Which of the following networks use store-and-forward switching operation?

A, Computer networks

B, Telegraph networks

C, Telephone networks

D, Wireless Networks -

AB

There are similarities between message switching and packet switching. Which of following that applies to packet switching but not to message switching?

A, Variable length of information block

B, Supporting multiple applications

C, Store-and-forward

D, All of the above -

B

Which of the following networks can be connection-oriented?

A, Telegraph networks

B, Computer networks

C, Telephone networks

D, All of the above -

BC

A protocol is a set of precise and unambiguous rules that governs

A, How two or more communicating entities in a layer are to interact

B, Messages that can be sent and received

C, Actions that are to be taken when a certain event occurs

D, All of the above -

D

DNS is a domain-name-service that responds to queries of domain name to IP address or IP address to domain name. DNS uses services provided by

A, TCP

B, UDP

C, HTTP

D, None of the above -

B

A network used to join the individual networks at different sites into one extended network is called

A, PAN

B, LAN

C, SAN

D, VPN -

D

Upon receipt of a bad segment, UDP?

A, It does flow control

B, It does not do flow and error control

C, It does error control

D, Retransmission -

B

Which of following protocol is HTTP built upon?

A, IP

B, TCP

C, UDP

D, SMTP -

B

Which of following requirements are necessary for packet networks to support multiple and diverse applications?

A, Transfer arbitrary message size

B, Low delay for interactive applications

C, Packets have maximum length

D, All of the above -

D

What was the concern of the telephone system that motivated the ARPANET design?

A, Scalability

B, Vulnerability

C, Efficiency

D, None of the above -

B

Question 4

Which of the following is an application layer protocol?

A, HTTP

B, UDP

C, DNS

D, TCP -

A

Which of the following are features of ARPANET design?

A, Connectionless packet transmission

B, Routing tables at the packet switches

C, Destinations identified by unique addresses

D, All of the above -

D

Bluetooth is an example of

A, Local Area Network

B, Wide Area Network

C, Metropolitan Area Network

D, Personal Area Network -

D

In the layer hierarchy as the data packet moves from the upper to the lower layers, headers are

A, Removed

B, Modified

C, Added

D, Rearranged -

C

The _____ is the physical path over which a message travels

A, Protocol

B, Route

C, Medium

D, Path -

C

Three or more devices share a link in _____ connection

A, Unipoint

B, Multipoint

C, Point to Point

D, None of the above -

B

Which of the following is true for Transport Control Protocol

A, Connection oriented

B, Process to Process

C, Transport layer protocol

D, Connectionless -

A

Which OSI layer is responsible for providing end-to-end communication with reliable service?

A, Transport layer

B, Network layer

C, Session layer

D, Data link layer -

A

Which OSI layer is responsible for dividing the transmitted bit stream into frames?

A, Network layer

B, Transport layer

C, Application layer

D, Data link layer -

D

Which protocol glues the network of networks together as the Internet?

A, TCP

B, UDP

C, IP

D, None of the above -

C

Which OSI layer is responsible for determining which route through the network to use?

A, Network layer

B, Data link layer

C, Transport layer

D, None of the above -

A

In a LAN, which address is used to transfer frames to appropriate destination?

A, IP address

B, Physical address

C, Domain name

D, None of the above -

B

Question 4

Which feature does the data link layer and transport layer have in common?

A, Medium access control

B, All of the above

C, Congestion control

D, Flow control -

D

Question 2

Suppose an application layer entity wants to send an L-byte message to its peer process, using an existing TCP connection. The TCP segment consists of the message plus 20 bytes of header. The segment is encapsulated into an IP packet that has an additional 20 bytes of header. The IP packet in turn goes inside an Ethernet frame that has 18 bytes of header and trailer. What is the bandwidth utilization in terms of the percentage of the transmitted bits in the physical layer corresponds to message information if L = 500 bytes?

A, 100%

B, 70%

C, 90%

D, 80% -

C

Of the following services, which service(s) does the IP layer provides?

A, Error control

B, Flow control

C, Connection-based data transfer

D, None of the above -

D

Which of the following is true about the ways in which the OSI reference model and TCP/IP reference model differ.

A, They differ in the number of layers

B, TCP/IP model does not have presentation layer, but OSI model has

C, TCP/IP model does not have session layer, but OSI model has

D, All of the above -

D

Which of following statements is true about how the data link layer and transport layer differ?

A, Data link layer is concerned with framing and the transport layer is not

B, Data link layer is concerned with flow control and the transport layer is not

C, Data link layer is concerned with multiplexing and the transport layer is not

D, All of the above -

A

This layer is an addition to OSI model

A, Application layer

B, Presentation layer

C, Session layer

D, Presentation layer and Session layer -

D

The functionalities of presentation layer includes

A, Data compression

B, Data encryption

C, Data decryption

D, All of the above -

D

Which of the following applications would you select TCP protocol for?

A, File transfer

B, Domain name service

C, Web browsing

D, None of the above -

AC

In BSD socket API, which type of socket is used to create a TCP socket?

A, SOCK_STREAM

B, SOCK_RAW

C, SOCK_DGRAM

D, None of the above -

A

Question 3

In BSD socket API, which type of socket is used to create a UDP socket?

A, SOCK_STREAM

B, SOCK_DGRAM

C, SOCK_RAW

D, None of the above -

B

In BSD socket API, which system call is used to assign a network address to the socket?

A, listen()

B, None of the above

C, connect()

D, bind() -

D

Question 5

In BSD socket API, if a client knows the server name but not server's network address, what system call should the client use to get server's network address?

A, Connect()

B, gethostbyname()

C, None of the above

D, gettimeofday() -

B

In a transmission system, which of the following statement is true for a receiver

A, Receives energy from medium

B, Converts information into signal suitable for transmission

C, Converts received signal suitable for delivery to user

D, All of the above -

AC

In digital transmission, long distance digital communications require the use of a generator

to recover original data sequence and re-transmits on next segment

A. True

B, False -

A

Question 8

In twisted pair, a category 5 UTP cable can support a data rate of up to 16MHz

A, True

B, False -

B

Which of the following statement is true for optical fiber

A, Plentiful bandwidth for new services

B, Dominates long distance transmission

C, Distance less of a cost factor in communications

D, All of the above -

D

Which of the following are advantages of optical fiber

A, Noise immunity

B, No corrosion

C, Extremely low bandwidth

D, Wavelength dependency -

AB

Given a 7-bit information frame (0, 1, 0, 1, 1, 0, 1), what is the even parity bit?

A, 1

B, 0

C, None of the above -

B

Which of following statements are true for single-bit parity error detection?

A, It can detect all single bit errors in an information frame

B, It can detect all double bit errors in an information frame

C, It can detect all tripe bit errors in an information frame

D, None of the above -

AC

Which of following statements are true for two-dimensional parity error detection?

A, It can detect all single bit errors in an information frame

B, It can correct all single bit errors in an information frame

C, It can detect all double bit errors in an information frame

D, All of the above -

D

Assume bit errors occur at random. If each bit has 50% probability to be in error by transmission. What is the probability of a four-bit frame to be in error by transmission?

A, 1/4

B, 1/8

C, 1/16

D, None of the above -

C

What is the binary sequence that corresponds to polynomial code X^3 + x^2 + 1?

A, 1110

B, 0111

C, 1101

D, 111 -

C

Block codes are generated using _____.

A, Generator matrix

B, Generator polynomial

C, Both of the mentioned

D, None of the mentioned -

A

Which of the following is true for two-dimensional parity check

A, Arrange information in rows

B, More parity bit to improve coverage

C, Arrange information in columns

D, Add multiple parity bits to each column -

BC

Polynomial codes are implemented using shift register circuits

A, True

B, False -

A

Question 9

What is the binary equivalent of the following polynomial arithmetic

x^7 + x^6 + x^5 + x^2 + 1

A, 11101101

B, 11100111

C, 11011101

D, 1100101 -

D

Using Euclidean Division, what will be the remainder of 70 by 999 where 70 is the divisor and 999 is the dividend

A, 17

B, 14

C, 21

D, 19 -

D

In networks where errors are infrequent, which approach is favored for efficiency?

A, Hop-by-hop approach

B, End-to-end approach

C, Either one of the above

D, Neither one of the above -

B

Which of the following statements is true about the stop-and-wait ARQ protocol?

A, Stop-and-wait is only efficient if the link delay-bandwidth product is large

B, Stop-and-wait is only efficient if the link delay-bandwidth product is small

C, Stop-and-wait is only efficient if the link bandwidth is low

D, Stop-and-wait is only efficient if the link bandwidth is high -

B

Consider a situation where an interactive application produces a packet to send each keystroke from the client and the server echoes each keystroke that it receives from the client. Which of following strategies for sending ACK frames in a Go-Back-N is appropriate for the situation?

A, send an ACK frame immediately after each frame is received

B, send an ACK frame after every other frame is received

C, send an ACK frame when the next piggyback opportunity arises

D, Any one of the above -

C

Consider a bulk data transfer application where a server sends a large file that is segmented in a number of full-size packets that are to be transferred to the client. Assume the channel has a low probability of error. Which of following strategies for sending ACK frames in a Go-Back-N is appropriate for the situation?

A, send an ACK frame when the next piggyback opportunity arises

B, send an ACK frame immediately after each frame is received

C, send an ACK frame after every other frame is received

D, Any one of the above -

C

ARQ protocols combine error detection, retransmission and sequence numbering to provide reliability

A, True

B, False -

A

A service model specifies a level of performance that can be expected in the transfer of information.

A, True

B, False -

A

A service offered at a given layer can include which of the following feature(s)

A, Sequencing

B, Reliability

C, Timing

D, All of the above -

D

Digital communication technologies may introduce errors in communication, which of the following can be used to provide reliable communication

A, TCP

B, DNS

C, UDP

D, HDLC -

AD

Ensuring that information is not altered during transfer is associated with

A, Authentication

B, Confidentiality

C, Integrity

D, Availability -

C

Given 3 bits for sequence numbers, what is the maximum sliding window size at the receiver in Go Back 3 ARQ?

A, 3

B, 7

C, 8

D, None of the above -

B

Given 3 bits for sequence numbers in Selective Repeat ARQ. If the sender already set the

sliding window size to be 4, what is the maximum sliding window size at the receiver?

A, 3

B, 8

C, 7

D, None of the above -

D

In the scenario above, what should be the value of frame number y at receiver B?

A, 3

B, 8

C, 7

D, None of the above -

C

If the probability of error is very low in a communication link, which of the following statements is true about performance of ARQ protocol?

A, Stop-and-wait and Go-back-N ARQ protocols have similar performance

B, Stop-and-wait and Selective Repeat ARQ protocols have similar performance

C, Go-back-N ARQ and Selective Repeat ARQ protocols have similar performance

D, None of the above -

C

In peer-to-peer protocol, the purpose of Automatic Repeat Request is

A, to ensure a sequence of information packet is delivered with an ACK request

B, to ensure a sequence of information packet is delivered in order

C, to ensure a sequence of information packet is delivered without errors or duplication despite transmission errors and losses

D, to ensure a sequence of information packet is delivered out-of-order -

BC

Which of the basic elements of ARQ is associated with negative acknowledgement

A, Timeout mechanism

B, ACKs

C, NAKs

D, Error detecting code -

C

In Go-Back-N ARQ, a procedure where transmission of a new frame is begun before the completion of time of the previous frame transmission is called

A, Transitioning

B, Pipelining

C, Channeling

D, None of the above -

B

In Stop-and-Wait protocol, sequence number are not required

A, True

B, False -

B

The disadvantage of Stop-and-Wait protocol

A, Error free communication channel does not exist

B, Acknowledgement may get lost

C, Deadlock situation may occur

D, All of the above -

D

Which of the following statements are true for the best-effort service of IP?

