1- Define line Configuration and give its types
It refers the way two or more Communication devices attach to a link
Types : Point to Point → limited a pair of nodes
Multipoint → two or more nodes share a single Physical Link

2- Mention the different Physical Media
Twisted Pair - Coaxial Cable - Optical fiber - Space

3- Define topology and mention the types of topologies
The physical or logical arrangement of links in a network
Types → Mesh - star - Tree - Bus - Ring

4- What are the three criteria necessary for an effective and efficient network?
Performance of the network depends on number of users
Reliability is measured by frequency of failure
Security issues include protecting data from unauthorized access and viruses

5- What is LAN
It is common name used to describe a group of devices that share a geographic location. LAN is limited to single building

6- What is meant by simplex, full duplex and half duplex in data transmission?
half duplex transmission only one entity can used send at a time, full duplex transmission both entities can send at the same time

7- What is the difference between Computer network and distributed system
The key distinction is that in a distributed system, A Collection of independent Computers appears to its users as a single Coherent system.

Sheet2

Page: Date:

1- Compare between hub and switch

A switch sends the digital signal further on in the network
A hub sends packages of data between them and send to all nodes

2- What is the main difference between switch and bridge

Switch are sometimes known by the obvious name of LAN switches
bridge simply accept LAN frames on their inputs and forward them out on all other outputs

3- What is the function of modem and Gateway

Modem is a modulator and demodulator device working at the physical layer to convert the signal into steam of 0s and 1s
Gateway connecting two lans with different communication protocols

4- What is the relation between router and switch?

Switch sends the digital signal further on in the network
router search for the best path for trans mission

5- What is the function of wireless access point?

To transmit the signal at the surrounding area

6- What are the three Elements of communication?

Devices suchas computer, channels suchas fiber optics and protocols to set up rules of communication

7- List the TCP/IP layers in order and the type of this model, reference or protocol

The TCP/IP is a protocol model consists of...

Application	Represent data to the user
Transport	Supports communication between diverse
Internet	Determines the best path through the network
Network access	Controls the hardware devices.

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8- Group the OSI layers by function

seven layers of OSI model belonging to three subgroups physical, Data link and network layers - network support layers session, presentation and Application layer - user support layers Transport layer - end-to-end reliable

9- How the Application layer is represented in TCP/IP and OSI Models?

Either as a ~~signal~~ single layer in TCP/IP or 3 different layers at the OSI model which are session, presentation, Application

10- What are the features provided by layering

It decomposes the problem of building a network

It provides more modular design

To add new service

11- Describe the role of each layer in the TCP/IP Model Soulation Question 7

OSI Model Application, presentation, session, Transport Network, Data link and physical 12

12- What are the responsibilities of data link layer

The data link layer has a number of specific function it can carry out

13- What are the issues in data link layer

framing - Physical addressing - flow control - Error control Access control

14- What is the main difference between Tcp and UDP? 5

Tcp is connection oriented - UDP is a connectionless service

15- What is the difference between Ethernet and wireless networks?

Wireless networks have potential parallelism and in this way differ from Ethernet 18,19

Page: Date:

16- What does 'negotiation' mean when discussing network protocols? Give an example.

Negotiation has to do with getting both sides to agree on some parameters or values to be used during communication. Maximum packet size is one example

17- List two advantages and two disadvantages of having international standards for network protocols.

one advantage is that if everyone uses the standard, everyone can talk to everyone.

A disadvantage is that the political compromises necessary to achieve standardization frequently lead to poor standards.

Sheet 3

Page: Date:

1- Explain UDP & Tcp.

UDP- Connectionless Advantage - Connectionless service
low overhead data delivery pieces

Tcp- Connection oriented more overhead same order delivery
Reliability flow control

2- What is the function of SMTP?

SMTP is used for the transfer of mail messages and attachments

3- How the Tcp Connections are needed in FTP?

FTP uses two Ports: The Control Connection (where commands are send)
is Tcp Port 21 - A data Connection (where data is transfered)
that originates from Tcp Port 20

4- What are the basic components of FTP?

FTP has 3 components Client - user interface
- Control process - data transfer process

5- Define Socket. How it is created

A socket is one endpoint of a two way communication link between two programs running on the network. An endpoint is a combination of an IP address and a port number

6- What are the advantages of using UDP over Tcp?

UDP is a much faster, simpler and efficient Protocol

7- What is Tcp

Transmission Control Protocol (Tcp) a connection oriented communication protocol that facilitates the exchange of messages between computing devices in a network

8- What is a Port

A Port is generally a specific place for being physically Connected to some other device

9- Define Socket address

A saket address is the combination of an IP address and a port number

Page:..... Date:.....

10- Define UDP.

User Datagram Protocol (UDP) A communications protocol that facilitates the exchange of messages between computing devices in a network

11- Why Tcp services are called stream delivery services

Tcp provides process to process communication using port number. stream delivery services Tcp unlike UDP is a stream oriented protocol.

12- Why does UDP exist? Would it not have been enough to just let user processes send raw IP packets?

By using UDP a segment will be delivered correctly to the specified application because UDP uses source and destination ports while raw IP packet doesn't include ports

13

sheet 4

Page: ..... Date: .....

1- Explain the duties of transport layer.
End to end delivery - addressing - flow control - Multiplexing

2- ~~...~~ so in sheet 3 3-4-5-8-11-12-17-20-23

3- Define flow control ~~4-~~ what is flow control
flow control refers to a set of procedures used to restrict the amount of data.

5- Mention the categories of flow control
- stop and wait Send one from at a time
- sliding window Send several frames at a time

6- What are the function of MAC?
MAC sub layer resolves contention for the shared media.

7- What is multiplexing
The job of gathering data chunks at the sources host from different sockets.

8- what is de-multiplexing
The job of delivering the data in a transport layer segment to the correct socket.

9- What is the segment
Transport layer protocol send data as a sequence of packets.

10- List the services of end to end services
- Guarantee Message delivery - Delivery Message
- Deliver at most one copy of each message
- support arbitrarily

11- What are the function of transport layer?
- Breaks message into packets - Connection control
- Addressing - Provide reliability

12- What are the two types of protocols used in transport layer?
- Tcp - UDP

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13- Define Throughput

It is defines as a number of packets passing through the network in a unit of time

14- what are the types of port number used in transport layer?

- Well known port
- Registered port
- Dynamic port

15- Compare Connectionless service & Connection oriented service

In Connection less service there is no connection between transmitter to receiver

In Connection oriented service there is a connection between transmitter

29,30 K28

Sheet 5

Page: Date:

1- Give three examples of Protocol Parameters that might be negotiated when a connection is setup
- The window size
- maximum packet size
- data rate
- timer values

2- Give some afflication for connectionless service and Connection oriented service
file transfer, remote login and video on demand need connection oriented service - Connectionless many forms of remote database access are inherently connectionless with a query going one way

3- What are the responsibilities of network layer?
The network layer is responsible for the source to destination delivery of packet

4- What is DHCP?
The Dynamic Host Configuration Protocol has been derived to provide dynamic configuration.

5- Define ICMP?
Internet Control message Protocol is a collection of error Message

6- What is the need of internetwork
To exchange data between networks

7- What do you mean by ARP
ARP stands for Address resolution Protocol.