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Why EGP not use routing metric??(5)
Answer:- Click here for detail
Although EGP is a dynamic routing protocol, it uses a very simple design. It does not use metrics and therefore cannot make true intelligent routing decisions. EGP routing updates contain network reachability information. In other words, they specify that certain networks are reachable through certain routers. Because of its limitations with regard to today's complex internetworks, EGP is being phased out in favor of routing protocols such as BGP.

how congestion control by tcp?(5)
Answer:- Click here for detail
When a TCP connection first begins, the Slow Start algorithm initializes a congestion window to one segment, which is the maximum segment size (MSS) initialized by the receiver during the connection establishment phase. When acknowledgements are returned by the receiver, the congestion window increases by one segment for each acknowledgement returned. Thus, the sender can transmit the minimum of the congestion window and the advertised window of the receiver, which is simply called the transmission window.

IPv6 addressing (5)
Answer:- (Page 114)
IPv6 uses 128-bit addresses. A 128-bit address includes network prefix and host suffix. An advantage of IPv6 addressing is that it has no address classes i.e. prefix/suffix boundary can fall anywhere.
Following are special types of addresses, IPv6 uses:
Unicast: It is used for single destination computer.
Multicast: It is used for multiple destinations; possibly not at same site.
Cluster: This type of address is used for collection of computers with same prefix; datagram is delivered to one out of cluster.

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define jitter (2)
Answer:- (Page 66)
Jitter is the term used for variance in transmission delays.
Jitter is significance for voice, video and data. In LANs, jitter can occur when a packet is delayed because the network is busy.

define TCP(2)
Answer:-
TCP (*Transmission Control Protocol*) is a set of rules (protocol) used along with the Internet Protocol (IP) to send data in the form of message units between computers over the Internet.

what is meant by the client server paradigm ?(2)
Answer:- (Page 145)
It is used by all network applications. The passive program is called a server and the active program is called a client.

how receiver knows incoming frame is id datagram (2)
Answer:
The sender and receiver must agree on the value used in the frame type field of the frame header in order to know the incoming frame contains an IP datagram.

transit routing (3)
Answer:- rep

why organization does not use single router(3)
Answer: (Page 82)
Organization seldom uses a single router to connect its entire network for two reasons.
• Because the router must forward each packet, the processor in a given router is insufficient to handle the traffic.
• Redundancy improved Internet reliability.

if there is no signal, how sever come to know there is communication arrived(3)

Write a note on IPV6 Addressing.
Answer:- rep

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What are the characteristics of UDP **(5 Marks)**

Answer:- (Page 120)

- It is an end-to-end protocol. It provides application-to-application communication.
- It provides connectionless service.
- It is a Message-Oriented protocol.
- It uses best-effort delivery service.
- It follows arbitrary interaction.
- It is operating system independent

What are multicast routing protocols? Give names of 5 of them. **(5 Marks)**

Answer:- (Page 145)

Several multicast protocols exist. Some of the proposed protocols are:

- DISTANCE VECTOR MULTICAST ROUTING PROTOCOL (DVMRP):
- CORE BASED TREES (CBT):
- PROTOCOL INDEPENDENT MULTICAST_ SPARSE MODE (PIM-SM):
- PROTOCOL INDEPENDENT MULTICAST _ DENSE MODE (PIM-DM):
- MULTICAST EXTENSIONS TO THE OPEN SHORTEST PATH FIRST PROTOCOL (MOSPF):
- CLIENT-SERVER INTERACTION:

Distance Vector Routing **(2 Marks)**

Answer:- (Page 63)

Local information is next hop routing table and distance from each switch. The switches periodically broadcast topology information i.e. destination, distance. Other switches update routing table based on received information.

what stand for MTU, define **(2 Marks)**

Answer:- (Page 107)

Every hardware technology specification includes the definition of the maximum size of the frame data area, which is called the Maximum Transmission Unit (MTU).

why the Internet Multicast Routing is difficult **(2 Marks)**

Answer:- (Page 142)

Internet multicast routing is difficult because internet multicast allows arbitrary computer to join multicast group at any time. It allows arbitrary member to leave multicast group at any time.

