**CS 428/528**

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**Quiz 4**

**Baptiste Saliba**

1. Write down the binary representation of the address block 200.24.16.0/23 and clearly underline the subnet part? **(2 points)**

**Answer)**

200 24 16 0

11001000 00011000 00010000 00000000

11001000 00011000 00010000 00000000 🡨 first 23 bits are the subnet mask

2. What is the primary task of DHCP? **(1 point)**

**Answer)**

DHCP is connectionless so the primary task is to allocate IP’s to host’s dynamically.

3. What is the difference between routing and forwarding? **(1 point)**

**Answer)**

Routing: algorithm to figure out how to reach any other node and populates the forwarding table

Forwarding: algorithm determines local forwarding at that individual router, meaning which datagram should be sent to which port.

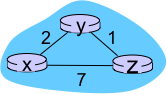
4. What is the primary function of NAT? **(1 point)**

**Answer)**

The primary function is to translate a datagram’s internal IP (LAN) to external (WAN)

5. Use Dijkstra’s algorithm to find the shortest path from x to all other nodes in the network. Draw a table similar to the one done is class. **(3 points)**

|  |  |  |  |
| --- | --- | --- | --- |
| **Step** | **N’** | **D(y) p(y)** | **D(z) p(z)** |
| **0** | **x** | **2, x** | **7, x** |
| **1** | **xy** | **-** | **3, y** |
| **2** | **xyz** | **-** | **-** |



6. Convert 18.200.15.67 to binary **(2 points)  
  
Answer)**

**18 200 15 67**

00010010 11001000 00001111 01000011