A, Packets can arrive with errors or be lost

B, Packets can arrive out-of-order

C, Packets can arrive after very long delays

D, All of the above -

D

Which of following services belong to the data link layer?

A, Insert framing information into the transmitted stream to indicate the boundaries that define frames

B, Provide error control to ensure reliable transmission

C, Provide flow control to prevent the transmitter from overrunning the receiver buffer

D, All of the above -

D

Which ARQ flow control protocol is used by TCP?

A, Stop-and-Wait

B, Selective Repeat

C, Go-back-N

D, None of the above -

B

By framing, frame boundaries can be determined using

A, Character Counts

B, Control Characters

C, Flags

D, All of the above -

D

Which of following statements are true about framing protocols?

A, PPP uses character-based framing which requires byte stuffing

B, HDLC uses Flag-based framing which required bit stuffing

C, All of the above

D, None of the above -

C

In IP network, which of the following statement is incorrect

A, Packets can arrive out-of-order

B, Packets can arrive with errors or be lost

C, Packets can arrive after long delays

D, Packets always arrive on time -

D

Framing involves identifying the beginning and end of a block of information within a digital stream

A, True

B, False -

A

Which of the following statements are true for PPP byte stuffing

A, Malicious users may inflate bandwidth

B, Size of frame varies unpredictably due to byte insertion

C, All of the above

D, None of the above -

C

In PPP authentication, which of the following is true for Password Authentication Protocol

A, After several attempts, LCP closes link

B, Initiator and authenticator share a secret key

C, Transmitted unencrypted, susceptible to eavesdropping

D, Initiator must send ID and password -

ACD

In HDLC frame format, flag is used to identify secondary station (1 or more octets)

A, True

B, False -

B

Question 1

Perform the bit stuffing procedure for the following binary sequence:

110111111011111110101. What is the outcome?

A, 1101111101101111110110101

B, 1101111111011111111010100

C, 0010000000100000001010

D, None of the above -

A

Perform bit de-stuffing for the following sequence: 11101111101111100111110.

A, 11101111111111011111

B, 00010000010000011000001

C, 11100111111110011111

D, None of the above -

A

PPP is a data link protocol for point-to-point lines in Internet. Its framing is based on which of the following?

A, Byte stuffing

B, Bit stuffing

C, Word stuffing

D, None of the above -

A

HDLC is another data link control protocol widely in use. Its framing is based on which of the following?

A, Byte stuffing

B, Bit stuffing

C, Word stuffing

D, None of the above -

B

Which of following statements are true for HDLC?

A, supports various data transfer modes

B, supports multi-point links and point to point links

C, implements error control and flow control mechanisms

D, All of the above -

D

Question 6

In PPP authentication, which of the following is true for Challenge-Handshake Authentication Protocol (CHAP)

A, Initiator and authenticator share a secret key

B, Initiator must send ID and password

C, After several attempts, LCP closes link

D, Authenticator can reissue challenge during session -

AD

In error detection and loss recovery, which of the following statement is correct

A, Frames may undergo errors in transmission

B, CRCs detect errors and such frames treated as lost

C, Frames lost due to loss-of-synchronization or receiver buffer overflow

D, All of the above -

D

In multiplexing, Last IN First Out (LIFO) is used to determine the order of packet transmission

A, True

B, False -

B

Generic Framing Procedure (GFP) allows the implementation of multiple transport modes that may coexist within the same transport channel

A, True

B, False -

A

In Generic Framing Procedure (GFP), which of the following sentences are correct

A, GFP uses a variation of HEC-based self delineation technique

B, GFP provides flexible encapsulation framework that supports either a fixed or variable length frame structure

C, GFP uses an explicit payload length indicator provided in its frame header to accommodate variable length PDUs

D, GFP rely on byte-stuffing mechanism to delineate protocol data units (PDUs) -

ABC

What is the primary function of medium access control?

A, It is to deal with the flow control of a shared communication link.

B, It is to minimize or eliminate the incidence of collisions of a shared communication link.

C, It is to deal with the congestion control of a shared communication link.

D, None of the above -

B

What is the primary benefit provided by the Slotted ALOHA compared to ALOHA?

A, Higher maximum throughput

B, Lower access delay

C, Both of the above

D, None of the above -

A

What is the vulnerable period of collisions in ALOHA?

A, Round-trip propagation delay

B, One frame transmission time

C, Two frame transmission time

D, None of the above -

C

What is the vulnerable period of collisions in Slotted ALOHA?

A, Round-trip propagation delay

B, One frame transmission time

C, Two frame transmission time

D, None of the above -

B

What is the vulnerable period of collisions in Carrier Sense Multiple Access (CSMA)?

A, One frame transmission time

B, None of the above

C, Round-trip propagation delay

D, One propagation delay -

D

The primary function of Media Access Control is to minimize or eliminate the instance of the collisions to achieve a reasonable utilization of the medium

A, True

B, False -

A

In media sharing techniques, which of the following are channelization approaches

A, Data Division Multiple Access

B, Time Division Multiple Access

C, Code Division Multiple Access

D, Frequency Division Multiple Access -

BCD

Corresponding box of Carrier Sense Multiple Access/Collision Detection can be replaced by one of the

A, Persistent process

B, P-persistent process

C, Non-persistent process

D, I-persistent process -

A

Random access is also called the

A, Controlled access

B, Channelization

C, Authentication

D, Contention methods -

D

In Carrier Sense Multiple Access (CSMA), possibility of collision still exist because of

A, Propagation delay

B, Collision delay

C, Transmit delay

D, None of the above -

A

Polling is a scheduling approach for dynamic medium access control. Which of following statements are correct?

A, Polling can provide bounds on access delay to the shared medium

B, All of the above

C, Polling can provide fairness through regulated access opportunities

C, Polling performance can deteriorate with large delay-bandwidth product -

B

In a collision-free reservation system that has a large number of light-traffic stations, and the delay-bandwidth product is larger than 1. Which of following MAC protocol is a good fit for stations to reserve mini-slots?

A, 1-persistent CSMA

B, Slotted ALOHA

C, CSMA/CD

D, None of the above -

B

In Carrier Sense Multiple Access with collision detection (CSMA-CD), how long will it take a collision to be detected and resolved?

A, Round-trip propagation delay

B, One propagation delay

C, One frame transmission time

D, None of the above -

A

Suppose that the ALOHA protocol is used to share a 56 kbps satellite channel. Suppose that frames are 1000 bits long. What is the maximum throughput of the system in number of frames per second.

A, 1 frame per second

B, 10 frames per second

C, 100 frames per second

D, None of the above -

B

Consider building a CSMA/CD network running at 1Gbps over a 1-km cable. The signal speed in the cable is 200,000 km/sec. What is the minimum frame size?

A, 64 Bytes

B, 640 Bytes

C, 1250 Bytes

D, None of the above -

C

In media access control, which of the following statements are true for Channelization

A, Inflexible in allocating bandwidth to users with different requirements

B, Does not scale well to large numbers of users

C, Widely used in internet traffic

D, Inefficient for bursty traffic -

ABD

Time-out period is equal to maximum possible propagation delay of

A, Round-trip

B, Triangle-trip

C, Square-trip

D, Rectangle-trip -

A

In Carrier Sense Multiple Access (CSMA), if station senses medium before trying to use it then chance of collision can be

A, Increased

B, Reduced

C, Doubled

D, Highlighted -

B

Carrier Sense Multiple Access (CSMA) is based on medium called

A, Sense before transmit

B, Listen before sending

C, Listen before talk

D, Sense before Collision -

A

Which of the following is not true for MAC scheduling

A, More efficient channel utilization

B, Less variability in delays

C, Can provide fairness to stations

D, Reduced computational or procedural complexity -

D

Which of following features are typically true for local area networks?

A, All of the above

B, Low error rate

C, High speed

D, Low round-trip delay -

A

Use HDLC and Ethernet to identify similarities between medium access control and data link control protocols. Which of following statements are true?

A, Both contains framing information that delineates the beginning and end of each frame.

B, Both check the CRC in the received frames for errors

C, Both implement error control and flow control for reliable transmission.

D, None of the above -

AB

Use IEEE 802.3 and IEEE 802.11 to discuss differences between wired and wireless LANs. Which of following statements are true about the differences?

A, Station mobility

B, Error rate

C, Collision detection

D, All of the above -

D

Which of following is not a primary responsibility of the MAC sublayer in LANs?

A, Reliable connection-oriented service

B, Channel access

C, Protocol data unit addressing

D, Fragmentation and reassembly of MAC service data unit -

A

In Ethernet, slot time that is at least the round-trip propagation delay, is the critical system parameter for

A, upper bound on time to detect collision

B, All of the above

C, upper bound on time to acquire channel

D, quantum for re-transmission scheduling -

B

Which one of the following event is not possible in wireless LAN.

A, Acknowledgement of data frames

B, Collision detection

C, Multi-mode data transfer

D, Collision avoidance -

B

In 802.11 protocol, MAC can alternate between Contention Periods (CPs) and Contention-Free Periods (CFPs)

A, True

B, False -

A

CSMA/CD is not used in DCF because

A, a station is unable to listen to the channel for collisions while transmitting

B, physical carrier sense detects the presence of other WLAN users

C, in idle state, a station is unable to listen to the channel for collisions

D, None of the above -

A

In infrastructure network supporting voice and data traffic, data traffic is transported through the CP and voice traffic through the CFP

A, True

B, False -

B

In 802.11 protocol, which of the following statements are true for Basic Service Set (BSS)

A, Stations in BSS can communicate with each other

B, Multiple BSSs interconnected by Central System (CS)

C, Distinct collocated BSS's cannot coexist

D, Location in a Basic Service Area (BSA) -

AD

Consider a Gigabit Ethernet hub with stations at a 100-meter distance and average frame size of 512 bytes. Assume the propagation speed is at 2/3 of light speed. What is the value of normalized delay-bandwidth product?

A, 0.0122

B, 0.122

C, 1.22

D, None of the above -

B

Normalized delay-bandwidth product equals to (Propagation delay / Frame transmission time). Propagation delay = 5*10^-7. Frame transmission time is 512 * 8 / 10^ 9.

Wireless data communication is compelling, because of

A, Its easy and low-cost deployment

B, Its support to personal and mobile devices

C, Its high reliability to noise and interference

D, All of the above -

AB

Why not use CSMA/CD in a wireless LAN? The primary reason is

A, The round-trip delay in a wireless LAN is too large

B, The frame is usually very small in a wireless LAN

C, The hidden station problem

D, All of the above -

C

In IEEE 802.11 MAC for wireless LANs, which of following inter-frame space (IFS) is used to transmit high-priority frames such as ACKs?

A, SIFS

B, DIFS

C, None of the above

D, PIFS -

A

Which of following statements identifies the similarity between HDLC (data link control) and Ethernet (medium access control)

A, All of the above

B, Both contain framing information that delineates the beginning and end of each frame

C, Both implement error control and flow control functions to provide reliable transmission

D, Both provide connection-oriented packet transfer services to the network layer -

B

Which multiple access technique is used by IEEE 802.11 standard for wireless LAN?

