1. What are the layers of an Internet Protocol Stack? What does each layer do?
   1. Layers of an internet protocol stack…
      1. Application – what is being accessed?
      2. Transport – how is the application being transported to the receiver?
      3. Network – which route is the shortest path to the receiver? (routers: IP addresses)
      4. Data Link – how is communication in LAN? (local area network: switches [mac addresses])
      5. Physical – computers, cables, etc.
2. What is the difference between packet switching and circuit switching?
   1. Circuit switching is more commonly used in phone systems because it guarantees a connection
   2. Packet switching cannot guarantee a connection or bandwidth
3. Why do HTTP, FTP, SMTP, and POP3 run on top of TCP rather than UDP?
   1. TCP guarantees that the packet that was sent is received. Checks the sequence of bytes. These protocols require that all application data be received in the correct order and without gaps.
4. What is the difference between routing and forwarding?
   1. Routing is the process of determining a final “route” or best path from host to host via routers.
   2. Forwarding is the process of moving a packet from a router’s input port to the appropriate output port.
5. What is the 32-bit binary equivalent of the IP address 223.1.3.27?
   1. 223.1.3.27 => 4 numbers so 32/4=8. 4 8-bit groups in binary => 11011111 (223) | 00000001 (1) | 00000011 (3) | 00011011 (27)

11011111000000010000001100011100

1. How will you determine your IP address, network mask, default router, DHCP server IP address, and IP address of its local DNS server?
   1. List of these values: cmd terminal => C:\Users\law67>ipconfig/all [ENTER]

Default Gateway = Default Router