Module-2. Q.B. Data Link Layer.

1. Explain Hamming Distance for error checking and error detection with an example.

2. Generate a codeword using CRC methods.

   1> Dataword = 1001
   Divisor = x^3+x+1

   2> Dataword = 1001
   Divisor = CRC-CCITT standard polynomial
   $(x^{16}+x^{12}+x^5+1)$

3. With an example explain simulation of division in CRC encoder

4. Explain Checksum method with an example.

5. Explain the following.
   i> Bit oriented framing ii> character oriented framing

6. With the help of Finite state machine (FSM) diagram explain Stop-and-Wait Protocol.

7. Explain HDLC frames
   i> I-frame ii> S-frame iii> U-frames

8. With neat diagram explain transition phases in Point-to-Point protocols.

9. Discuss the following protocols in multiplexing.

i) link control Protocols (LCP)

ii) Authentication Protocols
- ↳ PAP
- ↳ CHAP

ii) Network control Protocols
- ↳ IPCP
- ↳ multilink PPP.

10. Explain following Random Access Protocols
- ↳ ALOHA
- ↳ Slotted ALOHA
- ↳ CSMA
- ↳ CSMA/CD
- ↳ CSMA/CA

11. Explain following Controlled Access Protocols
- ↳ Reservation
- ↳ Polling
- ↳ Token passing.