A, ALOHA

B, CDMA

C, CSMA/CD

D, CSMA/CA -

D

Which of the following are management services offered by the MAC sublayer in wireless LAN

A, Network management

B, Storage management

C, Roaming within ESS

D, Power management -

CD

In CSMA/CA, An amount of time divided into slots called

A, Contention window

B, Contention procedure

C, Contention energy

D, Contention signals -

A

In medium access control sublayer, medium usage is mediated by the access control during contention period

A, True

B, False -

B

In Carrier Sense Multiple Access/Collision Detection (CSMA/CD), to continue transmission process we use a

A, Signal

B, Station

C, Access point

D, Loop -

D

Which layer LAN bridges work on?

A. Transport layer

B. Network layer

C. Medium access control

D. None of above -

C

(2 Answers)

One can use repeaters, bridges and routers to interconnect two LANs. Which of the following approaches will make local traffic stay in its own LAN?

A. repeaters

B. routers

C. bridges

D. All of the above -

BC

Of the following network layer functions, which one is optional?

A. Routing

B. Forwarding

C. Congestion control

D. None of the above -

C

Of the following, which is a basic function of transparent bridge?

A. All of the above

B. Learns where stations are attached to the LAN

C. Prevents loops in the topology

D .Forwards frames from one LAN to another -

A

It is possible for a network layer to provide a choice of services to the user of the network. Which of following the IP network layer offers

A. All of the above

B. connection-oriented transfer of packets with delay guarantee

C. Best-effort connectionless service

D. connection-oriented reliable stream service -

C

(3 Answers)

The network layer is considered the most complex layer because of the following reasons

A. Requires coordinated actions of multiple, geographically distributed network elements

B. Responsible for displaying received information to users

C. Challenges such as addressing and routing

D. User scalability -

ACD

An end-to-end function is best implemented at a lower level than at a higher level

A. True

B. False -

B

Which of the following is an essential network function

A. Forwarding

B. Routing

C. Priority and scheduling

D. All of the above -

D

In network layer, which of the following statement is true for packet networks

A. Individual packet streams are highly bursty

B. User demand can undergo dramatic change

C. Internet structure is highly decentralized

D. All of the above -

D

The main purpose of access multiplexer is to combine the typically bursty traffic flows from the individual computers into aggregate flows

A. True

B. False -

A

Which of the following functions can a home router perform?

A. Private IP addresses in home by network address translation

B. All of the above

C. Local area network access using WiFi

D. Single global IP address using DHCP -

B

Consider a three hop network from the source to the destination. Let m be the packet transmission time at each hop. Let n be the propagation delay at each hop. Assume there is no queuing delay and processing time at each hop. Based on store-and-forward, what is the total time for the packet to be transmitted to the destination?

A. m + n

B. 3m + n

C. 3m + 3n

D. None of the above -

C

Consider a three hop network from the source to the destination. Let m be the message transmission time at each hop. Let n be the propagation delay of each hop. Assume there is no queueing delay and processing time at each hop. Based on store-and-forward, what is the total time for three packets to be transmitted to the destination by packet pipelining?

A. 3m + 3n

B. 5m + 3n

C. 9m + 9n

D. None of the above -

B

One can use repeaters, bridges and routers to interconnect two LANs. Which of the following approaches will make local traffic appear in both LANs?

A. Repeater

B. Routers

C. Bridges

D. All of the above -

A

Packet pipelining can lead to latency in message delivery

A. True

B. False -

B

In internet, switching is done by using datagram approach to packet switching at the

A. Data link layer

B. Application layer

C. Physical layer

D. Network layer -

D

A transparent bridge's duties include

A. Forwarding

B. Blocking

C. Filtering frame

D .All of the above -

D

For a 10Mbps Ethernet link, if the length of the packet is 32bits, the transmission delay is(in microseconds)

A. 0.32

B. 320

C. 3.2

D. 32 -

C

Which of following networks represents an example of virtual circuit switching at the network layer?

A. IP

B. ATM

C. Both of the above

D. All of the above -

B

Consider a three hop network from the source to the destination. Let m be the message transmission time at each hop. Let n be the propagation delay of each hop. Assume there is no queueing delay and processing time at each hop. Based on cut-through switching, what is the total time for three packets to be transmitted to the destination?

A. 3m + 3n

B. 5m + 3n

C. 9m + 9n

D. None of the above -

A

Which of following issue exists in virtual-circuit subnet but not in datagram subnet?

A. Addressing

B. State information

C. Routing

D. None of the above -

B

Which of following describe general goals in a routing algorithm?

A. Rapid responsiveness to network changes

B. Robustness under high load and link failure

C. Low overhead for implementation

D. All of the above -

D

Which of following describe benefits of flooding, a specialized routing approach?

A. No routing table needed for routers

B. Useful in propagating information to all nodes

C. All of the above

D. Always reach the destination by the fastest path -

C

A Virtual-Circuit Network (VCN) is normally implemented in the

A. session layer

B. data link layer

C. network layer

D. Physical layer -

B

(2 answers)

In routing approaches, which of the following statement is true for deflection routing

A. Fixed, preset routing procedures

B. No route synthesis

C. Useful in starting up network

D. Predefined source to destination route -

AB

To reduce size of routing table, routers do lookup table on MAC address

A. True

B. False -

B

Flooding may easily swamp the network as one packet creates multiple packets, possibly in exponential growth rate. What are possible means to reduce resource consumption in the network?

A. Use a time-to-live field in each packet to limit its lifetime

B. Add a unique identifier to a packet for removing its duplicate

C. Use address and sequence number to discard duplicates

D. All of the above -

D

What are possible metrics for routing?

A. Hop count

B. Delay

C. Bandwidth

D. All of the above -

D

In link state routing, after the construction of link state packets new routes are computed using

A. Dijkstra's algorithm

B. Bellman Ford algorithm

C. Leaky bucket algorithm

D. None of the above -

A

A subset of a network that includes all the routers but contains no loops is called

A. Broadcast structure

B. spanning tree

C. Multi-destination routing structure

D. None of the above -

B

In a router, which of the following statement is true for creating routing tables

A. Need information on state of links

B. Need to distribute link state information using a routing protocol

C. Need to compute routes based on information

D. All of the above -

D

In a virtual-circuit packet network, routing is determined during connection set-up

A. True

B. False -

A

In deflection routing, bufferless operation is considered a disadvantage due to packet loss

A. True

B. False -

B

What is the root problem of Bellman-Ford algorithm for distance vector approach?

A. Counting to infinity

B. Flooding overhead

C. Cannot work in IP

D. All of the above -

A

What is the root problem of link state routing?

A. Counting to infinity

B. Flooding overhead

C. Slow reaction to link failures

D. All of the above -

B

Which of following describe the benefits of link state routing compared to distance vector routing?

A. Fast convergence

B. Support for multiple metrics

C. Support for multiple paths to a destination

D. All of the above -

D

Which of following is the implementation of distance vector approach in the IP routing protocol?

A. RIP

B. OSPF

C. BGP

D. None of the above -

A

Which of following is the implementation of link state approach in the IP routing protocol?

A. RIP

B. OSPF

C. BGP

D. None of the above -

B

In Routing Information Protocol (RIP), the use of max number limited to 15 limits the count-to-infinity problem

A. True

B. False -

A

In an OSPF network, routers in area only knows complete topology inside area and limits the flooding of link-state information to area

A. True

B. False -

A

(2 answers)

In link state routing, which of the following are possible steps taken to resolve the problem of old update messages

A. Add time stamp to each update message

B. Add sequence number to each update message

C. Add a null number to each update message

D. None of the above -

AB

In Asynchronous Transfer Mode (ATM), which of the following is an examples of supported services

A. Real time voice and video

B. Circuit emulation for digital transport

C. Data traffic with bandwidth guarantees

D. All of the above -

D

In Asynchronous Transfer Mode (ATM), the packet structure attribute simplifies implementation and ensures high speed transfer

A. True

B. False -

B

Which of the following features are true for asynchronous transfer mode (ATM)?

A. It supports quality of service

B. All of the above

C. It only supports fixed-length packets

D. It is connection-oriented -

B

In RIP operation, which of the following statement is correct

A. Router sends update message to neighbors every 30 sec

B. To deal with changes in topology such as a link failure, a router

expects an update from each of its neighbors within 180 sec

C. Convergence speed up by triggered updates

D. All of the above -

D

(2 answers)

What are the limitations of RIP protocol

A. Limited metric use

B. Slow convergence

C. Fixed number of hops

D. Update message overhead -

AB

(3 answers)

In Open Shortest Path First (OSPF), which of the following statements are correct

A. Enables each router to learn complete network topology

B. OSPF typically converges slower than RIP when there is a failure in the network

C. Allows routers to build shortest path tree with router as root

D. Each router builds an identical link-state database -

ACD

Which of the following is a type of router defined in OSPF

A. Internal router

B. Area border router

C. Backbone router

D. All of the above -

D

In a distance vector routing, if a link fails

A. All routers immediately update their link database and recalculate their shortest path

B. Neighboring routers exchange routing tables that may use failed links

C. Routers set link distance to infinity and floods the network with an update packet

D. All of the above -

B

Based on traffic granularity, which of the following levels is traffic management not usually classified into?

A. Flow level

B. Byte level

C. Flow-aggregated level

D. Packet level -

B

Which of following statements is true for FIFO queueing?

A. In FIFO queueing, all packet flows share the same buffer

B. FIFO queueing cannot provide differentiated QoS to packet flows

C. All of the above

D. In FIFO queueing, arriving packets will be discarded if the buffer is full -

C

Which of following is not a packet-level mechanism?

A. Fair queueing

B. Token bucket shaping

C. Head-of-line priority queueing

D. Random early detection -

B

What are typical end-to-end Quality-of-Service factors?

A. Jitter

B. Packet delay

C. Packet loss rate

D. All of the above -

D

By Random Early Detection (RED), when a given source transmits at a higher rate than others, the source will

A. Achieves a higher bandwidth

B. Suffers a higher packet-dropping rate

C. Achieves a lower waiting delay

D. Suffers a lower packet-dropping rate -

B

The simplest approach to queue scheduling is First-In, First-out queueing, where all packet flow make use of different buffer

A. True

B. False -

B

In FIFO queueing, delay and loss of packets depends on _____ and _____

A. Packet size, sequence number

B. inter-arrival, packet lengths

C. routing path, sequence number

D. RTT value, packet lengths -

B

Which of the following is a feature of fair queueing

A. Every user flows share the same logical buffer

B. Idealized system assumes fluid flow from queues

C. Addresses different users by order or request

D. None of the above -

B

In buffer management, drop priorities requires packet to drop when buffer is full

A. True

B. False -

B

(3 answers)

What are the key mechanisms in Open-Loop Control

A. Traffic shaping

B. Admission control

C. Re-routing

D. Policing -

ABD

Which of the following statements is wrong about fair queuing?

A. Fair queueing is a packet-level traffic management

B. Fair queueing attempts to provide equal-size buffers to flows

C. Fair queueing attempts to provide equitable access to transmission bandwidth

D. All of the above -

B

To guarantee network performance during the lifetime of admitted flows, open-loop control relies on the following mechanism except:

A. Head-of-Line queueing

B. Traffic shaping

C. Traffic policing

D. Admission control -

A

Which of following statements about leaky bucket is wrong?

