## Answer 1:

- a) Yes, Y's adapter will still receive and check these frames because they are sent over the same broadcast LAN.
- b) No, y's adapter will not pass the datagrams in these frames.
- c) If X sends frames with the broadcast MAC address. Then Y's adapter will pass the datagrams in these frames because broadcast frames are delivered to all devices on the LAN. If the frames contain datagrams that are intended for Y, then Y's adapter will pass them to the network layer of Y.
- d) The number of possible MAC addresses is 2^48, which is approximately 281 trillion.

## Answer 2:

- a) It will be discarded by all devices on the network, In other words the receiving device drops the frame.
- b) They use cyclic redundancy check (CRC) for error checking.
- c) The preamble consists of 56 bits (seven-byte) pattern of alternating 1s and 0s that serves to provide bit-level synchronization between devices on the network, allowing them to easily synchronize their receiver clocks and mark the beginning of a new incoming frame.
- d) In half-duplex mode, data can only be sent and received at different times, whereas in full-duplex mode, both can be sent and received simultaneously.
- e) Autonegotiation fails when a device set to auto-negotiation is connected to a device not set to auto-negotiation. Autonegotiating is still capable of detecting the speed of the other end of the connection, but cannot correctly detect duplex mode.

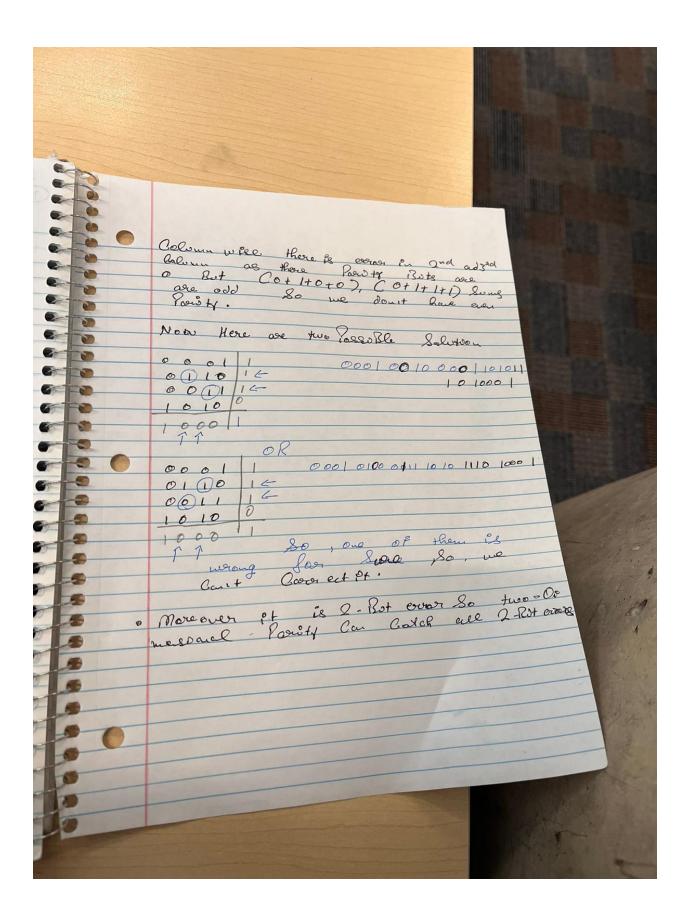
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