A ---------- Relies on the hardware manufacturer to assign a unique physical address to each network interface.

- ► Static addressing scheme (Page 34)
- ► Configurable addressing scheme
- ► Dynamic addressing scheme
- ► None of the given

An interface for thin Ethernet must have an _____ connector, and must enerate signals according to the_____ specification.

- ► RJ-45, 10 Base T
- ► RJ-45, 10 Base 5
- ► BNC, 10 Base 2 (CS610 Reference Book , Page 21)
- ► BNC, 10 Base T

A system with redundant bridges might have a problem with_____ in the system.

- ► Loop
- ► Filters
- ► Spanning Trees
- ► All given choices

A Bridge can _____

- ► Filter a frame
- ► Forward a frame
- ► Extend a LAN

► Do all (page)

_____ is used for typical data applications (where the data rate may be unknown and bursty) and allows use of whatever bandwidth is available at a given time.

► Constant Bit Rate (CBR) service

► Variable Bit Rate (VBR) service

► Available Bit Rate (ABR) service (Page 71)

► None of the given

ATM assigns each VC a _____ identifier that is divided two parts to produce a hierarchy.

► 21-bit

► 22-bit

► 23-bit

► 24-bit (Page 67)

_____ of TCP/IP layering model, corresponds to basic network hardware.

► Physical Layer (Page 84)

► Network Interface Layer

► Internet Layer

► Transport Layer

_____ places the boundary between the second and third octets

► Class A

► Class B (Computer Networks and Internets, page235)

- Class C
- Class D

UDP and TCP are both_____ layer protocols

- Physical
- Data link
- Network
- Transport (Page 101)

Connection-oriented service, Point-to-point, Complete reliability, Full-duplex communication, Stream interface, Reliable connection startup and Graceful connection shutdown are the services provided by_____

- IP
- None of the given
- TCP (Page 123)
- UDP

_____ protocols of TCP/IP layering model specify how to ensure reliable transfer.

- Physical Layer
- Network Interface Layer
- Internet Layer
- Transport Layer (Page 84)

_____identifies which application program on receiving computer should receive the data

- Logical address
- Source port
- Destination Port (Computer Networks and Internets, page313)
- None of the given

_____ identifies the application program that sent the data.

- Destination Port
- Source port (Computer Networks and Internets, page313)
- Logical address
- None of the given

Which of the following are interior routing protocols?

- RIP
- OSPF
- BGP
- RIP and OSPF

The Border Gateway Protocol (BGP) uses_____ for all communication

- UDP
- TCP
- Both UDP and TCP
- None of the given

_____measures distance in network hops, where each network between the source and destination counts as single hop.

- BGP

- OSPF
- RIP (Page 138)
- None of the given

OSPF is based on____

- Distance vector routing
- Link state routing (Page 140)
- Path vector routing
- Distance vector routing and Link state routing

_____ performs local multicast and uses IP-in-IP encapsulation to send multicast datagrams from one site on the Internet to another.

- Distance Vector Multicast Routing Protocol (DVMRP) (Page 144)
- Core Based Trees (CBT)
- Protocol Independent Multicast_ Sparse Mode (PIM-SM)
- Protocol Independent Multicast _ Dense Mode (PIM-DM)

The length of time required to send a variable length packet is variable and does not require a complicated interrupt scheme to detect completion of transmission.

- True
- False (Page 72)

NEXT HEADER field in the base header defines type of header and it appears at end of fixed-size base header.

- True (Page 112)

► False

Although message exchange can be used to bind addresses, sending a request for each binding is hopelessly inefficient.

► True (Page 99)

► False

Address mask defines how many bits of address are in suffix.

► True

► False (Page 103)

A computer attached to a given network can only communicate with other computers attached to the same network. Is this a problem with multiple networks?

► True (Page 81)

► False

In the 1970s large organizations began to acquire multiple networks. Each network in the organization formed island. Employees needed to choose a computer appropriate for each task. So they needed multiple screens, keyboards and computers.

