.64.0.0/16	1
224.0.0.0/7	2
225.128.0.0/9	3

Problem C. "What are the values in the various fields in the IP datagram(s) generated related to fragmentation?"

Length	ID	fragflag	offset
700	422	1	0
700	422	1	85
700	422	1	170
360	422	0	255