A. In leaky bucket, when the bucket is full, the new arriving packets may be discarded

B. Leaky bucket is a flow-level traffic management mechanism

C. In the leaky bucket, the packet output rate can be variable

D. In the leaky bucket, the packet output rate is always constant -

C

Consider a token bucket approach for traffic shaping. A token is generated every 5 micro-seconds. Each packet can hold 48 bytes of data. What is the sustainable data transmission rate by the token bucket?

A. 7.68 Mbps

B. 76.8 Mbps

C. 768 Mbps

D. None of the above -

B

Upon which of the following condition is token bucket and leaky bucket the same?

A. Leaky bucket size is zero

B. Token bucket size is infinite

C. Leaky bucket size is infinite

D. Token bucket size is zero -

D

(2 answers)

In Head of Line (HOL) priority queueing, which of the following statement is true for this approach

A. High priority queue has higher waiting time

B. Buffers can be dimensioned for different loss probabilities

C. High priority queue has lower waiting time

D. High priority queue services until empty -

CD

In buffer management, which feature requires packet to drop when buffer is full

A. Drop priorities

B. Fairness

C. Drop strategy

D. Aggregation -

C

(2 answers)

In buffer management, which of the following statement is correct for Random Early Detection (RED) technique

A. Improves performance of cooperating TCP sources

B. Reduce loss probability of misbehaving sources

C. Packets produced by TCP will reduce input rate in response to network congestion

D. Early drop causes some sources to reduce rate before others, causing gradual reduction in in aggregate input rate -

AC

(2 answers)

In Closed-Loop flow control, which of the following mechanism is used in congestion control to regulate the flow from sources into network

A. Buffer length

B. Link utilization

C. Packet header size

D. Round-Trip Time -

AB

In congestion warning, the feedback mechanism can be implicit or explicit. Which of the following is an example of implicit feedback

A. A time-out due to missing acknowledgement

B. The warning bit in ACKs

C. Choke packets to the source

D. None of the above -

A

Which of the following protocols work at IP layer?

A. ICMP

B. ARP

C. IGMP

D. All of the above -

D

Which of the following packet header length cannot be used in an IPv4 packet header?

A. 20 Bytes

B. 30 Bytes

C. 60 Bytes

D. 64 Bytes -

B

How many bits used for header checksum in IPv4 packets?

A. 8 bits

B. 16 bits

C. 32 bits

D. None of the above -

B

What is the dotted notation of an IP address of 10000000 10000111 01000100 00000101 ?

A. 128.135.65.5

B. 128.135.65.5

C. 128.135.68.5

D. 128.133.68.5 -

C

Given a network address 128.100.0.0, what is its network class type?

A. Class A

B. Class B

C. Class C

D. None of the above -

B

Which of the following is provided at the IP layer

A. Connectionless

B. Best effort delivery service

C. Both of the above

D. None of the above -

C

You need to subnet a network that has 5 subnets, each with at least 16 hosts. Which will be your closest choice

A. 255.255.255.224

B. 255.255.255.192

C. 255.255.255.240

D. 255.255.255.248 -

A

What is the subnetwork number of a host with an IP address of 172.16.66.0/21

A. 172.16.48.0

B. 172.16.64.0

C. 172.16.0.0

D. 172.16.36.0 -

B

What is the first valid host on the subnetwork that the node 172.30.190.198/24 belongs to?

A. 172.30.190.0

B. 172.30.190.1

C. 172.30.190.100

D. None of the above -

B

Based on 1.1.1.0/24, the IP address would be:

A. Class A

B. Class B

C. Class C

D. Class D -

A

Which of following is the range of IPv4 addresses spanned by Class C?

A. 1.0.0.0 to 127.255.255.255

B. 128.0.0.0 to 191.255.255.255

C. 192.0.0.0 to 223.255.255.255

D. None of the above -

C

If a subnet needs to accommodate up to 500 hosts. How many bits for HostID would be sufficient?

A. 9

B. 5

C. 8

D. 7 -

A

Consider a Class B network, where the subnet ID takes 9 bits. What will be the subnet mask?

A. 11111111 11111111 11111110 00000000

B. 11111111 11111111 11111111 10000000

C. 11111111 11111111 00000000 00000000

D. None of the above -

B

Given a subnet mask 255.255.255.240, how many hosts the subnet can support?

A. 14

B. 30

C. 62

D. None of the above -

A

A host in an organization has an IP address 150.32.64.34 and a subnet mask 255.255.240.0. What is the address of this subnet?

A. 150.32.64.16

B. 150.32.64.24

C. 150.32.64.0

D. 150.32.64.32 -

C

What is the maximum number of IP addresses that can be assigned to hosts on a local subnet that uses the 255.255.255.224 subnet mask

A. 14

B. 15

C. 30

D. 62 -

C

(2 answers)

When calculating usable hosts per subnet, the following formula is used 2^bits - 2. For what reason is two subtracted? (choose two)

A. Broadcast

B. Network

C. Unicast

D. Multicast -

AB

How many hosts can be addressed on 10.0.0.0/16?

A. 16

B. 254

C. 65536

D. 65534 -

D

Which of the following is a valid IP host address given the network ID of 191.254.0.0 while using 11 bits for subnetting?

A. 191.254.1.29

B. 191.254.0.32

C. 191.54.1.64

D. 191.254.0.96 -

A

DISCO Corporation has been assigned the Class B network address 165.87.0.0. DISCO needs to divide the network into eight subnets. What subnet mask should be applied to the network to provide the most hosts per subnet?

A. 255.255.240.0

B. 255.255.248.0

C. 255.255.192.0

D. 255.255.224.0 -

A

Which class of IP addresses does CIDR performs aggregation on?

A. Class C

B. Class D

C. Class B

D. Class A -

A

Using a CIDR notation, a prefix 205.100.0.0 of length 22 is written as 205.100.0.0/22. What network mask that the /22 notation indicates?

A. 205.255.255.0

B. 255.255.252.0

C. 255.255.22.0

D. None of the above -

B

Perform CIDR aggregation on the following /24 IP addresses: 128.58.24.0/24, 128.58.25.0/24, 128.58.26.0/24, 128.58.27.0/24. What is the CIDR outcome?

A. 128.58.28.0/22

B. 128.58.24.0/22

C. 128.58.28.0/24

D. None of the above -

B

Which protocol provides conversion from an IP address to a physical address?

A. ARP

B. IGRP

C. DNS

D. ICMP -

A

Which protocol is used to assign temporary IP addresses to hosts?

A. ICMP

B. DHCP

C. ARP

D. None of the above -

B

In order to maximize the usage of limited IP addresses, which of the following protocol is commonly used

A. NAT

B. DHCP

C. Both of the above

D. None of the above -

C

The internet protocol allows IP fragmentation so that datagrams can be fragmented into pieces small enough to pass over a link with a smaller MTU than the original datagram size

A. True

B. False -

A

Which of the following statement is correct for IPv6

A. Addresses are not hierarchical and are randomly assigned

B. There are 2.7 billion available addresses

C. Broadcast in IPv4 have been replaced with multicast in IPv6

D. Does not support multiple multiple IPv6 address per interface -

C

Bootstrap Protocol (BOOTP) allows a diskless workstation to be remotely booted up in a network with TCP port designation for both client and server

A. True

B. False -

B

(3 answers)

In NAT operations, which of the following statements are correct

A. NAT maps each private IP address and port number into shared global IP address and available port number

B. Hosts inside private networks generate packets with private IP address and TCP/UDP port numbers

C. Translation table allows packets to be routed unambiguously

D. Translation table allows packets to be routed ambiguously -

ABC

Packet is to be forwarded to a network with MTU of 592 bytes. The packet has an IP header of 20 bytes and a data part of 1484 bytes. Which of following maximum data length per fragment is legitimate?

A. 592

B. 572

C. 568

D. 562 -

C

What information is used as the entry of the lookup table in a Network Address Translation box?

A. UDP port number

B. IP address

C. All of the above

D. TCP port number -

C

IPv6 allows fragmentation at

A. Source only

B. Intermediate routers only

C. Both source and intermediate routers

D. None of the above -

A

Which of following fields that IPv6 dropped from IPv4?

A. Header length

B. Header checksum

C. All of the above

D. ID/flags/frag offset -

C

in practical IPv6 application, a technology encapsulates IPv6 packets inside IPv4 packets, this technology is called

A. Routing

B. IP tunneling

C. Network address translation

D. Dynamic host configuration protocol -

B

(3 answers)

Which fields in IP packet provide for fragmentation of datagrams to allow differing MTUs in the internet

A. Type of service

B. Fragmentation offset

C. Identification

D. Flags -

BCD

IPv6 has a much larger space of

A. 2^8

B. 2^16

C. 2^32

D. 2^128 -

D

(2 answers)

Which of these statements are true of IPv6 representation

A. The first 64 bits represent the dynamically created interface ID.

B. Leading zeros in an IPv6 16 bit hexadecimal field are mandatory

C. A single interface may be assigned multiple IPv6 addresses of any type

D. Every IPv6 interface contains at least one loopback address -

CD

Which of the following statement is true for DHCP

A. Used extensively to assign temporary IP addresses to hosts

B. Allows ISP to maximize usage of their limited IP addresses

C Time threshold to enforce lease time

D. All of the above -

D

In Network Address Translation (NAT), which of the following statement is true for a packet with an associated private IP address at the routers in the global internet

A. Discarded due to the nature of the packet address

B. Redirected to other routers for address confirmation

C. Create an exception and then forward the packet to the destination address in the header

D. Forwarded to the destination address in the packet header -

A

Which of following control is enabled in UDP?

A. Flow control

B. Error control

C. Congestion control

D. None of the above -

D

Which of following information is not used in UDP de-multiplexing?

A. Source IP address

B. Destination IP address

C. Source port number

D. Destination port number -

C

TCP adopts selective repeat ARQ protocol for flow control. In TCP flow control implementation, the window slides at

A. Per-packet basis

B. Per-byte basis

C. Per-bit basis

D. None of the above -

B

In Transmission Control Protocol (TCP), When a segment carries a combination of data and control information, it uses a

A. Sequence Number

B. Source Number

C. Slot Number

D. Port Number -

A

Which flag bit in TCP header must be set when a TCP client initiates a three-way handshake?

A. SYN

B. ACK

C. RST

D. None of the above -

A

Transmission Control Protocol (TCP), has same Checksum controlling like

A. TCP/IP

B. ICMP

C. UDP

D. IP -

C

Which flag bit in TCP header must be set when a TCP entity wants to terminate a connection?

A. FIN

B. SYN

C. RST

D. ACK -

A

(2 answers)

In TCP connection management, which of the following statements are true

A. Select initial sequence numbers (ISN) to protect against segments from prior connections

B. High bandwidth connection pose a problem

C. Use global clock to select ISN sequence number

D. Time for clock to go through a full cycle should be less than the maximum lifetime of a segment -

AB

In phases of congestion behavior, when arrival rate is greater than outgoing line bandwidth

A. Knee

B. Congestion onset

C. Light traffic

D. Congestion collapse -

D

Which of the following services are provided by UDP

A. IP

B. De-multiplexing

C. Error Checking

D. All of the above -

D

When a TCP client initiates a three-way handshake with a sequence number x, what will be the acknowledgement number when the TCP server replies?

