

Department of Electrical Engineering

Assignment

Date: 14/04/2020

Course Details

Course Title: _____

Instructor: Zulqarnain

Module: _____

Total Marks: _____

Student Details

Name: Uzair Khan

Student ID: 13909

Part A (Objective Type)

1. _____ is the regulation of the amount of data that can be sent.
 - a. Line Discipline
 - b. Flow Control
 - c. Error Control
 - d. All of the above

2. Forty-five physical channels link _____ devices arranged in a mesh topology.
 - a. Nine
 - b. Ten
 - c. Twelve
 - d. Fifteen

3. Signals reflection at the taps can cause signal degradation in a _____ topology.
 - a. Ring
 - b. Bus
 - c. Mesh
 - d. Star

4. _____ layer allows a process to add synchronization points into stream of data.
 - a. Network
 - b. Transport
 - c. Presentation
 - d. Session

5. If the maximum value of a simple sine wave is 10 volts, the minimum value is _____ volts.

- a. 10
 - b. 5
 - c. Square root of 10
 - d. -10
6. Choose the correct association between a device and its functionality
- a. Computer Printer
 - b. CPU Input
 - c. LCD Input
 - d. Modem Modulation and Demodulation

Fill in the Blanks

- 7. Baud rate is always less than or equal to ____ rate.
- 8. Stop-and-wait is a ____ technique.
- 9. A ____ is uniquely identified by an IP address and a port number.
- 10. In ____ layer of TCP/IP model port address are defined.

Part B (Subjective Type)

Q1	<p>In terms of OSI Model please explain the role of Shayan, Tariq, Nawaz and Danish below with proper examples. (5)</p> <table border="1" data-bbox="709 326 1465 727"> <thead> <tr> <th data-bbox="709 326 1037 363">Sender</th> <th data-bbox="1037 326 1465 363">Receiver</th> </tr> </thead> <tbody> <tr> <td data-bbox="709 363 1037 418">Andy</td> <td data-bbox="1037 363 1465 418">Application layer</td> </tr> <tr> <td data-bbox="709 418 1037 474">Parvez</td> <td data-bbox="1037 418 1465 474">Presentation layer</td> </tr> <tr> <td data-bbox="709 474 1037 529">Shayan</td> <td data-bbox="1037 474 1465 529">Session layer</td> </tr> <tr> <td data-bbox="709 529 1037 584">Tariq</td> <td data-bbox="1037 529 1465 584">Transport layer</td> </tr> <tr> <td data-bbox="709 584 1037 639">Nawaz</td> <td data-bbox="1037 584 1465 639">Network layer</td> </tr> <tr> <td data-bbox="709 639 1037 695">Danish</td> <td data-bbox="1037 639 1465 695">Data link layer</td> </tr> <tr> <td data-bbox="709 695 1037 727">Paul</td> <td data-bbox="1037 695 1465 727">Physical layer</td> </tr> </tbody> </table> <p>(b) Data is independent of signal levels and it cannot achieve data higher than channel capacity. Please elaborate this statement. (5)</p>	Sender	Receiver	Andy	Application layer	Parvez	Presentation layer	Shayan	Session layer	Tariq	Transport layer	Nawaz	Network layer	Danish	Data link layer	Paul	Physical layer
Sender	Receiver																
Andy	Application layer																
Parvez	Presentation layer																
Shayan	Session layer																
Tariq	Transport layer																
Nawaz	Network layer																
Danish	Data link layer																
Paul	Physical layer																
Q2	<p>Sometimes the sender sent the information to the receiver but the receiver does not receive the exact information which sender sent to it. How to overcome this problem?? (5)</p>																
Q3	<p>For transmitting huge amount of data over long distances which type of technique we usually use? Explain with the help of example. (5)</p>																

1) Flow control is the regulation of the amount of data

2) Forty-Five physical channel link Ten devices arranged in a mesh topology

3) signals reflection at the Taps can cause signal degradation in a Bus topology.

4) The session layer allows a process to add synchronization points into stream of data.

5) If the maximum value of a simple sine wave is 10 volts, the minimum value is -10 volts

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(6) Choose The correct association between
a device and its functionality
(b) CPU input

Fill in The Blanks

(7) Baud rate is always less than or equal
to BIT rate

(8) Stop-and-wait is a Flow control technique

(9) A connected device is uniquely identified
by an IP address and a port number.

(10) In Application layer of TCP/IP model
Port address are defined.

Q(1) In Term of OSI Model please explain

The role of shayan, Tariq, Nawaz and

Danish below with proper examples.

Sender	Receiver
Andy	Application Layer
Pervez	presentation Layer
shayan	session Layer
Tariq	Transport Layer
Nawaz	Network Layer
Danish	Data Link Layer
Paul	physical Layer

Ans => OSI model => open system interconnection

-> There are seven Layer

- (1) Application Layer
- (2) presentation Layer
- (3) session //
- (4) Transport //
- (5) Network //
- (6) Data Link //
- (7) Physical //

=> The sending side first send application layer & receiving side firstly receive Physical Layer.

