

**Exercise #1**  
**(To be discussed on Nov 5<sup>th</sup>, 12:00)**

1. In the Internet, what are the five layers, from top to bottom, in the Internet protocol stack? Till which layer does a switch process? Please make sure you understand the concept of layering and also think about advantages and disadvantages of layering.
2. The ISO/OSI reference model adds two layers. What is the purpose of the session layer? Does the current Internet implement a session layer?
3. What is the difference between the client/server model and the peer-to-peer model?
4. Circuit switching versus packet switching: Assume all traffic sources to be bursty: what switching technology is preferable? What are the advantages of the other technique?
5. In what switching technology is Frequency or Time Division Multiplexing used?
6. What is “statistical multiplexing”?
7. What are the four sources of packet delay? How does loss occur?