► False

► True (Page 81)

The term self-identifying is used for Classful IP addresses because the class of the address can be computed from the address_____.

► itself (Page 87)

- prefix
- suffix
- mask

In which method of Address Resolution Protocol the protocol address independent of hardware address?

Were "T" stands for Table lookup, "C" for Closed-form Computation and "D" for Data Exchange?

- T, C
- D
- C
- T, D (Page 97)

Reconstruction of original datagram is called reassembly.

- True (Page 28)
- False

A computer needs a complete stack of protocols to run either a client or a server.

- True (Computer Networks and Internets, page 344)
- False

TCP uses _____ mechanism to control the flow of data.

- door
- window (Page 126)
- acknowledgment

► retransmission

In Direct point to point communication adding the Nth computer requires___ new connections.

►None of the given

►N

►N-1 (Page 23)

► (N2 –N)/2

In ----------, network occupies the smaller area like a room a floor or a building

►LAN (Page 4)

►WAN

►MAN

►None of the given

The third field of the header consists of ------ bit Ethernet frame type.

►48

►32

►16 (Page)

►8

The maximum size of an Ethernet segment is_____

►250 meters

►500 meters (page)

►700 meters

►None of the given

The network with Throughput T and Delay D has a total ---------- bits in transit at a time.

▶D + T

▶D – T

▶ D X T (Computer Networks and Internets, page203)

▶D / T

_____ places the boundary between the first and second octets

▶Class A (Computer Networks and Internets, page235)

▶Class B

▶Class C

▶Class D

Router detects datagram --------- than network MTU and then it splits into pieces and each piece is ----------than outbound network MTU.

▶Larger, smaller (Page 108)

▶Larger, larger

▶Smaller, larger

▶Smaller, smaller

Connectionless service, Message-Oriented protocol, best-effort delivery service, arbitrary interaction & operating system independent are the characteristics of _____

▶TCP

▶UDP (Page 120)

▶IP

▶None of the given

---------- provide Application to application communication it also called end to end communication

▶IP

▶TP (Page 119)

▶RIP

▶None of the given

A routing table contains_____

▶The destination network ID

▶The hop count to reach the network

▶The router ID of the next hop (Page 102)

▶All of the given

Which of the following protocols allows the sender and receiver to enforce polices.

▶RIP

▶OSPF

▶BGP (Reference Book 347)

▶RIP and OSPF

_____measures distance in network hops, where each network between the source and destination counts as single hop.

▶BGP

▶OSPF

▶RIP (Page 138)

▶Non of these

_____ includes a 32-bits address mask with each address, which allows the address to be classful, classless, or subnetted.

▶RIP

▶OSPF (Page 140)

▶BGP

▶None of the given

One repeater ----------, two repeaters ---------- the maximum cable length limitation.

▶Double, triple (Page 49)

▶Double, 4 time

▶half, triple

▶Double, half

ICMP message transport is acted upon by getting ICMP encrypted in IP.

▶**True (Page 117)**

▶False

Like most application programs, a client and server use a transport protocol to communicate.

▶True (Page 146)

▶False

Mapping between a protocol address and a hardware address is called Address Resolution.

▶True (Page 93)

▶False

Address mask defines how many bits of address are in suffix?

▶True

▶False (Page 103)

A single networking technology is best for all needs.

▶True

▶False (Page 81)

In the 1970s large organizations began to acquire multiple networks. Each network in the organization formed island. Employees needed to choose a computer appropriate for each task. So they needed multiple screens, keyboards and computers.

▶False

▶True (Page 81) rep

Router detects datagram---------than network MTU

▶Larger (Page 108) rep

▶Smaller

▶None of given

▶Equal

Information can flow in either or both direction between

▶Clients

▶Clients and servers (Computer Networks and Internets, page 344)

▶Servers

▶None of given

On of the design goals for unicast route propagation is _____.

▶consistency

▶inconsistency

▶stability (Computer Networks and Internets, page 344)

▶dynamic addressing

IPV6 address consists of _____

▶32 Bits

▶64 Bits

▶128 Bits (Page 128)

▶none of the given

UDP offers application programs a Message-Oriented Interface, applications can depend on protocol to preserve data boundaries.