A. x

B. x + 1

C. x + y (where y is the sequence number proposed by TCP server)

D. None of the above -

B

TCP header has a field called window size. What value is the value window size set to?

A. Advertised window size for congestion control

B. Round-trip delay

C. Advertised window size for flow control

D. None of the above -

D

In general, there are three phases of congestion behavior, i.e., light traffic, knee, congestion collapse. Which phase does TCP congestion avoidance maps to?

A. Light traffic

B. Knee

C. Congestion collapse

D. None of the above -

B

When three duplicate acknowledgements arrive before timeout expires, what will TCP congestion control algorithm reset congestion threshold to for fast re-transmission and fast recovery?

A. Reset congestion threshold to 1

B. Reset congestion threshold to half of the current congestion window size

C. Reset congestion threshold to the current congestion window size

D. None of the above -

B

Assume a TCP source writes a 1200-byte message in one write. Which of following is possible for the destination to receive the message?

A. It receives three reads of 400 bytes each

B. It receives two reads of 600 bytes each

C. It receives a 1200-byte message in one read

D. All of the above -

D

The process of combining multiple outgoing protocol streams at the Transport and Network layers in TCP/IP is called Multiplexing

A. True

B. False -

A

TIMELY provides a framework for rate control that depends on transport layer protocol for reliability

A. True

B. False -

B

The operation of TCP congestion control can be divided into three phases, which phase requires that the congestion window size be increased by one segment upon receiving an ACK from receiver

A. Congestion avoidance

B. Slow start

C. Congestion

D. None of the above -

B

In a router, the control of the transmission rate at the sender's side such that the router's buffer will not be over-filled is called _____ if sender is transmitting too fast

A. Network under-utilization

B. Host flooding

C. Network congestion

D. None of the above -

C

Congestion control is associated with the window size field

A. True

B. False -

B

Which of following protocol allows a host to signal its multicast group membership to its attached routers?

A. ICMP

B. IGMP

C. OPSF

D. None of the above -

B

Which of following statements most accurately describes the reverse-path broadcasting?

A. It assumes that the shortest path from the source to a given router should be the same as the shortest path from the router to the source

B. Each link in the network to be symmetric

C. Each packet is forwarded by a router exactly once

D. All of the above -

A

Which class of IP address does the reverse-path broadcasting uses?

A. Class A

B. Class B

C. Class C

D. Class D -

D

Attackers attempt to gain unauthorized access to server. What type of network security threat it imposes?

A. Client imposter

B. Server imposter

C. Man-in-Middle

D. None of the above -

A

In mobile IP, when a home agent wants to send a packet to a mobile host in a foreign network, each IP packet at the home agent will be encapsulated with an outer IP header. What is the destination IP address in the outer IP header?

A. Care-of address

B. Mobile host's address

C. Home agent's address

D. None of the above -

A

An IP address associated with a mobile node while visiting a foreign link

A. Handover address

B. Home address

C. Care of address

D. Home link -

C

TCP SYN flood attack exploits the TCP three-way handshake

A. True

B. False -

A

In multicast communication, relationship is

A. one to one

B. many to one

C. one to many

D. one to all -

C

What is the security requirement in case of Denial of Service?

A. Privacy

B. Availability

C. Integrity

D. None of the above -

B

In a software defined network (SDN), which of the architectural layer is responsible for switch configuration and forwarding instruction?

A. Middle layer

B. Infrastructure layer

C. Security layer

D. None of the above -

A

What is the security requirement in case of Malicious Code?

A. Privacy

B. Availability

C. Integrity

D. All of the above -

D

Which of the following is not a general misconception of SDN?

A. SDN is a mechanism

B. SDN is an open API for that provides standard interface for programming switches

C. SDN is a framework to solve a set of problems

D. All of the above -

C

Which component of NFV comprises of hardware and software required to deploy, manage and execute VNFs.

D. Home agent -

A. Network function

B. Network function modules

C. NFVI

D. None of the above -

B

C

Reverse Path Multicasting (RPM) is used to increase

(2 answers)

In Reverse-Path Broadcasting (RPB) scenario, assume each router knows current shortest path to source node. Which of the following statement denotes the router's action

A. Efficiency

B. Performance

C. Accuracy

D. Strength -

A

A. If shortest path to source is through different port, router drops the packet

B. The router stores the packet in a buffer and wait for an explicit routing request from the source

C. Upon receipt of a multicast packet, router records the packet's destination address and the forwarding port

D. If shortest path to source is through the same port, router forwards the packet to all other ports -

In Reverse Path Forwarding, router receives a packet and extracts the

A. Source address

B. Protocol address

C. IP address

D. Standard address -

A

AD

A network can receive a multicast packet from a particular source only through a

A peer with which a mobile node is communicating is called

A. designated parent resolve

B. designated parent router

C. designated protocol router

D. None of the above -

A. Mobile node

B. Correspondent node

C. Foreign agent

B

What is the delay in the amount of time for data to travel between two points on a network?

bandwidth

latency

goodput

throughput -

B

What terms represent the maximum and actual speed that can be utilized by a device to transfer data?

bandwidth; throughput

throughput; bandwidth

bandwidth; goodput

throughput; goodput -

A

Which items are collectively referred to as network media?

routers and switches

wires and radio waves

firewalls and servers

PCs and laptops -

B

Which term is used to describe a network device with the primary function of providing information to other devices?

workstation

console

server

client -

C

Which criterion can be used to select the appropriate type of network media for a network?

the types of data that need to be prioritized

the cost of the end devices that are used in the network

the number of intermediary devices that are installed in the network

the environment where the selected medium is to be installed -

D

Which two devices are considered end devices? (Choose two.)

router

switch

hub

laptop

printer -

DE

Which data unit term and value are correctly matched? (select 4)

A bit = a one or a zero

A bit = eight bytes

A byte = a one or a zero

A byte = eight bits

A gigabyte = one billion bytes

A gigabyte = one million bytes

A megabyte = one million bytes -

ADEG

Which three descriptions of data are correct? (Choose 3.)

Data bits are converted into signals before being transmitted over the medium.

ASCII is a commonly used code for representing letters, numbers and special characters in bits that can be interpreted by a computer.

Volunteered data is created and explicitly shared by individuals.

Inferred data involves information that is captured by recording of actions of individuals, such as location data when using cell phones. -

ABC

When a learner is visiting an e-learning site to learn about networking, the user computer is acting as what type of device?

an intermediary device

a client

a web server

a console

an email server -

B

What is the internet?

the largest network owned and managed by a company in the US

an application used to access the World Wide Web

a worldwide collection of interconnected networks

the type of physical media used by computers to access the Word Wide Web -

C

What is a technology used in a cellular telephone network?

Bluetooth

fiber-optic

Global System for Mobile Communications (GSM)

Wi-Fi -

C

A wireless network was recently installed in a coffee shop. The coffee shop staff are able to access the Internet but customer mobile devices are not receiving network configuration information. What should be done to correct the problem?

Check the connection of the DNS server to the Internet.

Provide peripheral devices to customers.

Make sure the DHCP server is functional.

Ensure that the default gateway device is working properly. -

C

Which network device is primarily used to translate a domain name to the associated IP address?

router

DNS server

DHCP server

default gateway -

B

Which wireless technology can be used to connect wireless headphones to a computer?

NFC

Bluetooth

Wi-Fi

4G-LTE -

B

Which IP configuration parameter provides the IP address of a network device that a computer would use to access the Internet?

default gateway

host IP address

subnet mask

DNS server -

A

Which type of network component is used to interconnect computing devices?

shared peripheral

host

intermediate device

default gateway -

C

Which menu can be used to access tutorials and more information about the Packet Tracer version?

File

Extensions

Help

Options -

C

What can be created in the Physical Workspace?

a new city or building

a simulation -

A

Which three features can be seen in the PT Physical View but not the Logical View? (Choose 3.)

device configuration

ability to power cycle the devices

link lights

attached cables

wiring rack -

CDE

Where can you create a new building and wiring closet?

Logical Workspace

Physical Workspace

Simulation Workspace

Virtual Workspace -

B

Which type of network cable is commonly used in backbone networks and telephone companies?

coaxial cable

fiber-optic cable

twisted-pair cable

shielded twisted-pair cable -

B

Which type of Ethernet cable should be used to directly connect two devices that both use the same pins for transmitting and receiving data?

straight-through twisted-pair cable

fiber-optic cable

coaxial cable

crossover twisted-pair cable -

D

What are three characteristics of UTP cabling? (Choose three.)

uses light to transmit data

easiest type of networking cable to install

commonly used between buildings

most commonly used networking cable

susceptible to EMI and RFI -

BDE

Which two criteria are used to help select a network medium for a network? (Choose two.)

the distance the selected medium can successfully carry a signal

the environment where the selected medium is to be installed

the number of intermediate devices that are installed in the network

the types of data that need to be prioritized

the cost of the end devices that are used in the network -

AB

Which type of network cable contains multiple copper wires and uses extra shielding to prevent interference?

STP

UTP

fiber-optic

coax -

A

Which type of network cable is used to connect the components that make up satellite communication systems?

coaxial

fiber-optic

shielded twisted-pair

unshielded twisted-pair -

A

What are two wiring schemes defined by the TIA/EIA organization for Ethernet installation in homes and businesses? (Choose two.)

UTP

STP

T568B

T568A

RJ-45 -

CD

Which term describes the interference when electrical impulses from one cable cross over to an adjacent cable?

crossover

crosstalk

RFI

collision -

B

What are two sources of electromagnetic interference that can affect data transmissions? (Choose two.)

fluorescent light fixture

LED monitor

corded telephone

infrared remote control

microwave oven -

AE

What is the purpose of an IP address?

It identifies the physical location of a data center.

It identifies a location in memory from which a program runs.

It identifies a return address for replying to email messages.

It identifies the source and destination of data packets on a network. -

D

What type of network is defined by two computers that can both send and receive requests for resources?

client/server

peer-to-peer

enterprise

campus -

B

Which statement describes the ping and tracert commands?

Tracert shows each hop, while ping shows a destination reply only.

Tracert uses IP addresses; ping does not.

Both ping and Tracert can show results in a graphical display.

ping shows whether the transmission is successful; Tracert does not. -

A

What is an advantage of the peer-to-peer network model?

scalability

high level of security

ease of setup

centralized administration -

C

Which type of network model describes the functions that must be completed at a particular layer, but does not specify exactly how each protocol should work?

TCP/IP model

protocol model

reference model

hierarchical design model -

C

Which three elements do all communication methods have in common? (Choose three.)

transmission medium

message type

message source

message destination

message data -

ACD

Which three layers of the OSI model make up the application layer of the TCP/IP model? (Choose three.)

application

presentation

session

transport

data link

network -

ABC

Which two layers of the OSI model specify protocols that are associated with Ethernet standards? (Choose two.)

pointphysical layer

transport layer

data link layer

session layer -

AC

Which term refers to the set of rules that define how a network operates?

model

standard

protocol

domain -

B

Question 6

What makes it possible for e-mail to be sent and received on a wide variety of devices, including cell phones, PDAs, laptops, and desktop computers?

All of the devices run the same operating system software.

There is a single provider of e-mail server software.

The devices use the same e-mail client software, so they are compatible.