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What the basic function of Twice NAT? **(2 Marks)**

Answer:- (Page 131)

Twice NAT is another variant of NAT. it is used with site that runs server. In this process NAT box is connected to Domain Name.

Difference between Static and Dynamic Routing **(3 Marks)**

Answer:- (Page 133)

STATIC ROUTING:

It is one of the forms of Internet routing. In Static routing, the table is initialized when system boots and there is no further changes.

DYNAMIC ROUTING:

In dynamic routing the table is initialized when system boots. It includes routing software which learns routes and updates table. In this way continuous changes are possible due to routing software.

How a receiver know that incoming data is datagram or other **(3 Marks)**

Answer:- rep

what is data stuffing **(3 Marks)**

Answer:- (Page 17)

In general to distinguish between data being sent and control information such as frame delimiters network systems arrange for the sending side to change the data slightly before it is sent because systems usually insert data or bytes to change data for transmission, the technique is known as Data Stuffing.

Message Oriented in UDP **(5 Marks)**

Answer:- (Page 120)

UDP offers application programs a Message-Oriented Interface. It does not divide messages into packets for transmission and does not combine messages for delivery.

Let's discuss its advantages and disadvantages.

ADVANTAGES:

- Applications can depend on protocol to preserve data boundaries.

DISADVANTAGES:

- Each UDP message must fit into a single IP datagram.
- It can result to an inefficient use of the underlying network.

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There are so many multicast protocol, Name only five one of those? (5 Marks)
Answer:- rep

What is Base Header in IPv6? (5 Marks)
Answer:- (Page 112)
Base header is fixed size i.e. 40 octets. NEXT HEADER field in the base header defines type of header and it appears at end of fixed-size base header. Some extension headers are variable sized. NEXT HEADER field in extension header defines type.

What is simple duplex and full duplex? (2 Marks)
Answer:- (Page 76)
Some connection-oriented technologies provide full duplex while other allow on simplex connection. To communicate using a simplex design a pair of computers must establish two connections one from computer A to computer B and another from computer B to A.

What is means by "It provides facilities for Transit Routing."? (2 Marks)
Answer:- Click here for Detail
Facilities For Transit Routing
classifies each AS as a transit system if it agrees to pass traffic through, or as a stub system if it does not BGP allows a corporation to classify itself as a stub even if it is multi-homed (refuse to accept transit traffic)

Does OSPF support for multi access network? (2 Marks)
Answer:- (Page 140)
Yes, OSPF supports for multi access network.

What is difference in NIC and CPU Processing? (3 Marks)
Answer:- (Page 40)
NIC contains sufficient hardware to process data independent of system CPU. In which some NICs contain separate microprocessor. In addition to this it also include analog circuitry interface to system bus, buffering and processing.

What is Extension Header in Ipv6? (3 Marks)
Answer:- (Page 111)
Additional information is stored in optional extension headers, followed by data.

How long TCP Should wait before retransmitting? (3 Marks)
Answer:- (Page 125)
The time for acknowledgement to arrive depends on:
- Distance to destination
- Current traffic conditions

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Multiple connections can be opened simultaneously. Traffic conditions change rapidly.

What is congestion control, How TCP Segment format is done? **(3 Marks)**
Answer: (Page 128)
Congestion control
The goal of congestion control is to avoid adding retransmissions to an already congested network. Reducing the window size quickly in response to the lost messages does it. It is assumed that loss is due to congestion.

TCP Segment format
TCP uses single format for all messages. TCP uses the term segment to refer to a message. Each message sent from TCP on one machine to TCP on another machine uses this format including data and acknowledgement.

Question no. 31 **(2 Marks)**
Find the class in 00000001.001011.1001.111
Answer: (Page 87)
Class A

Question no. 32 **(2 Marks)**
What is the difference between unicast and multicast?
Answer:- (Page 114)
Unicast is used for single destination computer while multicast is used for multiple destinations

Question no. 33 **(2 Marks)**
What is the basic concept of Twice NAT (Network Address Translation)?
Answer:- rep

Question no. 34 **(2 Marks)**
What is the role of DMA in NIC?
Answer:- (Page 34)
It may use DMA to copy frame data directly from main memory and copy data directly into main memory.