▶True (Page 120)

▶False

In case TCP, retransmission, acknowledgment from a computer on LAN are expected to arrive within

▶Seconds

▶Micro seconds

▶ Milliseconds

▶ Nanoseconds

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.

▶ True (Page 131)

▶ False

A network uses a ------arranges for computers to be connected in a closed loop.

▶ Star Topology

▶ Ring Topology (Page 25)

▶ Bus Topology

▶ None of the given

Protocol addresses are abstractions provided by _____.

▶ hardware

▶ software (Page 93)

▶ operating system

▶ internet

In Direct point to point communication adding the Nth computer requires---- new connections.

▶ None of the given

▶ N2

▶ N-1 (Page 23)

▶ (N2 –N)/2

In Point-to-Point topology there are two topologies.

- ► Tree and Ring
- ► Star and Ring
- ► Star and Tree (Page 5)
- ► None of the given

In ----------, network occupies the smaller area like a room a floor or a building

- ► LAN (Page 4)
- ► WAN
- ► MAN
- ► None of the given

Hardware that calculates a CRC uses two simple components.

- ► AND unit and XOR unit
- ► Shift register and XOR unit (Page 20)
- ► Shift register and AND unit
- ► None of the given

CRC can detect more errors than a simple checksum.

- ► true (Computer Networks and Internets, page 80)
- ► false

The Gigabit Ethernet hardware operates at a rate of --------

- ► 10 Mbps
- ► 100 Mbps
- ► 1000 Mbps (page)

- None of the given

Formally named _____ informally known as the twisted pair Ethernet or TP Ethernet.

- 10 Base 2
- 10 Base 5
- 10 Base T (Page 43)
- None of the given

An interface for thin Ethernet must have an _____ connector , and must generate signals according to the_____ specification.

- RJ-45, 10 Base T
- RJ-45, 10 Base 5
- BNC, 10 Base 2 (cs610 reference book Page 201)
- BNC, 10 Base T

A system with redundant bridges might have a problem with_____ in the system.

- Loop
- Filters
- Spanning Trees
- All given choices

_____ computes shortest paths in a graph by using weights on edges as a measure of distance.

- Greedy algorithm

- Distance vector algorithm
- Dijksta's algorithm (Computer Networks and Internets, page 112)
- Non of the given

Basic LAN technologies such as Ethernet, Token Ring, and FDDI use a _____.

- Connectionless service paradigm (Computer Networks and Internets, page 112)
- Connection-oriented service paradigm
- Both Connectionless and Connection-oriented service paradigm
- None of the given

_____ protocols of TCP/IP layering model specify how to ensure reliable transfer.

- Physical Layer
- Network Interface Layer
- Internet Layer
- Transport Layer (Page 84) rep

An Internet Address (IP address) is a unique _____ binary number assigned to a host and used for all communication with host

- 48-bit
- 32-bit (Page 85)
- 24-bit
- None of the given

The address _____ identifies the physical network to which the computer is attached, while the _____ identifies an individual computer on that network.

- ► prefix , suffix (Page 85)
- ► suffix , prefix
- ► suffix , suffix
- ► None of the given

_____ places the boundary between the first and second octets

- ► Class A (Computer Networks and Internets, page 235)
- ► Class B
- ► Class C
- ► Class D

_____ places the boundary between the third and fourth octets.

- ► Class A
- ► Class B
- ► Class C (Computer Networks and Internets, page 235)
- ► Class D

_____ field of header indicates whether a datagram is a fragment or a complete datagram.

- ► FLAGS
- ► FLAGMENT OFFSET
- ► IDENTIFICATION

► None of the given

_____ provides connectionless service.

► TCP

► UDP (Page 120)

► IP

► None of the given

UDP and TCP are both_____ layer protocols

► Physical

► Data link

► Network

► Transport (Page 101) rep

Connection-oriented service, Point-to-point, Complete reliability, Full-duplex communication, Stream interface, Reliable connection startup and Graceful connection shutdown are the services provided by_____