=> Now I'm discussing the role of Shayan, Tariq, Nawaz and Danish.

-> Firstly I discuss role of Shayan.

=> When Shayan receive Document from Presentation Layer (Pervez) for example his company name (x.y.z) in Peshawar. & This document consist of 300 pages then Shayan see the file which consist of 300 pages, now Shayan will send this document to another company in Karachi. so Shayan first call to company and asking is company open. so another company reply him yes or no.

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- If company is open then shayan
tell him i will sent you document
which consist of 300 pages. when
you recieve this so kindly call me
back. so after this process shayan
give this 300 pages document to
Tariq.

=> Role of Tariq => when Tariq see
this document. He thinking

this document is very important so
Tariq divide this 300 pages in bundled
~~then~~ the one bundled consist of
100 pages so it will become 3
bundle. The Aim of divide this into
3 bundle. if one bundle is lost
so the two bundle will reached.

Role of Nawaz =>

Nawaz handled this 3 bundled
from Tariq and put some
address on each bundled. after that
Nawaz give this to Danish

Role of Danish =>

Danish receive 3 bundled from
Nawaz, and sealed on this
3 bundled Document. So no
see the document.

(B) Data is independent of signal levels and it cannot achieve data higher than channel capacity please elaborate this statement

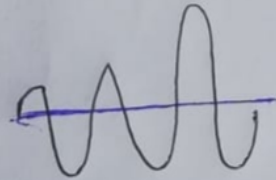
Ans => $Capacity = bandwidth \times \log(1 + SNR)$

=> In this formula, bandwidth is bandwidth of the channel, SNR is the signal-to-noise ratio, and capacity is the capacity of the channel in bit per second. In the Shannon formula there is no indication of the signal level, which means that no matter how many levels we have, we cannot achieve a data rate higher than the capacity of the channel.

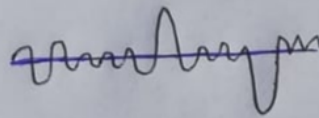
Q2) Sometimes the sender sent the information to the receiver but the receiver does not receive the exact information which sender sent to it. How to overcome this problem?

Ans => When a signal transmit from one medium to other, the signal that is received may different from the signal that is transmitted due to various impairment. Like, Noise, Distortion, Attenuation

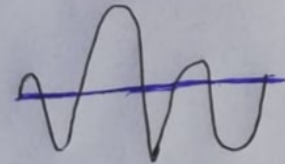
Noise =>



Transmitted



Noise



Receiver

=> Thermal noise, induced noise, impulse noise may corrupt the signal

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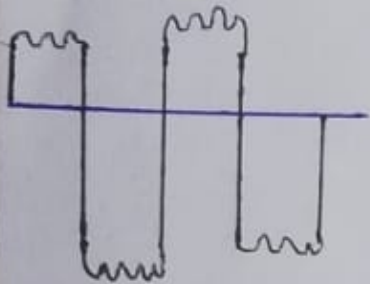
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Distortion => Distortion means signal

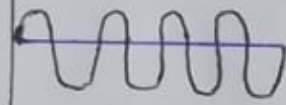
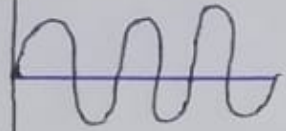
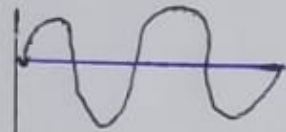
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changes its form of shape

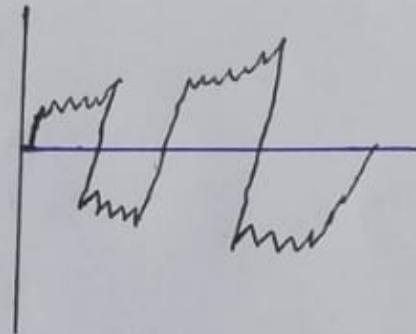
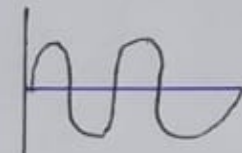
At Sender



composite
signal sent



At Receiver

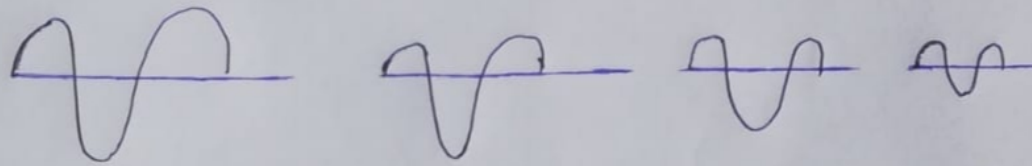


composite
signal receive

Attenuation \Rightarrow Any Loss in the strength on
 " - " - " - " -
 The signal because of resistance
 of the medium is called as
 attenuation.

Sender

Receiver



Q3) For transmitting huge amount of data
 over long distances which type of
 technique we usually use? Explain with
 help of examples.

Ans \Rightarrow Broadband is a technique to
 transmit large amount of data such as
 voice and video over long distance.
 \Rightarrow it can send data by modulating
 each signal onto a different
 frequency