Question no. 35 **(2 Marks)**
What is the function of Hope count matrix in routing information protocol?
Answer:- Click here for detail
RIP uses a hop count metric to measure the distance to a destination

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Question no. 36 (Marks2)
What is the scale or level of requirement in of IPv6?
Answer:- (Page 110)
Scale is also dramatically changed. Size from a few tens to a few tens of millions of computers has been revolutionized. Speed has increased from 56Kbps to 1Gbps. Also there is an increased frame size in hardware.

Question No: 37 (3 Marks)
Change the following into equivalent binary
154.31.161.13
202.32.15.7
192.168.1.5

154.31.161.13
Answer:
Binary: 10011010 00011111 10100001 00001101

202.32.15.7
Answer:
Binary: 11001010 00100000 00001111 00000111

192.168.1.5
Answer:
Binary: 11000000 10101000 00000001 00000101

Question No: 38 (3 Marks)
What is the meaning of Facilities for Transit Routing as a characteristic of the Border Gateway Protocol?
Answer:- Click here for Detail
Facilities For Transit Routing
classifies each AS as a transit system if it agrees to pass traffic through, or as a stub system if it does not BGP allows a corporation to classify itself as a stub even if it is multi-homed (refuse to accept transit traffic)

Question No: 39 (3 Marks)
In internet routing how does a host join or leave a group?
Answer:- rep

Question No: 40 (3 Marks)
Name the six services provided by TCP
Answer:- (Page 123)
Following are the services provided by TCP:
- Connection-oriented service
- Point-to-point
- Complete reliability

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- Full-duplex communication
- Stream interface
- Reliable connection startup
- Graceful connection shutdown

Question No: 41 (3 Marks)
In internet routing how does a host join or leave a group?
Answer:- rep

Question No: 42 (3 Marks)
What are the distance limitations in Fiber Optic?
Answer: Page 48
Optical fiber can extend across several kilometers because delays on optical fiber are very low and bandwidth is very high.

Question No: 43 (5 Marks)
What are the three approaches for datagram forwarding?
Answer:- (Page 143)
FLOOD-AND-PRUNE
CONFIGURATION-AND-TUNNELING
CORE-BASED DISCOVERY

Question No: 45 (5 Marks)
Write down the comparison of Distance- vector and Link – state algorithm?
Answer: Page 64

COMPARISON:
DISTANCE-VECTOR ROUTING:
- It is very simple to implement.
- Packet switch updates its own routing table first.
- It is used in RIP.

LINK-STATE ALGORITHM:
- It is much more complex.
- Switches perform independent computations.
- It is used in OSPF.

Define simplex and full duplex connection? (2 Marks)
Answer:- rep

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What are the functions that the IP multicast abstraction allows an application running on an arbitrary computer to do? (2 Marks)

Answer: (Page 142)

It also allows arbitrary computer to send message to a group (even if not a member).

Give the address 130.4.102.1/24, find the number of subnet bits? (2 Marks)

What is the functionality of address resolution software in layering? (2 Marks)

Answer:- (Page 100)

Address resolution software hides ugly details and allows generality in upper layers.

Why we need the variants of NAT? Explain it with the proper reasons? (2 Marks)

Answer:- (Page 131)

Variants of NAT

The basic NAT simply changes IP addresses. But Network Address and Port Translation (NAPT) (which is another modified form of NAT) changes IP addresses and protocol port numbers too. It is the most popular form of NAT.

Twice NAT is another variant of NAT. it is used with site that runs server. In this process NAT box is connected to Domain Name.

