1. What is crosstalk? How is it minimized in case of twisted pair of wire?

Ans: Crosstalk is a disturbance caused by the electric or magnetic fields of one telecommunication signal affecting a signal in an adjacent circuit. The phenomenon that causes crosstalk is called electromagnetic interference (EMI). It can occur in microcircuits within computers and audio equipment as well as within network circuits.
When the twisting is done equally, the interference is cancelled out with one another because of the twisting.

2. Why two separate frequencies are used for uplink and downlink transmission in case of satellite communication?

Ans: The main reason for using two different frequencies for uplink and downlink transmission to avoid interference of signal with one another. There are other reasons also like to avoid loss of data due to thermal noise.

3. Differentiate Circuit Switching and Packet Switching:

Circuit Switching	*Packet Switching*
Call Setup is required	Not required
Has a dedicated physical path	No dedicated path
Data packets arrive in order	No order in packet delivery
Fixed bandwidth is available	It has dynamic(flexible) bandwidth
Packets follow the same route	Same route may not be followed
There is a waste of bandwidth if the no of packets are less	No such waste happens

4. What is the answer to Exercise 2.7 from Section 2 of our textbook ***with this change: the 4th transmission (B sends to D) does not occur****?*

Ans: When A sends to D, all switches use fallback-to-flooding as no switch knows where D is. All switches S1-S4, though, learn where A is.

When D sends to A, S2 knows where A is and so routes the packet directly to S1, which also knows where A is. S3 and S4 do not learn where D is.

When A sends to B, all switches again use fallback-to-flooding, but no switch learns anything new:

switch	known destinations
S1	AD
S2	AD
S3	A
S4	A