► IP

► None of the given

► TCP (Page 123) rep

► UDP

_____ protocols of TCP/IP layering model specify how to ensure reliable transfer.

► Physical Layer

► Network Interface Layer

- Internet Layer
- Transport Layer (Page 84) rep

_____identifies which application program on receiving computer should receive the data

- Logical address
- Source port
- Destination Port (Computer Networks and Internets, page313) rep
- None of the given

_____ identifies the application program that sent the data.

- DestinationPort
- Source port (Computer Networks and Internets, page313) rep
- Logical address
- None of the given

The Border Gateway Protocol (BGP) uses_____ for all communication

- UDP
- TCP
- Both UDP and TCP
- None of the given

Which of the following protocols allows the sender and receiver to enforce polices.

- RIP
- OSPF

- BGP (Reference Book 347) rep
- RIP and OSPF

_____ uses distance vector approach to define routing

- BGP
- OSPF
- RIP (Computer Networks and Internets, page332)
- None of the given

ICMP message transport is acted upon by getting ICMP encrypted in IP.

- True (Page 117)
- False

Protocol addresses are abstractions provided by _____.

- hardware
- software (Page 93) rep
- operating system
- internet

These packets serve same purpose on _____ as frames on _____

- Intranet, LAN
- Internet, WAN
- Intranet, WAN
- Internet, LAN (Page 101)

Address mask defines how many bits of address are in suffix?

- True

► False (Page 103) rep

A single networking technology is best for all needs.

► True

► False (Page 81) rep

A computer attached to a given network can only communicate with other computers attached to the same network. Is this a problem with multiple networks?

► True (Page 81) rep

► False

The term self-identifying is used for Classful IP addresses because the class of the address can be computed from the address_____.

► itself (Page 87)

► prefix

► suffix

► mask

Find the class of the address.

10100111 11011011 10001011 01101111

► A

► B (Computer Networks and Internets, page 122)

► E

► C

Find the class of the address:

11110011 10011011 11111011 00001111

- A
- C
- E (Computer Networks and Internets, page 122)
- B

In which method of Address Resolution Protocol the protocol address is determined by hardware address?

Were "T" stands for Table lookup, "C" for Closed-form Computation and "D" for Data Exchange?

- T
- D
- C (Page 97) rep
- T, C

Which method of Address Resolution Protocol requires hardware broadcast?

Were "T" stands for Table lookup, "C" for Closed-form Computation and "D" for Data Exchange?

- D (Page 97)
- T
- C
- T, D

Which method of Address Resolution Protocol resolution with minimum delay?

Were "T" stands for Table lookup, "C" for Closed-form Computation and "D" for Data Exchange?

- ▶ T, D
- ▶ c
- ▶ T
- ▶ T, C (Page 97)

On of the design goals for unicast route propagation is _____.

- ▶ Consistency
- ▶ inconsistency
- ▶ stability (Computer Networks and Internets, page 344) rep
- ▶ dynamic addressing

Propagation multicast routing information differs dramatically from unicast route propagation?

- ▶ True (Computer Networks and Internets, page 335)
- ▶ False

To save traffic, an EGP does not summerize routing information from the autonomous system before passing it to another autonomous system.

- ▶ True
- ▶ False (Computer Networks and Internets, page 329)

In IPv6 the type of address used for collection of computers with same prefix. Are known as_____.

- ▶ Anycast

- Unicast
- Multicast
- Non of the given (Page 114)

Special types of addresses in IPv6 used for multiple destinations; possibly not at same site. Are known as_____.

- Unicast
- Anycast
- Multicast (Page 114)
- Non of the given

UDP offers application programs a Message-Oriented Interface, applications can depend on protocol to preserve data boundaries.

- True (Page 120) rep
- False

Reliability is the responsibility of the _____ layer

- Network
- Datalink
- Transport (Page 123)
- Application

TCP uses _____ mechanism to control the flow of data.

