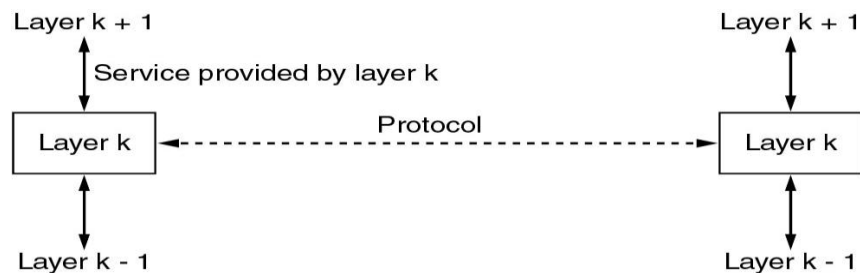## B38CN: Introduction Communications and Networks
Tutorial 1 (Chapter 1)

1. 1) What are two reasons for using layered protocols?

   2) The president of the Specialty Paint Corp. gets the idea to work with a local beer brewer to produce an invisible beer can (as an anti-litter measure). The president tells her legal department to look into it, and they in turn ask engineering for help. As a result, the chief engineer calls his counterpart at the other company to discuss the technical aspects of the project. The engineers then report back to their respective legal departments, which then confer by telephone to arrange the legal aspects. Finally, the two corporate presidents discuss the financial side of the deal. Is this an example of a multilayer protocol in the sense of the OSI model?

2. What is the principal difference between connectionless communication and connection-oriented communication?

3. Two networks provide reliable connection-oriented service. One of them offers a reliable byte stream and the other offers a reliable message stream. Are these identical? If so, why is the distinction made? If not, give an example of how they differ.

4. In the following figure, a service is shown. Are any other services implicit in this figure? If so, where? If not, why not?

5. Which of the OSI layers handles each of the following:
   1) Dividing the transmitted bit stream into frames.
   2) Determining which route through the subnet to use.

6. If the unit exchanged at the data link level is called a frame and the unit exchanged at the network level is called a packet, do frames encapsulate packets or do packets encapsulate frames? Explain your answer.

7. List two ways in which the OSI reference model and the TCP/IP reference model are the same. Now list two ways in which they differ.

8. What is the main difference between TCP and UDP?

9. Why does ATM use small, fixed-length cells?