What are some of the metrics used by routing protocols? (3 Marks)

Answer:- click here for detail

2 types of metrics used by routing protocols are:

-Hop count-this is the number of routers a packet must travel through to get to its destination

-Bandwidth-this is the "speed" of a link also known as the data capacity of a link

How ICMP can be used to test different tools? (3 Marks)

Answer:- rep

You are working in a Star organization as a network engineer. The existing network comprises of 120 systems. What will be your analysis about delay should it should be smaller or higher? Give reasons. (3 Marks)

ABC industry is using different network technologies in its branches. Can all branches communicate with each other? If No, then give reason? [3]

Which type of NAT fails if an application uses the IP addresses instead of domain name? And why? (3 Marks)

Answer:- (Page 132)

Twice NAT fails if an application uses the IP addresses instead of Domain Name. Because Basic NAT does not work well for communication initiated from the Internet. Twice NAT allows a site to run servers. It requires the DNS to interact with the NAT device.

What are the main advantages and disadvantages of routing information protocol (RIP)? (5 Marks)

Answer:- rep

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Network engineer has three address resolution methods. How many methods does TCP/IP support in a real environment? Write names of methods and support your answer with solid reason? (5 Marks)

Answer:-

Address resolution algorithms can be grouped into three basic categories:

- Table lookup
- Closed-form computation
- Message Exchange

TCP/IP can use any of the three address resolution methods depending on the addressing scheme used by the underlying hardware.

Have any technique used for achieving reliability in TCP? (5 Marks)

Answer:- rep

Why EGP not use routing metric? (5 Marks)

Answer:- rep

What is the difference between an interior gateway protocol and an exterior gateway protocol? Name an example of each. (5 Marks)

Answer:- (Page 135)

INTERIOR GATEWAY PROTOCOLS (IGPs):

It is used among routers within autonomous system. The destinations lie within IGP.

EXTERIOR GATEWAY PROTOCOLS (EGPs):

It is used among autonomous systems. The destinations lie throughout Internet

As the Internet grew, the original Classful addressing scheme became a limitation, what is the designed solution. (5 Marks)

Answer:- (Page 90)

As the Internet grew, the original Classful addressing scheme became a limitation. The IP address space was being exhausted because all networks had to choose one of three possible sizes. Many addresses were unused. Two new mechanisms were invented to overcome the limitations, which are as follows:

- Subnet addressing
- Classless addressing

Instead of having three distinct address classes, allow the division between prefix and suffix to occur on an arbitrary boundary. The classless addressing scheme solves the problem by allowing an ISP to assign a prefix that is, 28 bits long (allowing the host to have up to 14 hosts).

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How can a datagram are transmitted across a physical network that does not understand the datagram format? **(2 Marks)**

Answer:- **Click here for detail**

When an IP datagram is encapsulated in a frame, the entire datagram is placed in the data area of a frame.

Describe the process of routing packets **(2 Marks)**

Answer:- **Click here for detail**

Routing is the act of moving information across an internet work from a source to a destination.

How ICMP can be used to trace a route? **(2 Marks)**

Answer:- (Page 118)

There are two possibilities used to detect the destination.

- Send and ICMP echo request, destination host will generate an ICMP echo reply.
- Send a datagram to a non-existent application, destination host will generate an ICMP destination unreachable message.

What is the basic concept of Twice NAT (Network Address Translation?) **(2 Marks)**

Answer:- rep

What is the scale or level of requirement in of IPv6? **(2 Marks)**

Answer:- rep

What are the three approaches for datagram forwarding? **(3 Marks)**

Answer:- rep

What are the some of the metrics used by routing protocols? **(3 Marks)**

How congestion control by TCP? **(3 Marks)**

Answer:- rep

1: Limitations of parity checking? **(2 mark)**

Answer:- (Page 19)

Parity can only detect errors that change in odd number of bits for example the original data and parity is 10010001+1 (even parity) and the incorrect data is 10110011+1 (even parity). We see that even no. of bits have been changed due to noise so parity checking can not detect this error.

Parity usually is used to detect on bit error.

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2: how can we prove that we have 2,147,483,648 addresses in class A.? **(2 mark)**

Answer:- Click here for detail

In class A, only 1 bit defines the class.
The remaining 31 bits are available
for the address. With 31 bits,
we can have 231or 2,147,483,648 addresses

3: what is meant by the client server paradigm? **(2 mark)**

Answer:- rep

4: why is internet multicast routing difficult? **(2 mark)**

Answer:- rep

5: where should an ICMP message be sent? **(2 mark)**

Answer:- (Page 117)

ICMP message is sent in response to incoming datagrams with problems. ICMP message is not sent for ICMP message.