- door
- window (Page 126) rep
- acknowledgment

- retransmission

FDDI can transmits data at a rate of ----------

- 100 million bits per second (Page 31)
- 10 million bits per second
- 1000 million bits per second
- None of the given

Computer networks are often called ---------- because they use packet technology.

- Ethernet
- Switch networks
- Packet networks (Computer Networks and Internets, page 73)
- None of the given

A network uses a ------arranges for computers to be connected in a closed loop.

- Star Topology
- Ring Topology (Page 25) rep
- Bus Topology
- None of the given

An ----------method, the network hardware designers specify how type information is included in the frame and the value use to identify various frame types.

- Explicit frame type (Computer Networks and Internets, page 108)
- Ideal frame type

- Implicit frame type
- None of the given

An interface for thin Ethernet must have an _____ connector , and must generate signals according to the_____ specification.

- RJ-45, 10 Base T
- RJ-45, 10 Base 5
- BNC, 10 Base 2 (cs610 reference book Page 201) rep
- BNC, 10 Base T

A Bridge forwards or filters a frame by comparing the information in its address table to the frame's_____

- Layer 2 source address
- Source node's physical address
- Layer 2 destination address
- Layer 3 destination address

Most WAN systems include a mechanism that can be used to eliminate the common case of duplication routing is called_____

- Hierarchal address
- Default route (Computer Networks and Internets, page 172)
- Shortest path
- None of the given

_____ of TCP/IP layering model, corresponds to basic network hardware.

- Physical Layer (Page 84) rep

- Network Interface Layer
- Internet Layer
- Transport Layer

_____ protocols of TCP/IP layering model specify how to ensure reliable transfer.

- Physical Layer
- Network Interface Layer
- Internet Layer
- Transport Layer (Page 84) rep

_____is called an end-to-end protocol because it provide a connection directly from an application on one computer to an application on a remote computer.

- IP
- UDP
- TCP (Computer Networks and Internets, page 306)
- None of the given

_____ uses distance vector approach to define routing

- BGP
- OSPF
- RIP (Computer Networks and Internets, page332) rep
- None of the given

_____ is ideal in a situation where the group is small and all members are attached to contiguous Local Area Networks.

- ► Flood-and –Prune (Page 143)
- ► Configuration-and -Tunneling
- ► Core-Based Discovery
- ► None of the given

Router that decrements TTL to __ sends ICMP time exceeded message, with router's address as source address

- ► 3
- ► 2
- ► 1
- ► 0 (Page 118)

Protocol addresses are abstractions provided by _____.

- ► hardware
- ► software (Page 93) rep
- ► operating system
- ► internet

Although message exchange can be used to bind addresses, sending a request for each binding is hopelessly inefficient.

- ► True (Page 99) rep
- ► False

ARP is almost always used to bind a ___-bit IP address to a ___-bit Ethernet address.

- ► 32, 48 (Page 98)
- ► 24, 32
- ► 32, 64
- ► 32, 128

In the 1970s large organizations began to acquire multiple networks. Each network in the organization formed island. Employees needed to choose a computer appropriate for each task. So they needed multiple screens, keyboards and computers.

- ► False
- ► True (Page 81) rep

In which method of Address Resolution Protocol the protocol address is determined by hardware address?

Were "T" stands for Table lookup, "C" for Closed-form Computation and "D" for Data Exchange?

- ► T
- ► D
- ► C (Page 97) rep
- ► T, C

The general form of an IP datagram is with a header followed by data. The header contains information that controls where and how the datagram is to be sent.

- ► True (Computer Networks and Internets, page 332)
- ► False

To save traffic, an EGP does not summarize routing information from the autonomous system before passing it to another autonomous system.

- ► True
- ► False (Computer Networks and Internets, page 329)

Which of the following is a correct representation of the IPv6?

