

Department of Electrical Engineering

Assignment

Date: 14/04/2020

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Course Details

Course Title: Module: Instructor: Engr. Zulqarnain Total Marks: \_\_\_\_\_

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Student Details

Name: ABDUL HASEEB Student ID: 6988


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Part A (Objective Type)


1. b 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 B 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 B topology.

- a. Ring
-  b. Bus
- c. Mesh
- d. Star

4. D 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 0 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 THE BIT rate.

8. Stop-and-wait is a FLOW CONTROL technique.

9. A CONTACTED DEVICES is uniquely identified by an IP address and a port number.

10. In APPLICATION\_layer of TCP/IP model port address are defined.

Q In term of OSI model and

Role of Shahn Tariq Anis Nawaz

Danish Paul

Sender

Receiver

Anis

Application Layer

Nawaz

presentation Layer

Shahn

Session Layer

Nawaz

Network Layer

~~Anis~~ Tariq

Data Link Layer

Paul

physical Layer

OSI model

Open System Interconnection

=> There are seven layer in OSI model

1) Application Layer

2) presentation Layer

3) Session Layer

4) Transport Layer

5) Network Layer

6) Data Link Layer

7) Physical Layer.

=> The sender 1st side Layer is

Application Layer

=> The receiver 1st side Layer is

Physical Layer.

Story of OSI model

=> It is a company based on Pakistan.

and "To employ work on the

Company

Role of Anday

Head officer of the

Company is Anday and.

he understand the french

Language.

Role of parviz

Andy said to

parviz There are "400" pages

Document and these 400 pages

Document transfer to X.Y.Z

Company Islamabad parviz has

received in 400 hundred page

Document. and parviz are see

this 400 page Document. So

these 400 page are be L

Written in french ~~Language~~

Language. and these Company

send this Document. So that

~~Company~~ Company are not

Understand Franchy Language

Language. this Company will

be understand English Urdu

Language. So parviz transfer

these You file etc in English

And then parviz handed the

Document to Shayn

Role of Shayn :->

When Shayn

See this file. this "You, file

A Document is going to perh-  
civar to Islamabad X.Y.Z

Company. So Shayn call him

X.Y.Z. Company Islamabad and

Shayn said. Your Company is

open He said Yes. ON

When time is open

⇒ He said 8 PM and shayn  
said. Before 8 o'clock today a  
document will arrive at your  
company and when you get  
this file you page please call  
me.

Role of Tarq :

and then shayn  
the 400 hundred file handle  
on tarq. When tarq see  
this. He said this file is  
very important. and then  
tarq the 400 page are  
bundled on 100, 100, 100, 100  
pages. and it will become  
"400 bundled. If one will

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will lost the remaining 3  
bundle will reached.

Role of NAWAZ

and then Tanaj

these 400 page handled to

NAWAZ. So NAWAZ put the

address address [to, m, from]

on these bundle

Role of Danish →

and then NAWAZ

handled by these 400 page

Document on Danish. and

Danish are sealed on this

4 bundle Document. So that

No one sees it Document



PAK = 7 ID = 6988  
Paul You

and then Danish  
handled to Paul and then  
Told him You will had to  
go will get Paul You will  
go from motor way. Because  
You will get there fast

=> and the document reach in  
Istanbul and give the document  
to reception department (physical  
layer)

=> and then reception department  
this document transfer to int-  
department (Data link layer) and  
see this file the four file  
bundled he be secured. this  
mean no one has seen this

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file So we will send this

file on "3rd. Department (Network)

So he checks the address. <sup>Layer</sup> ok

this is over Company Address. and

send this file in the "4th,

Department. (Transport) He convert  
<sup>Layer</sup>

4 bundles in the one bundle

and then send to "5th. (session)  
<sup>Layer</sup>

and he see the document and

call to restaurant Company. Your

file ["4000 page] has been reach

reached. the connection between

these two Company is ended

and the send file of 6th

Department. No he want id

he will read this file  
are now.

[End of Story]

## Application Layer

It's enable the user (human) software to use the network

### Function

=> Network virtual terminal

=> file transfer and management

=> email services

=> Directory services

## Presentation Layer

It deal with syntax and semantics of the information exchange b/w two system

### function

Transaction / Encryption / Compression

=> 37

Session Layer

Dialog Control

function

=> Synchronization

Transport Layer

responsible for

Process delivery.

function

1) Service point addressing.

2) Segmentation and

reassembly.

Network Layer

responsible for

Source destination delivery of packet

=> function

logical addressing : routing.

## Data Link Layer

It transforms the physical layer in to reliable link.

function

framing.

physical addressing.

flow control

error control = ~~error~~

~~access~~ control

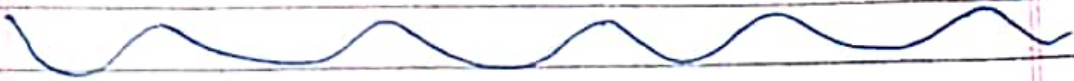
## Physical Layer

the physical layer deal with bit level transmission between different device and

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electrical or mechanical interface

connecting to the physical medium  
for synchronization.



Q Question No 1 PART B.

The performance over a communication link is measured in term of capacity which is defined as the maximum rate at which the information can be transmitted over the channel with arbitrarily small amount of error

It was widely believed that the only way for reliable communication over noisy channel is to reduce the error probability as small as possible which is turn is achieve by reducing the data rate. This belief was changed in 1948 with the advent of information theory

Claude E. Shannon. Shannon showed

that it is in fact possible to communicate at a positive rate and at the same time maintain a low error probability as desired.

However, the rate is limited by maximum rate is called channel capacity.

If one attempts to send data at rates above the channel capacity, it will be impossible to

receiver. It can be from error. This

is called Shannon's noisy channel coding theorem.

Coding theorem.



Q Question No = 2

These problem over come when

We data transmit sender to receiver

=> A ~~Control~~ Condition when receiver

Information does not match with the

sender information. During Transmission

digital signal suffer from noise

that that can introduce errors in

the binary bits traveling from

sender to receiver

=> That mean a 0 bit may change

to 1 or 1 may change to 0

Example :-



these ones will change on 0 zero.

=> These ~~are~~ ~~three~~ type of error

Come to the data transmission

when ~~the~~ the receiver does not

receive exact information.

1) Single Bit Error

When there is a

change in only one bit of sender

to receiver, is called -

Single bit error

Example :-

If the sender sends

10101 but the receiver receive 10011

(1011 sent bit)  $\rightarrow$  1001 received, Bit

Burst Error

When there is a

change in two or more bit of

the sender's data (i.e. is called)

burst error

(1011 sent bit)  $\rightarrow$  (1000 received)

Q. Question No = "3",

A. Ans

For transmitting huge amount of data transfer over long distance

WAN method are ~~be~~ use

wide area network & Data ~~Transmit~~

Transmission

= OR

for long data transmitted we can ~~use~~ use are fiber optic wire

A fiber optic cable is a

network cable that contain strands

strands of glass fiber inside an

insulated of glass fiber inside

in insulated casing. They are

Design for long distance high

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data networking. Compared to  
wired cables. fiber optic cable  
provide higher bandwidth and it  
transmit data over long distance.