CHAPTER 4: NETWORK LAYER: DATA PLANE

Q1) The only entries in a certain route table are (128.59.28.0/22, port 0), (128.59.28.0/23, port 1) and (128.59.28.0/24, port 2). These entries indicate CIDR network number, the prefix and the corresponding port to which a packet should be forwarded. If a packet arrives with a destination IP address equal to 128.59.29.18, which port will this router forward the packet to?

Q2. A Router R1 has received a datagram with destination IP = 199.20.30.30. The current routing table at R1 has got four entries as follows: 199.20.30.0/28 Interface 1 199.20.30.16/29 Interface 2 199.20.30.24/30 Interface 3 Default Interface 4 Which interface would be selected by R1 to forward this packet? Show your working

Q3. Suppose an ISP owns the block of addresses of the form 101.101.128/17. Suppose it wants to create four subnets from this block, with each block having the same number of IP addresses. What are the prefixes (of form a.b.c.d/x) for the four subnets?

The ISP wants to create 4 subnets, each block has the same number of IP addresses. The total number of addresses in this block is 2^15 = 32768. Each block has 8192 addresses.

The prefixes are:

* Block A: 101.101.128/19
* Block B: 101.101.160/19
* Block C: 101.101.192/19
* Block D: 101.101.224/19