- ► 105.220.136.100.255.255.255.255.0.0.18.128.140.10.255.255 (Page 114)
- ► 105.220.136.100.255.255.255.256.0.0.18.128.140.10.255.255
- ► 105.220.136.100.255.255.255.255.0.0.18.128.140.10.255.255.256
- ► 105.220.136.100.255.255.255.255.0.0.18.128.140.10.255

The number of connections needed for N computer in direct point to point communication is equal to:

- ► (N2 –N)/2 (Page 23)
- ► N(N- 1)
- ► N2
- ► None of the given

When an application---------- data, it makes a copy of the data available to all other computers on the network.

- Broadcasting
- Multicasting
- Unicasting
- None of the given

Ethernet uses a ------ bit static addressing scheme in which each device is assigned a unique address by the manufacturer.

- 64
- 48 (Computer Networks and Internets, page 109)
- 32
- 8

A system with redundant bridges might have a problem with_____ in the system.

- Loop (page)
- Filters
- Spanning Trees
- All given choices

The product of delay and throughput measures the _____ of data that can be present on the network.

- Area
- Volume (Page 80) rep
- Length
- None of the given

Connectionless service, Message-Oriented protocol, best effort delivery service, arbitrary interaction and operating system independent are the characteristics of _____

- ▶ TCP
- ▶ UDP (Page 110)
- ▶ IP
- ▶ None of the given

Connection-oriented service, Point-to-point, Complete reliability, Full-duplex communication, Stream interface, Reliable connection startup and Graceful connection shutdown are the services provided by_____

- ▶ None of the given
- ▶ TCP (Page 123) rep
- ▶ UDP
- ▶ IP

Questions:

1. **Differentiate between IP and transport protocol with the help of example.**
2. **Give the main advantage and disadvantage of RIP. (2 Marks)**
3. **Tel the first assignable IP address from a 128.140.80.24/20. (2 Marks)**
4. **How was the NAT implemented? (2 Marks)**
5. **IS ATM including LAN and WAN network. If yes what kind of connection is established? (2 Marks)**

6. **Is IP multicasting beneficial? Defend your answer with proper reason. (3 Marks)**
7. **Can the length of the segment be increased 500 meter by adding three repeater one with each segment. It can be done or not. (3 Marks)**
8. **How an administrator can handle static and dynamic routing. (3 Marks)**
9. **IS TCP/IP suit including ARP. What kind of messages are in ARP. (3 Marks)**
10. **Traceroute continues to increment the Time To Live until the value is large enough for the datagram to reach its final destination. What happens when the TTL is sufficiently large for the datagram to reach its destination? (3 Marks)**
11. **Describe characteristics of BGP. (5 Marks)**
12. **Describe IPV6 addressing notation. (5 Marks)**
13. **Have there is a technique for achieving reliability through TCP. (5 Marks)**
14. **Is there any technique for achieving reliability through TCP? (5 Marks)**
15. **Give reasons for which IPv4 need to be changed? (5 Marks)**
16. **In a star organization there are 120 systems connected in a network. Give your comments about delay; delay should be smaller or larger. Give reasons? (5 Marks)**
17. **How TCP provides reliability? (3 Marks)**
18. **How TCP and IP interact with each other? (3 Marks)**
19. **Describe four factors for network classification? (2 Marks)**
20. **What is ICMP and what type of errors internet layer can detect? (5 Marks)**

21. In which situation RIP support for default routers? (5 Marks)
22. Give Pros and Cons of static and Dynamic routing. (5 Marks)
23. How ICMP used to test different tools? (3 Marks)
24. How does host join and leave a group? (3 Marks)
25. When packet lost what is the procedure TCP adopt? (3 Marks)
26. In this subnet blocks 192.168.1.0/26 What is the range of assignable host address? (3 Marks)
27. Write the difference between Explicit and implicit frame type. (3 Marks)
28. Give the concept of zero compression regarding IPV6. (2 Marks)
29. Which technique is used for insertion and deletion in routing table. (2 Marks)
30. Can multiple IP addresses assigned or not on different interfaces of a router. (2 Marks)
31. In which process backward compatibility of 100-base- T is done? (2 Marks)
32. Does OSPF only share information with an area or does it allow communication between different areas? (2 Marks)