NAME : M. SAMEED KHAN
ID : 6843
Subject : CCN
Section : 'B'
Semester : 8th

Q1 Briefly describe

(a) Briefly describe the layers in the internet model and the Internet Support layers?

ANSWER

physical, data link and network layers are network Support layers are session, presentation and application layers are user Support layers. The Support layers link these by segmenting and rearranging the data.

Q1

(b) Describe three types of transmission impairment.

ANSWER

There are three types of transmission impairments

(1) Attenuation.

Attenuation the Signal lossess Some part of energy where the amplitude of the Signal may decrease.

(2) Delay Destoraction

Is the change in the wave form of the Signal due to noise

(3) Noise.

(c) What does the shannon Capacity have to do with Communication?

ANSWER

Shannon Information Capacity C has long been used as a measure of the godness of electronic Communication channels. It Specifies the maximum rate at which data Can be transmitted without error if an appropriate Code is used (it took nearly a half-Century to find Codes that approached the Shannon Capacity.

Q1

(d) Compare and Construct flow Control and error Control.

ANSWER:

The main difference between the flow Control and error Control is that the flow Control observes the proper flow of the data from Sender to reciver on the other hand, the error Control observes that the data delivered to the reciever is error free and reliable.

To ensure reliable Communication there need to exist flow Control, error Control and flow and error Control.

Q1 (6) Explain piggybacking and its usefulness. In which layer of OSI is it used and why?

ANSWER

Piggybacking is sometimes referred to as Piggi Squatting. The usual purpose of piggybacking is simply to gain free network access rather than any malicious intent, but it can slow down data transfer for legitimate user of the network.

Piggybacking improves the efficiency, better use of available channel bandwidth. A similar concept is very common in Computer Networks called piggybacking. In piggybacking the sender send the data packets along with the acknowledgement. If any acknowledgment needs to send at the time of transmission of the data packet.

Q1 (7) Briefly HDLC w.r.t station types, transfer modes, frame types supported and flag field purpose?

ANSWER:

There HDLC station types. The three HDLC station types are:

- Primary station
- Secondary station

- Combined station
- Configuration and Transfer Modes
- Normal Response Mode
- Asynchronous Balanced Mode
- Frames

All frames carry a field of size 1 bit which is known as the "poll/final" bit and is used by the checking point procedure to verify correct transmission. HDLC defines two formats of frames which carry sequence Numbers. These types of frames are used to provide the reliable data link service.

HDLC is a group of link (layer 2) protocols used to transmit synchronous data packets between points to point nodes.

Q1
(9) Brief the Protocols. for noiseless channels?

ANSWER

Stop - and - Wait protocol is data link layer protocol for transmission of frames over noiseless channels. it provides unidirectional data transmission with flow control facilities but without error control facilities.

* Noiseless Protocol:
It is unidirectional protocol in which data frames are travelling in only one direction from the sender to receiver.

Q1(h): What is differential encoding? Also Explain the difference between NRZ-L and NRZI. And name the Coding Schemes of multilevel binary and bi-phase

ANSWER:

* Differential Encoding:
In digital communications, differential coding is a technique used to provide unambiguous signal reception when using some types of modulation.

* NRZ-L and NRZI:
The level of the voltages determines the value of the bit, typically binary 1 maps to logic-level high, and binary 0 maps to logic-level low, and for NRZ-I (NRZ-Invert), two level signal has a transition at a boundary if the next bit that we are going to transmit is a logical 1, and does not have.

* Unipolar (e.g NRZ scheme)
* Polar (e.g NRZ-L, NRZ-I, RZ, and Bi phase)
* Bipolar (eg AMI and Pseudoternary)
* Multilevel
* Multitransition.

Q2: (i) Suppose a Computer Sends ... How Can a Sourse Computer be Informed of the Situation?

ANSWER

*

Before using the destination address in an intermediate or the distination ~~Code~~ node, the packet goes through error checking that may help the node find the Corruption (with a high probability) and discard the packet. Normally the upper layer protocol will inform the Sourse to resend the packet.

Most protocols issue a Special error message that is Sent back to the Sourse in this Case.

Q2(j) A device is Sending Out data at the rate of 1 Mbps. How long does it take to Send Out a Single character (8 bits)?

ANSWER:

Step by Step Solution

Bit rate is the number of bit per Second, then its bit rate = bit/Sec

a) 1000 bits are sent for 1 Secs
Therefore 10 bits require 10/1000
= 0.01 Sec.

(b) How long does it take to send out a single character (8 bits)?

(8/1000) = 8 ms = 0.008 s

Q2 (K) We have a channel with 4 KHz bandwidth. If we want to send data at 100 Kbps. What is the minimum SNR_{dB}? With is SNR?

ANSWER:

~~We can say that the minimum ... 100Kbps ... =0.75#~~

We can use the approximate formula

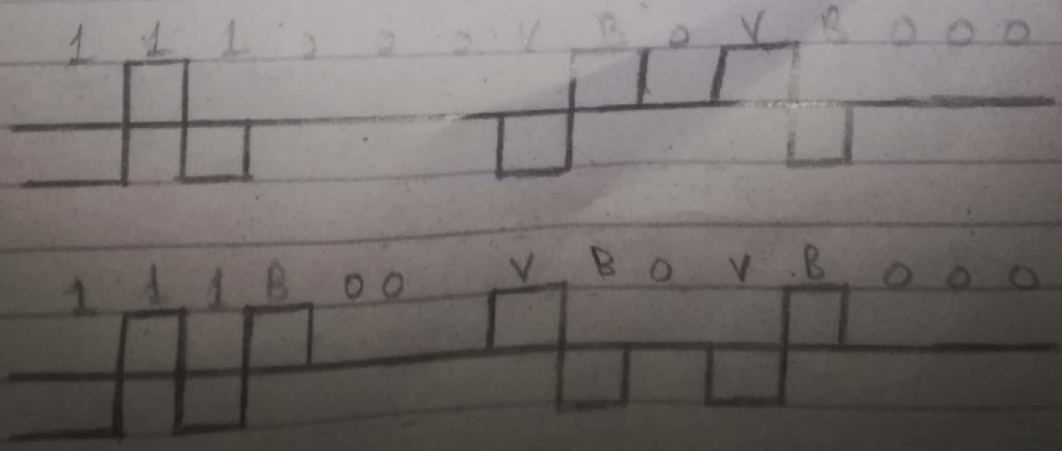
$C = B(SNR_{dB}/3)$ or $SNR_{dB} = (3C)/B$

We can say that the minimum

SNR_{dB} = 3 * 100Kbps / 4 KHz = 75#

This means that the minimum

$SNR = 10^{SNR_{dB}/10} = 10^{7.5} \approx 31,622,776$#



* What is SNR?

Signal to noise ratio is a measure used in Science and engineering that Compares the level of a desired Signal to the level of background noise

Q3(1) The waveform here belongs to a manchester encoded binary data stream. Determine the beginning and end of a bit periods (i.e extract clock Information) and give the data sequence.

ANSWER:-

In the manchester encoded binary data stream, transition occurs in the middle of each bit period. The mid bit transition in the data stream serves as a data bit and clock period.

1 1 1 1 0 0 1 1 0

The bit stream is :- 11110011 0

Q5 (M) Assume that the primary HDLC ~~- - - - - - -~~ Assume error-free operation.

ANSWER

Assume that the primary HDLC station in NRM has sent six-i frames to a secondary. The primary & # 39;s N(S) count was three (011 binary) prior to sending the six frames. If the poll bit is on in the sixth frame, what will be the N(R) count back from the secondary after the last time frame? Assume it.