E-mail software is written using standards and protocols that ensure compatibility. -

D

Question 1

Which term is used to refer to a Layer 2 PDU?

packet

frame

segment

bit -

B

When a computer assembles a frame to be sent over the network, what is the maximum size of an Ethernet frame?

64 bytes

128 bytes

1024 bytes

1518 bytes -

D

What are two reasons to create a hierarchical network design for an Ethernet network? (Choose 2.)

It allows for duplicate MAC addresses on the network since they are running out.

It will help to minimize the amount of broadcast traffic that Ethernet hosts will have to process.

IP addresses can be used as a physical address to locate the device.

Locating a host in a smaller network is easier than one large Ethernet network. -

BD

What are the three layers of the hierarchical design model? (Choose 3.)

transport layer

network access layer

distribution layer

core layer

application layer

access layer

internet layer -

CDF

Which layer provides connections to hosts in a local Ethernet network?

application layer

network access layer

core layer

network layer

internet layer

access layer -

F

What address type does a switch use to make selective forwarding decisions?

source IP

destination IP

source MAC

destination MAC -

D

What role does a router play on a network?

forwarding Layer 2 broadcasts

forwarding frames based on a MAC address

selecting the path to destination networks

connecting smaller networks into a single broadcast domain -

C

What type of information is contained in a switch MAC table?

switch ports associated with destination MAC addresses

domain name to IP address mappings

routes to reach destination networks

switch ports associated with IP address mappings -

A

Question 4

What is the purpose of the core layer in the Cisco hierarchical network design model?

network access to end devices

high-speed backbone switching

aggregation point for smaller networks

flow control between networks -

B

A technician is setting up equipment on a network. Which three devices will need IP addresses? (Choose three.)

a wireless mouse

an IP phone

a server with two NICs

a printer with an integrated NIC

a web camera that is attached directly to a host -

BCD

What are three characteristics of multicast transmission? (Choose three.)

A single packet can be sent to a group of hosts.

Computers use multicast transmission to request IPv4 addresses.

The source address of a multicast transmission is in the range of 224.0.0.0 to 224.0.0.255.

The range of 224.0.0.0 to 224.0.0.255 is reserved to reach multicast groups on a local network.

Multicast transmission can be used by routers to exchange routing information. -

ADE

What type of message is sent to a specific group of hosts?

unicast

dynamic

multicast

broadcast -

C

What are two differences between binary and decimal numbers? (Choose two.)

Numbers typed on a keyboard are entered as binary and converted to decimal by the computer.

Decimal numbers are based on powers of 1.

Decimal numbers include 0 through 9.

Binary numbers consist of three states: on, off, null. Decimal numbers do not have states.

Binary numbers are based on powers of 2. -

CE

How many usable hosts are available given a Class C IP address with the default subnet mask?

252

254

255

256 -

B

Which network does a host with IP address 172.32.65.13 reside on if it is using a default subnet mask?

172.32.65.0

172.32.65.32

172.32.0.0

172.32.32.0 -

C

Which IP address type is intended for a specific host?

broadcast

multicast

simulcast

unicast -

D

What are three private IPv4 address? (Choose three.)

10.1.1.1

172.16.4.4

172.32.5.2

192.168.5.5

192.167.10.10 -

ABD

When IPv4 is configured for a computer on a network, what does the subnet mask identify?

the dynamic subnetwork configuration

the part of the IP address that identifies the network

the pool of addresses assigned within the network

the device that the computer uses to access another network -

B

What is the destination MAC address that is used in a DHCP Discover frame?

255.255.255.255

1.1.1.1

AA-AA-AA-AA-AA-AA

FF-FF-FF-FF-FF-FF -

D

Which destination IPv4 address does a DHCPv4 client use to send the initial DHCP Discover packet when the client is looking for a DHCP server?

127.0.0.1

224.0.0.1

255.255.255.255

the IP address of the default gateway -

C

Which type of packet is sent by a DHCP server after receiving a DHCP Discover message?

DHCP ACK

DHCP Discover

DHCP Offer

DHCP Request -

C

Which three addresses are not allowed to be in the DCHP pool for clients? (Choose 3.)

network address

network broadcast address

244.0.0.1

FF-FF-FF-FF-FF-FF

router interface address

any address that has a host portion of .1 -

ABE

In which order do the DHCP messages occur when a client and server are negotiating address configuration?

DHCPREQUEST, DHCPDISCOVER, DHCPACK, DHCPOFFER

DHCPOFFER, DHCPACK, DHCPDISCOVER, DHCPREQUEST

DHCPACK, DHCPREQUEST, DHCPOFFER, DHCPDISCOVER

DHCPDISCOVER, DHCPOFFER, DHCPREQUEST, DHCPACK -

D

Which function does NAT perform in a wireless router?

NAT takes a source IP address and translates it to a default gateway address.

NAT takes a local IP address and translates it to an internal source IP address.

NAT takes a destination IP address and translates it to a global IP address.

NAT takes an internal source IP address and translates it to a global IP address. -

D

What is the primary motivation for development of IPv6?

security

header format simplification

expanded addressing capabilities

addressing the need for simplification -

C

How many binary bits exist within an IPv6 address?

32

48

64

128

256 -

D

At which layer of the TCP/IP model does TCP operate?

transport

application

internetwork

network access -

A

Which two protocols are used in the process of sending and receiving emails? (Choose two.)

HTTP

POP

SSH

SMTP

FTP -

BD

At what layer of the OSI model are port numbers addressed?

transport

network

application

physical -

A

What is a "best effort" protocol well suited for streaming audio and VoIP?

TCP

IP

UDP

SSH -

C

What is used by TCP and UDP to track multiple individual conversations between clients and servers?

domain names

URLs

IP addresses

port numbers -

D

Which three pieces of information are identified by a URL? (Choose three.)

the protocol that is being used

the version of the browser

the domain name that is being accessed

the location of the resource

the MAC address of the web server

the IP address of the gateway -

ACD

What is the advantage of using SSH over Telnet?

SSH provides secure communications to access hosts.

SSH operates faster than Telnet.

SSH is easier to use.

SSH supports authentication for a connection request. -

A

Which two applications provide virtual terminal access to remote servers? (Choose two.)

Telnet

DHCP

DNS

SSH

SMTP -

AD

What action does a DNS server take if it does not have an entry for a requested URL?

The server drops the request.

The server returns a "page not found" response to the client.

The server checks with another DNS server to see if it has an entry.

The server assigns a temporary IP address to the name and sends this IP address to the client. -

C

Which three protocols operate at the application layer of the TCP/IP model? (Choose three.)

DHCP

UDP

TCP

ARP

POP3

FTP -

AEF

Which communication tool allows multiple users to communicate with each other in real time by using a smartphone application or social media site?

blog

instant messaging

email

web mail -

B

What type of server would use IMAP?

DNS

DHCP

email

FTP

Telnet -

C

What are three advantages of wireless over wired LAN technology? (Choose three.)

longer transmission distance

ease of installation

ease of expansion

higher level of security

lower on-going costs -

BCE

What type of device is commonly connected to the Ethernet ports on a home wireless router?

wireless antenna

LAN device

cable modem

DSL modem -

B

Which type of network technology is used for low-speed communication between peripheral devices?

Bluetooth

802.11

Ethernet

channels -

A

What purpose would a home user have for implementing Wi-Fi?

to connect a keyboard to a PC

to hear various radio stations

to connect wireless headphones to a mobile device

to create a wireless network usable by other devices -

D

What is CSMA/CA on a network?

an access method that is used by any technology that has excessive collisions

an access method that is used by wireless technology to avoid collisions

an access method that is used by wired Ethernet technology to avoid collisions

an access method that is used by wireless technology to avoid duplicate SSIDs -

B

A user wants to connect to a wireless network at a shopping center. What wireless network setting tells the user the name of the network?

domain name

SSID

passphrase

hostname -

B

Which two statements characterize wireless network security? (Choose two.)

Wireless guest mode provides open access to a protected LAN.

Using the default IP address on an access point makes hacking easier.

An attacker needs physical access to at least one network device to launch an attack.

Wireless networks offer the same security features as wired networks offer.

With SSID broadcast disabled, an attacker must know the SSID to connect. -

BE

Question 3

What are two types of wired high-speed Internet connections? (Choose two.)

DSL

dial-up

cellular

satellite

cable -

AE

What can be used to allow visitor mobile devices to connect to a wireless network and restrict access of those devices to only the Internet?

SSH

guest SSID

authentication -

B

Which type of device provides an Internet connection through the use of a phone jack?

cable modem

DSL modem

satellite modem

Wi-Fi AP -

B

When is a client considered to be "authenticated" when using MAC address filtering to control network access to a wireless network?

when the client gives the access point the correct secret key

when the client sends the MAC address to the access point

when the access point verifies that the MAC address is in the MAC table and sends a confirmation message to the client

when the access point sends the MAC address to the server and receives notification that the MAC address is a valid one -

C

What type of authentication do most access points use by default?

Open

PSK

WEP

EAP -

A

What wireless router configuration would reduce the risk of outsiders accessing or viewing content from your home network?

IP address

encryption

router location

network name -

B

Which term is used for bulk advertising emails flooded to as many end users as possible?

phishing

brute force

spam

adware -

C

What is a characteristic of a computer worm?

Malicious software that copies itself into other executable programs

Tricks users into running the infected software

A set of computer instructions that lies dormant until triggered by a specific event

Exploits vulnerabilities with the intent of propagating itself across a network -

D

How does a phisher typically contact a victim?

email

telephone

adware

spyware -

A

A network administrator attempted to access the company website and received a "page not found" error. The next day the administrator checked the web server logs and noticed that during the same hour that the site failed to load, there was an unusually large number of requests for the website home page. All of the requests originated from the same IP address. Given this information, what might the network administrator conclude?

It is normal web surfing activity.

It is likely that someone attempted a DoS attack.

The link to the website does not have enough capacity and needs to be increased.

The web server was turned off and was not able to service requests. -

B

Which three attacks exploit vulnerabilities in software? (Choose three.)

viruses

phishing

worms

vishing

Trojan horses -

ACE

Which type of attack attempts to overwhelm network links and devices with useless data?

virus

spyware

brute force

denial of service -

D

What type of program installs and gathers personal information, including password and account information, from a computer without permission or knowledge of the user?

adware

pop-ups

spyware

pop-unders -

C

What type of attack is the ping of death?

brute force

virus

social engineering

denial of service -

D

True or False?

Authorized users are not considered a security threat to the network.

true

false -

B

Which type of attack exploits human behavior to gain confidential information?

virus

social engineering

denial of service

spyware -

B

Which type of attack involves an attacker using a powerful computer to try a large number of possible passwords in rapid succession to gain access to a system?

brute force

phishing

pretexting

DDoS -

A

Which two networking devices are used in enterprise networks for providing network connectivity to end devices? (Choose two.)

firewall

router

wireless access point

DNS server

LAN switch -

CE

Which two protocols can be used to access a Cisco switch for in-band management? (Choose two.)

SSH

FTP

Telnet

DHCP

SMTP -

AC

Which two files are loaded into RAM of a Cisco switch when it is booted? (Choose two.)

IOS image file

bootstrap program

startup configuration file

file that contains customer settings

running configuration file -

AC

A Cisco switch has Gigabit Ethernet ports. HostA has a 10/100 Ethernet NIC and HostB has a 10/100/1000 Ethernet NIC. At what speed will each host operate if they are connected to the Gigabit Ethernet ports? (Choose 2.)

Host B will operate at 100Mb/s.

Host B will operate at 10Mb/s.

Host A will operate at 100Mb/s.

Host A will operate at 1000Mb/s.

Host B will operate at 1000Mb/s.

Host A will operate at 10Mb/s. -

CE

What is the purpose of the console port?

provide in-band management of the switch

send data between two host computers

provide out-of-band management for a router or switch

to connect the switch to the router -

C

A network administrator is working on a Cisco router. The CLI prompt is Router1(config-if)#. Which operation is the administrator likely to configure next?

the console port

a LAN interface

the vty lines -

B

What is the difference between the terms keyword and argument in the IOS command structure?

A keyword is entered with a predefined length. An argument can be any length.

A keyword is a specific parameter. An argument is not a predefined variable.

A keyword is required to complete a command. An argument is not.

A keyword always appears directly after a command. An argument does not. -

B

A network administrator is troubleshooting inter-connection issues between routers. Which show command can be used to check which networks the router is connected?

show ip route

show interfaces

show arp

show protocols -

A

While troubleshooting a network problem, a network administrator issues the show version command on a router. What information can be found by using this command?

the amount of NVRAM, DRAM, and flash memory installed on the router

the bandwidth, encapsulation, and traffic statistics on each of the interfaces

the current running configuration

the MAC address to IP address mapping for connected devices -

A

Which Cisco IOS mode displays a prompt of Router#?

global configuration mode

setup mode

user EXEC mode

privileged EXEC mode -

D

Which command can be used to encrypt all passwords in the configuration file?

service password-encryption

enable secret

enable password

password -

A

Which configuration step should be performed first when enabling SSH on a Cisco device?

Generate RSA key pairs.

Configure an IP domain name.

Configure an encrypted password for the console line.

Disable Telnet on vty lines. -

B

What is the purpose of assigning an IP address to the VLAN1 interface on a Cisco Layer 2 switch?

to enable remote access to the switch to manage it

to enable the switch to route packets between networks

to permit IP packets to be forwarded by the switch

to create a new IP local network on the switch -

A

What is the purpose of configuring a default gateway address on a host?

to identify the logical address of a networked computer and uniquely identify it to the rest of the network

to provide a permanent address to a computer

to identify the device that allows local network computers to communicate with devices on other networks

to identify the network to which a computer is connected -

C

A user calls the help desk to report a workstation problem. Which three questions would produce the most helpful information for troubleshooting? (Choose three.)

If you received an error message, what was it?

What changes have you made to your workstation?

Do you have the warranty for your workstation?

What operating system version is running on your workstation?

Have you used a network monitoring tool on your workstation? -

ABD

A network administrator can successfully ping the server at www.cisco.com, but cannot ping the company web server located at an ISP in another city. Which tool or command would help identify the specific router where the packet was lost or delayed?

ipconfig

netstat

telnet

traceroute -

D

Which command would a technician use to display network connections on a host computer?

ipconfig

nslookup

tracert

netstat -

D

A customer called the cable company to report that the Internet connection is unstable. After trying several configuration changes, the technician decided to send the customer a new cable modem to try. What troubleshooting technique does this represent?

substitution

divide-and-conquer

bottom-up

top-down -

A

A small office uses a wireless router to connect to a cable modem for Internet access. The network administrator receives a call that one office computer cannot access external websites. The first troubleshooting step that the network administrator performs is to ping the wireless router from the office computer. Which troubleshooting technique does this represent?

divide-and-conquer

bottom-up

substitution

top-down -

A

Using a systematic troubleshooting approach, a help desk technician suspects a problem at Layer 3 of the OSI model. In gathering information, which two questions are associated with Layer 3? (Choose two.)

Is the PC configured for DHCP?

Does a browser connection to www.cisco.com work?

From the PC, is the default gateway reachable using the ping command?

Is there a link light on the network card?

Is the network cable plugged in? -

AC

A small SOHO uses a wireless integrated router for employee workstations to connect to the Internet. For security consideration, the SSID is not broadcast and the IP address configuration is provided by the DHCP server in the router. An employee reports that the workstation cannot connect to the Internet. A technician verifies that other workstations can successfully connect to the Internet. What are two possible reasons for the problem? (Choose two.)

A default gateway is improperly configured on the wireless router.

The wireless client is not configured for DHCP.

An incorrect default gateway is manually configured on the client.

An invalid SSID is configured.

A bad cable exists between the client and the integrated router. -

BD

During a move, employee workstations were disconnected from the network and reconnected in new offices. However, after the move a few

workstations cannot get a valid IP address. What should be checked first to identify the root cause of the problem?

Check the operation status of the DHCP server.

Install all software updates.

Make sure the cables are functional and properly plugged.

Test if these workstations can ping the default gateway. -

C

The home computer of a user is working properly. However, the user cannot access the Internet. The Internet connection is provided through a cable company. The user cannot identify the cause of the problem. Who should the user contact for further help?

the operating system vendor

the help line of the cable company

the help line of the computer manufacturer

the support web site of the computer vendor -

B

What are two common causes of a physical layer network connectivity problem? (Choose two.)

an Ethernet cable plugged into a wrong port

a faulty Ethernet cable

an incorrect default gateway

a monitor unplugged

an unassigned IP address -

AB

How does an activity LED on wireless routers indicate that traffic is moving through a port?

by staying a solid green color

by staying a solid amber color

by staying turned off

by flashing -

D

A technician has been asked to troubleshoot a simple network problem that seems to be caused by software. Which troubleshooting approach should be used?

top-down

substitution

divide and conquer

bottom-up -

A

A customer calls the help line to report a computer problem. The help line technician responds and works with the customer for some time. However, the technician cannot identify the root cause of the problem. What should the technician do to help the customer?

Ask for the email address of the customer in order to send all the support documents for the computer.

Tell the customer that a replacement computer will be shipped immediately.

Tell the customer that a ticket is created and another technician will contact the user soon.

Suggest that the customer visit the support website for more detailed information. -

C

A network technician enters the command ipconfig /release followed by ipconfig /renew in order to ensure that the DHCP IP configuration on a workstation is updated. However, the workstation does not receive a valid IP configuration for the network. Which two problems may exist on the network? (Choose two.)

The ipconfig /all command must be issued to restore all IP configurations.

The gateway router address needs to be updated.

There is no network connectivity to the DHCP server.

There is a DHCP server issue.

The DHCP lease time is misconfigured. -

CD

QN=1 (8643) SMTP, POP3, and IMAP protocols run on the following layer: a. None of them b. Transport layer c. Network layer d. Link layer ANSWER: A MARK: 1 UNIT: Chapter 1.1 MIX CHOICES: Yes

QN=2 (8644) In computer networking, hosts are sometimes divided into two categories: a. clients and servers b. Network and routers c. Routers and clients d. End-system and beginning-system ANSWER: A MARK: 1 UNIT: Chapter 1.2 MIX CHOICES: Yes

QN=3 (8656) Two types of network switching are: a. Circuit and packet switching b. X25 and Frame Relay c. ATM and Frame Relay d. Datagram and X25 ANSWER: A MARK: 1 UNIT: Chapter 1.3 MIX CHOICES: Yes

QN=4 (8661) Which delay mainly depends on the congestion of the network? a. Queuing delay b. Transmission delay c. Processing delay d. Propagation delay ANSWER: A MARK: 1 UNIT: Chapter 1.4 MIX CHOICES: Yes

QN=5 (8672) What is the order of the 5 layers in the Internet model? a. Application, transport, network, link, physical b. Application, network, link, physical, transport c. Application, transport, link, physical network, d. Application, transport, network, physical, link ANSWER: A MARK: 1 UNIT: Chapter 1.5 MIX CHOICES: Yes

QN=6 (8681) Vulnerability Attack, Bandwidth Flooding, and Connection Flooding belongs to a. Internet DoS Attack b. Bogus Attack c. Sniffer d. Snoofing ANSWER: A MARK: 1 UNIT: Chapter 1.6 MIX CHOICES: Yes

QN=7 (8685) A packet of L bits is transmitted via the link with the transmission rate of R bits/sec; the transmission delay is a. L/R b. R/L c. 2L/R d. 2R/L ANSWER: A MARK: 1 UNIT: Chapter 1.7 MIX CHOICES: Yes

QN=8 (8696) Assume that an image is about 1000 x 800 pixels with 3 bytes/pixel and it is uncompressed. How long does it take to transmit it over a 1 Mbps channel? a. 19.2 sec b. 24 sec c. 2.4 sec d. 1.12 sec ANSWER: A (10008003*8/10^6) MARK: 1 UNIT: Chapter 1.8 MIX CHOICES: Yes

QN=9 (8710) There are 4 serial links between the client and the server, with the transmission rates being 3Mbps, 12Mbps, 12 Mbps, and 2 Mbps. What is the throughput between the client and the server? a. 2 Mbps b. 1 Mbps c. 3 Mbps d. 12 Mbps ANSWER: A (choose min) MARK: 1 UNIT: Chapter 1.9 MIX CHOICES: Yes

QN=10 (8713) If the router's buffer memory is empty and no other packet is currently being transmitted, then the packet's____ will be zero a. Queueing delay b. Transmission delay c. Propagation delay d. Processing Delay ANSWER: A MARK: 1 UNIT: Chapter 1.10 MIX CHOICES: Yes

QN=11 (8740) As soon as the browser receives the IP address from__, it can initiate a TCP connection to the HTTP server located at port___ at that IP address a. DNS… 80 b. FTP… 20 c. User…80 d. Client…60 ANSWER: A MARK: 1 UNIT: Chapter 2.1 MIX CHOICES: Yes

QN=12 (8749) In the file distribution of the client-server model, the server has to send __ of file to many hosts, consuming (tiêu th?) a large amount of___ a. Copies…bandwidth b. Copies…transmission c. Duplicate…bandwidth d. Portion…transmission ANSWER: A MARK: 1 UNIT: Chapter 2.2 MIX CHOICES: Yes

QN=13 (8759) Although HTTP is stateless (không tr?ng thái), if the webserver wants to identify the users, ____is used a. Cookies b. Caches c. Password d. ID ANSWER: A MARK: 1 UNIT: Chapter 2.3 MIX CHOICES: Yes

QN=14 (8769) When you use ftp client (a utility in Windows), what is command used to get files from ftp server? a. get b. retr c. recv d. ls ANSWER: A MARK: 1 UNIT: Chapter 2.4 MIX CHOICES: Yes

QN=15 (8774) This command identifies the receiver of the message in email. a. RCPT TO b. MAIL FROM c. HELO d. DATA ANSWER: A MARK: 1 UNIT: Chapter 2.5 MIX CHOICES: Yes

QN=16 (8786) Regarding to (v?) the DNS, hostnames such as www.fpt.edu.vn, www.stanford.edu are __ to remember by human, but ___ to process by routers a. Easy….Difficult b. Difficult…Easy c. Easy…clear d. Difficult…heavy ANSWER: A MARK: 1 UNIT: Chapter 2.6 MIX CHOICES: Yes

QN=17 (8792) DNS is short for a. Domain Name System b. Distributed Name System c.

