



P

2

(6)

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(c)

Ans-

Flow Control :- Flow control observes the proper flow of the data from sender to receiver.

Error Control :- observes that the data delivered to the receiver is error free & reliable.

(d)

Ans

(HDLC) is a group of communication protocol of the data link layer for transmitting data.

(HDLC) Stations (NRM) :- It is used for both point to point & multipoint communication. (ARM) It is used for only point-to-point communication.

(Frame) (i) Flag :- It is an 8 bit sequence (01111110).

(g)

Ans

It is a unidirectional protocol in which data frames are travelling in only one direction from the sender to receiver. The data link layer of the receiver immediately remove the header from the frame & hands the packet to its network layer.

(ii) Address :- it contains the address of the receiver.

(iii) Control :- it is 1 or 2 containing flow & error info.

(iv) Payload :- This carries the data for network layer.

(v) FCS :- It is a 2 byte or 4 frame check sequence for error detection.

(3)

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(h)

Q2  
Ans

Differential encoding is a digital encoding technique where by a binary value is denoted by a signal change. (NRZL) is a data encoding scheme in which a negative voltage is used to binary one & a positive voltage is used to represent binary zero. → → → ↓

Q2

(i)

Ans

Before using the destination address in an intermediate or the destination node the packet goes through error checking that may help the node find the corruption (with a high probability) & discard the packet. Normally the upper layer protocol will inform the source to resend the packet. ↓

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Q3

A device sending data at the rate of 1 Mbps ↓

$$8 \times (1/1000,000)$$

$$\times 8 \times 0.000001$$

$$0.000008 \text{ sec}$$

(NRZI) maintains a constant voltage pulse for the duration of a bit time. The data values are encoded, as the presence or absence of signal transition at the beginning of the bit time. ↓

(4)

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(iii)

Ans

$$C = B \times \log_2(1 + \text{SNR})$$

$$100 \times 10^3 = 4 \times 10^3 \log_2(1 + \text{SNR})$$

$$\log_2 \times 10^3 = 4 \times 10^3 \log_2(1 + \text{SNR})$$

$$\log_2(1 + \text{SNR}) = 25$$

$$1 + \text{SNR} = 2^{25}$$

$$\text{SNR} = 2^{25} - 1 = 33,554,431$$

$$\boxed{\text{SNR}_{\text{dB}}} = 10 \log_{10}(33,554,431) = 75 \text{ dB}$$

Q3

(i)

With manchester, encoded binary stream there is a transition at the middle of each bit period.

Result:- 1110011010