1. What are two most commonly used techniques in spread spectrum?

Ans:

a. Frequency hopping

b. Direct Sequence

2. What is *CSMA/CD*? Give a brief explanation?

Ans:

Carrier Sense: All the nodes can distinguish between an idle and a busy link.

Multiple Access: A link can be shared by many nodes.

Collision Detect: A node listens as it transmits and can therefore detect when a frame it is transmitting has collided with a frame transmitted by another node.

3. Why do we need to restrain "the minimum size" of the Ethernet frames?

Ans:

We need to *Keep the Pipe Full*, because it will be easy to detect *which* frame transmitted has collided with another.

4. What is Stop-and-Wait problem?

Ans:

The main shortcoming of the stop-and-wait algorithm is that it allows the sender to have only one outstanding frame on the link at a time, and this may be far below the link's capacity.

5. Show the NRZ, Manchester, and NRZI encoding mechanisms for the following bit pattern: 1001_1111_0001_0001. Assume that the NRZI signal starts out low.

Ans: