Lab 1: OSI Model & IP Addressing – Solutions

Part A:

Q1:

1

Using the Class table:

Class	Range
A	**1-126**
B	**128-191**
C	**192-223**
D	**224-247**

0.5

Address	Class
131.107.2.89	B
3.3.57.0	A
200.200.5.2	C
191.107.2.10	B
127.0.0.1	A

Q2:

0.25

Classes A and B have 16,777,214 and 65,534 hosts, respectively.

Q3:

0.25

Class C which has 254 host.

Part B:

a. 131.107.256.80
b. 222.222.255.222
c. 231.200.1.1
d. 126.1.0.0
e. 0.127.4.100
f. 190.7.2.0
g. 127.1.1.1
h. 198.121.254.255
i. 255.255.255.255

a. It is **not a valid** class B address since it has more than 32 bits
b. It is a **valid** class C address with a subnet mask 255.255.255.0 and falls between the class range from 192.0.0.0 to 223.255.255.255
c. It is **not a valid** class D address since it is only used for multicasting purposes and not to be assigned to hosts
d. It is a **valid** class A address with a subnet mask 255.0.0.0
e. It is **not valid** even though it's a class A because the first bits of the network address are all 0s
f. It is a **valid** class B address with a subnet mask 255.255.0.0
g. Even though it is a class A address, it is **not valid** since all addresses in 127 are not allowed to be used
h. It is **not a valid** class C address because the assigned host bits are all 1's and it should only used for broadcasting
i. It is **not a valid** address because the network and host bits are all 1s

Part C:

Network Portion	Host Portion
177.100.18.4	10.15.123.50
119.18.45.0	171.2.199.31
209.240.80.78	198.125.87.177
199.155.77.56	223.250.200.222
117.89.56.45	17.45.222.45
215.45.45.0	126.201.54.231
192.200.13.0	191.41.35.112
95.0.21.90	155.25.169.227
33.0.0.0	192.15.155.2
158.98.80.0	123.102.45.254
217.21.56.0	148.17.9.155
10.250.1.1	100.25.1.1
150.10.15.0	195.0.21.98
192.14.2.0	25.250.135.46
148.17.9.1	171.102.77.77
193.42.1.1	55.250.5.5
126.8.156.0	218.155.230.14
220.200.23.1	10.250.1.1

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Part D:

188.10.18.2	188.10.0.0
255.255.0.0	10.10.48.0
10.10.48.80	192.149.24.0
255.255.255.0	150.203.0.0
192.149.24.191	10.0.0.0
255.255.255.0	186.13.23.0
150.203.23.19	223.69.0.0
255.255.0.0	200.120.135.0
10.10.10.10	27.0.0.0
255.0.0.0	199.20.150.0
186.13.23.110	191.55.165.0
255.255.255.0	
223.69.230.250	
255.255.0.0	
200.120.135.15	
255.255.255.0	
27.125.200.151	
255.0.0.0	
199.20.150.35	
255.255.255.0	
191.55.165.135	
255.255.255.0	

2

Part E:

222.49.49.11	222.49.49.11
255.255.255.0	
128.23.230.19	128.23.230.19
255.255.0.0	
10.10.10.10	10.10.10.10
255.0.0.0	
200.113.123.11	200.113.123.11
255.255.255.0	
223.169.23.20	223.169.23.20
255.255.0.0	

2

Where the highlighted numbers are the host IDs

Part F:

191.249.234.191	255.255.0.0
223.23.223.109	255.255.255.0
10.10.250.1	255.0.0.0
126.123.23.1	255.0.0.0
223.69.230.250	255.255.255.0
192.12.35.105	255.255.255.0

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