6: what is the basic concept of twice NAT? **(2 mark)**

Answer:- rep

7: what are the some of the metrics used by routing protocols? **(3 Marks)**

Answer:- rep

8: How can switch virtual network be established? **(3 Marks)**

Answer:- (Page 70)

Each pair of switches in the path communicates to choose a VPI/VCI for their tables. Once the connection is established by the destination, a message is sent back to the originating computer to indicate the SVC is ready. If any switch or the destination computer does not agree to setting up the VC, an error message is sent back and the SVC is not established.

9: Could IP be redesigned to use hardware addresses instead of the 32-bit addresses it currently uses. Why or why not? **(3 Marks)**

Answer:- Click here for detail

No, IP is not redesigned to use hardware addresses instead of32-bit addresses

- IP addresses must have a hierarchical format so, it supports the hierarchical routing
- Hardware addresses such as the 48-bit Ethernet addresses are chosen from a flat address space and have no provision for a “network address” to be used for Internet routing.

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10: Three features of dynamic message method in ARP. **(3 Marks)**
Answer:- (Page 97)

Feature	Type Of Resolution
Useful with any hardware	T
Address change affects all hosts	T
Protocol address independent of hardware address	T, D
Hardware address must be smaller than protocol address	C
Protocol address determined by hardware address	C
Requires hardware broadcast	D
Adds traffic to a network	D
Produces resolution with minimum delay	T, C
Implementation is more difficult	D

11: in internet routing how does a host join or leave a group? **(3 Marks)**
Answer:- rep

12: why TCP is called end to end protocol? **(3 Marks)**
Answer:- (Page 123)
It provides application-to-application communication.
Applications can request a connection. TCP connections are called Virtual Connections. They are created by software only. Internet does not provide software or hardware support for the connections. TCP software modules on two computers create an illusion of a connection.

13: If IPV4 works so well. Why change it? **(5 Marks)**
Answer:- rep

15: Main advantages and disadvantages of Routing Information Protocol. **(5 Marks)**
Answer:- rep

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Question No: 31 (Marks: 2)
Does OSPF only share information within area or does it allow communication between areas?
Answer:- rep

Question No: 32 (Marks: 2)
Define what is extension head in IPv6
Answer:- (Page 111)
Additional information is stored in optional extension headers, followed by data.

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Question No: 33 (Marks: 2)
What is implementation of NAT?
Answer:- rep

Question No: 34 (Marks: 2)
Which wireless standard is used in WIFI technology?
Answer:- (Page 29)
IEEE 802.11

Question No: 35 (Marks: 2)
How ICMP can be used to trace route?
Answer:- rep

Question No: 36 (Marks: 3)
Write a note on "limited connectivity" of Wireless LAN.
Answer:- (Page 29)
In contrast with wired LANs, not all participants may be able to reach each other Because:

- It has low signal strength.
- In wireless LANs the propagation is blocked by walls etc.
- It can't depend on CD to avoid interference because not all participants may hear.

Question No: 37 (Marks: 3)
In internet routing how can a host join or leave group?
Answer:- rep

Question No: 38 (Marks: 3)
Provide three characteristics of UDP?
Answer:- rep

Question No: 39 (Marks: 5)
What is meant by massage oriented interface in UDP also give the advantages and disadvantages of interface
Answer:- (Page 120)
UDP offers application programs a Message-Oriented Interface. It does not divide messages into packets for transmission and does not combine messages for delivery. Let's discuss its advantages and disadvantages.

ADVANTAGES:
• Applications can depend on protocol to preserve data boundaries.

DISADVANTAGES:
• Each UDP message must fit into a single IP datagram.
• It can result to an inefficient use of the underlying network

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Question No: 40 (Marks: 5)
What is the role of OSPF?
Answer:- rep

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