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Subject: (1) Date:

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Q1 a,

In The OSI reference model, the communication between a computing system are split into seven different abstraction layers

1 Physical
2 Data link
3 Network
4 Transport
5 Session
6 Presentation
7 Application

No, Network are not support layer Transport is support layer

b,

1. attenuation
2. delay distortion
3. Noise

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c,

The Shannon theory tells the maximum rate at which information can be transmitted over a communication channel of a specified bandwidth in the presence of noise

d,

Flow Control is the mechanism for maintaining the proper transmission from the sender to the receiver in data-communication

Error Control is the mechanism of delivering error-free & reliable data to the receiver in data-communication

e,

Piggybacking is used to improve the efficiency of bidirectional transmission. When a frame is carring a data from A to B, It can also control information about frames from B. When a frame is carring data from B to A, It can also carry information about frames from A.

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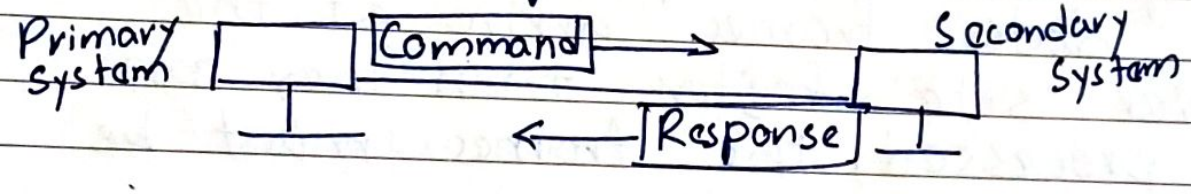
f,

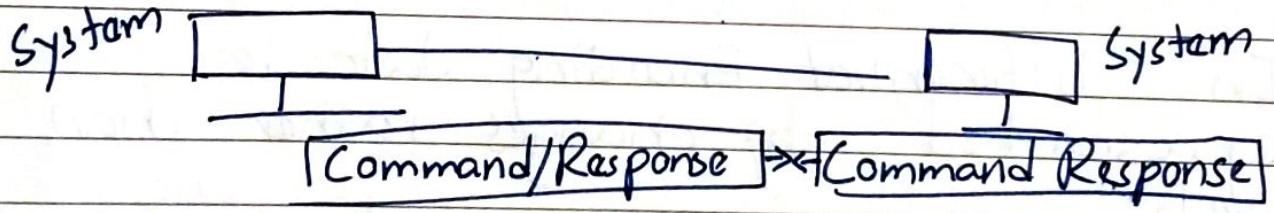
High level Data link Cortroll is a group of communication protocols of the data link layer for transmitting data between network points of nodes

Transfar Modes:

Normal Response Mode:



Asynchronous Balanced Mode:



HDLC Frames:

Flag
Address
Cortrol
Payload
FCS

HDLC Frames

Flag	Address	Cortrol	Payload	FCS	Flag
1 byte	1 byte	1 byte	Variable	2/4 bytes	1 byte
01111110					01111110

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g,
Simplest Protocol:
Its a unidirectional protocol in which data frames are trakaling in only one direction from sander to racivar
Stop and Wait protocol:
If data frames arrive at the reciver site faster than they can be processed, the frames must be stored until their use.

h,
In differential Encoding data is represanted by changes rather than Levels
Non return-to-zero-laval (NRZ-L) is a data encoding scheme in which a negative voltage is used to represent binary one & a positive voltage is used to represant binary zero
NRZI maintain a constant voltage pulse for the duration of a time bit.

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1 Unipolar (NRZ scheme)
2 Polar (NRZ-L, NRZ I, RZ)
3 Bi polar (AMI, Psedoternary)
4 Multi level
5 Multi transition

Q2

i,

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 probabitily and discard the packet, Normally the upper layer protocol will inform the source to resend the packet.

j,

Bit rate is the number of bits per second that is bit rate = bits/sec

1000000 bits are sent for 1 sec, therefore 8 bits require 8/1000000 = 0.000008 sec

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(6)

K,

$C = B(SNR_{dB}/3)$ or $SNR_{dB} = (3C)/B$

we can say that the minimum

$SNR_{dB} = 3 * 100Kbps / 4Khz = 75$

The minimum

$SNR = 10^{SNR_{dB}/10} = 10^{7.5} = 31,622,776.$

L,

with manchester, there is always a transition in the middle of a bit period.

11 10 01 11 01 0

M,

The desired number of the next frame that the secondary station predict to receive N(R) is 2 (0 1 0) in binary.