Question Sheet for Prelab 3

1. ***IOS command to change the Maximum Transmission Unit (MTU) for an interface on a Cisco router***

   conf t

   → use: configure terminal

   (config)# interface serial 1:15

   → use: interface FastEthernet0/0

   (config-if)# mtu XXX

2. ***How does a router determine whether datagrams to a particular host can be directly delivered through one of its interfaces?***

The header of the datagram is checked in the IP-layer of the router. If the destination is found in its network, the datagram can be delivered directly to the host. Otherwise, with the help of routingtables, it will be determined to which router the packet is to be sent next.

3. ***Which systems generate ICMP route redirect messages: routers, hosts or both?***

   ICMP redirect messages are used by **routers** to notify the hosts on the
   data link that a better route is available for a particular destination.

4. ***What is the default maximum TTL value used by <u>traceroute</u> when sending UDP datagrams?***

   The default setting allows a maximum of 30 hopes.

5. ***Describe the role of a default gateway in a routing table.***

   In general, the gateway is used a an access point to another network. The default gateway comes up as useful when an given IP address does not match to any other router in the relevant routing table.

6. **What is the network prefix of the IP address `10.10.10.10/24`**

   10.10.10.0

7. **Explain the difference between a network IP address and network prefix.**

   The IP address reflects the address of the network as well as the address of
   the host. In contrary, the network prefix contains only the network address.

8. **An organization has been assigned the network number `134.76.0.0/16` and it needs to
   create networks that support up to 60 hosts on each IP network. What is the maximum
   number of networks that can be set up and why?**

   There are 2^16 possible hosts iin the entire network. Each network is supposed to support up
   to 60 hosts. So the total number of networks that can be set up is 2^16/60=1092.