Distributed Network System d. Distributed Network Simplification ANSWER: A MARK: 1 UNIT: Chapter 2.7 MIX CHOICES: Yes

QN=18 (8804) Skype is a a. P2P application b. Transport Layer application c. Network Layer application d. Kazza application ANSWER: A MARK: 1 UNIT: Chapter 2.8 MIX CHOICES: Yes

QN=19 (8817) Assume the one-way propagation delay 100ms, the size of the Web object 0.2Mb and the transmission rate 10Mbps, how long does it take to download that object from a Web Server to a client if using non-persistent HTTP? a. 420ms b. 220ms c. 440ms d. 240ms ANSWER: A MARK: 1 UNIT: Chapter 2.9 MIX CHOICES: Yes

QN=22 (8851) The job of delivering the data in a transport-layer segment to the correct application process is called**_**. a. De-multiplexing b. multiplexing c. Congestion control d. Gathering ANSWER: A MARK: 1 UNIT: Chapter 3.2 MIX CHOICES: Yes

QN=23 (8862) Which protocol is better for real-time video application over the Internet in term of minimizing the average transmission delay? a. UDP b. TCP c. ICMP d. ARP ANSWER: A MARK: 1 UNIT: Chapter 3.3 MIX CHOICES: Yes

QN=24 (8869) Which the following is the individual characteristic (??c ?i?m riêng) of rdt3.0? a. Requires countdown timer. b. Packet retransmission on receipt of NAK c. Handling duplicate packets. d. Retransmit current packet on receipt of duplicate ACK. ANSWER: A MARK: 1 UNIT: Chapter 3.4 MIX CHOICES: Yes

QN=25 (8878) The acknowledgment (s? công nh?n)number in TCP segment is ____. a. Cumulative (tích l?y) b. randomly generated c. independent d. 0 ANSWER: A MARK: 1 UNIT: Chapter 3.5 MIX CHOICES: Yes

QN=27 (8896) What is the one's compliment 8-bit checksum of the following 8-bit binary numbers: 1001 0101 and 1010 1010. a. 1011 1111 b. 0100 0000 c. 0011 1111 d. 1010 1110 ANSWER: A MARK: 1 UNIT: Chapter 3.7 MIX CHOICES: Yes

QN=29 (8922) Host A and B are communicating over a TCP connection, host A send to host B the first segment with size 5105 bytes, sequence number 600, the source port 1028, the destination port 1029. What is the ACK number, the source port number, the destination port number in the ACK segment sent by host B to host A a. ACK number: 5705, source port: 1029, destination port: 1028 b. ACK number: 5706, source port: 1028, destination port: 1029 c. ACK number: 5700, source port: 1029, destination port: 1028 d. ACK number: 5705, source port:1028, destination port: 1029 ANSWER: A MARK: 1 UNIT: Chapter 3.9 MIX CHOICES: Yes

QN=30 (8930) In the congestion avoidance phase of TCP congestion control, if the timeout occurs at the current congestion window size 32, the congestion size will reduce to _ and the threshold window size is set to ___ a. 1…. 16 b. 1……32 c. 0…32 d. 0… 64 ANSWER: A MARK: 1 UNIT: Chapter 3.10 MIX CHOICES: Yes

QN=31 (8947) In IP fragmentation with MTU (Maximum Transmission Unit) size of 1500 bytes , a 2000 byte datagram is fragmented into ___ datagram(s) a. 2 b. 1 c. 3 d. 4 ANSWER: A(2000/1500) => ^ MARK: 1 UNIT: Chapter 4.1 MIX CHOICES: Yes

QN=33 (8960) If the fragment offset has a value of 100 and MF = 0, it means that ___. a. this is the last fragment. b. the datagram is 100 bytes in size. c. the first byte of the datagram is byte 100. d. the datagram has not been fragmented. ANSWER: A MARK: 1 UNIT: Chapter 4.2 MIX CHOICES: Yes

QN=35 (8958) In Datagram networks and in Virtual networks: a. One has each packet to route independently; one has all packet to route in one path, respectively (t??ng ?ng) b. One has all packet to route in one path; One has each packet to route independently, respectively c. All packets follow one unique path for the same source-destination pair for both those network d. Senders have to wait for ACK for each packet before sending a new packet for both those networks ANSWER: A MARK: 1 UNIT: Chapter 4.2 MIX CHOICES: Yes

QN=37 (8975) Which layer does ICMP reside in (c? trú t?i)? a. Network b. Data link c. Physical d. Transport ANSWER: A MARK: 1 UNIT: Chapter 4.3 MIX CHOICES: Yes

QN=38 (8979) What does the IP header's protocol field identify? a. The transport layer protocol that generated the information in the data field b. The data link layer protocol that will carry the datagram c. The physical layer specification of the network that will carry the datagram d. The application that generated the message carried in the datagram ANSWER: A MARK: 1 UNIT: Chapter 4.4 MIX CHOICES: Yes

QN=39 (8986) A ___ routing table is updated periodically (??nh k?) using one of the adaptive (thích nghi) routing protocols. a. dynamic b. static c. hierarchical d. deterministic ANSWER: A MARK: 1 UNIT: Chapter 4.5 MIX CHOICES: Yes

QN=40 (9000) Which is the function of NAT router? a. Replacing source IP address and port # with NAT IP address and new port # for every outgoing datagram and doing vice verse for every incoming datagram b. Adaptively replacing the broken route by a new working route c. Replacing IP address with MAC address d. Translate the IP address to a port number ANSWER: A MARK: 1 UNIT: Chapter 4.6 MIX CHOICES: Yes

QN=41 (9009) Which one is not an IP address? a. 251.222.258.1 b. 255.222.1.171 c. 10.10.10.110 d. 10.100.200.0 ANSWER: A MARK: 1 UNIT: Chapter 4.7 MIX CHOICES: Yes

QN=42 (9019) What is the 32-bit binary equivalent of the IP address 13.253.17.252? a. 00001101.1111101.00010001.11111100 b. 00010011.1111101.00010001.11111100 c. 00001101.1111111.00010001.11111101 d. 00001101.1111101.00010001.11111110 ANSWER: A MARK: 1 UNIT: Chapter 4.8 MIX CHOICES: Yes

QN=45 (9061) In datalink layer, there are two types of networks links: a. Point-to-point link and broadcast (phát sóng) link b. Point-to-point link and unicast link c. Unicast link and broadcast link d. Multiple link and broadcast link ANSWER: A MARK: 1 UNIT: Chapter 5.1 MIX CHOICES: Yes

QN=46 (9067) Which one is not a service provided by the link layer? a. Congestion control (?i?u khi?n t?c ngh?n) b. Flow control c. Error Detection d. Error Correction ANSWER: A MARK: 1 UNIT: Chapter 5.2 MIX CHOICES: Yes

QN=47 (9082) Assume the original message to be sent 11001, the generator is 1001 . What is the transmitted message? a. 11001010 b. 11001111 c. 11001011 d. 11001000 ANSWER: A MARK: 1 UNIT: Chapter 5.3 MIX CHOICES: Yes

QN=48 (9090) Channel partitioning (phân vùng), random access, and taking turns are**__** a. MAC protocols b. Channel Access Protocols c. CSMA/CA d. CSMA/CD ANSWER: A MARK: 1 UNIT: Chapter 5.4 MIX CHOICES: Yes

QN=49 (9103) What does that mean by “Carrier Sense” in CSMA/CD? a. The host listens for the carrier signal from other adapters before any transmission b. The host waits for carrier signal from other adapter to arrive before any transmission c. The host cancels its transmission after a random access time d. The host sends multiple signals to detect collision ANSWER: A MARK: 1 UNIT: Chapter 5.5 MIX CHOICES: Yes

QN=52 (9130) The broadcast MAC address in LAN is a. FF-FF-FF-FF-FF-FF b. FF-FF-FF-FF c. EE-FF-EE-FF-EE-FF d. 00-00-00-00-00-00 ANSWER: A MARK: 1 UNIT: Chapter 5.8 MIX CHOICES: Yes

QN=53 (9136) In the exponential backoff phase of CSMA/CD, after 3rd collision of a frame, the adapter then waits K x 512 bit times before sensing the channel again, where K is chosen at a random from a. {0,1,2,3,4,5,6,7} b. {0,1,2,3,} c. {0,1} d. 3 ANSWER: A (2^3 -1) MARK: 1 UNIT: Chapter 5.9 MIX CHOICES: Yes

QN=54 (9150) What is the MAC protocol used in 802.11 network? a. CSMA/CA b. CSMA/CD c. Token passing d. TDMA ANSWER: A MARK: 1 UNIT: Chapter 5.10 MIX CHOICES: Yes

QN=55 (8725) Examples of **___**include copper wire, coaxial cable, optical fiber, and satellite radio. a. physical transmission media b. Data link transmission media c. Transmission channel d. Transmission technique ANSWER: A MARK: 1 UNIT: Chapter 1.11 MIX CHOICES: Yes

QN=56 (8735) In _, the network establishes a dedicated end-to-end connection between two hosts a. Circuit switching b. Packet switching c. Time switching d. Channel switching ANSWER: A MARK: 1 UNIT: Chapter 1.12 MIX CHOICES: Yes

QN=57 (8830) IMAP and POP are**_** a. Mail access protocols b. Web access protocols c. Protocols used in the post office d.

Multimedia transmission protocols ANSWER: A MARK: 1 UNIT: Chapter 2.11 MIX CHOICES: Yes

QN=58 (8937) Regarding TCP, what can happen if timeout is much larger than the round-trip time? a. When a segment is lost, TCP would not quickly retransmit the segment, resulting in long data transfer delays into the application. b. The sender may sleep for longer time c. Triple duplicate ACKs of TCP congestion control phase will be activated, resulting unnecessary retransmission d. Fast transmission will be used ANSWER: A MARK: 1 UNIT: Chapter 3.11 MIX CHOICES: Yes

QN=59 (8943) The transport layer protocol provides logical communication between __, while the network layer protocol provides logical communication between _. a. Processes…..Hosts b. Hosts…..Processes c. Points…..Processing d. Layers….Hosts ANSWER: A MARK: 1 UNIT: Chapter 3.12 MIX CHOICES: Yes

QN=60 (9046) While IPv4 is …byte-long, IPv6 is … byte-long a. 4….16 b. 4….6 c. 32….48 d. 8….16 ANSWER: A MARK: 1 UNIT: Chapter 4.11 MIX CHOICES: Yes

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MULTIPLE CHOICES QUESTIONS:

QN=2 (8645) The Internet provides two types of services to its applications: a. connectionless service and connection-oriented service. b. Non-connection service and connection-oriented service. c. wireless service and wire-oriented service. d. pipeline service and non-pipeline service. ANSWER: A MARK: 1 UNIT: Chapter 1.2 MIX CHOICES: Yes

QN=3 (8658) That the frequency spectrum of a link is shared among the connections established across the link is called….. a. Frequency division multiplexing b. Frequency-Time division multiplexing c. Packet division multiplexing d. Channel division multiplexing ANSWER: A MARK: 1 UNIT: Chapter 1.3 MIX CHOICES: Yes

QN=4 (8666) If the buffer of the router in the Internet is full, the router will____ a. Drop incoming packets, resulting packet loss b. Modify the packets to make it smaller c. Transmit packets faster d. Automatically enlarge the buffer so that it can store more packets ANSWER: A MARK: 1 UNIT: Chapter 1.4 MIX CHOICES: Yes

QN=5 (8675) In OSI model, as data packet moves from the upper to the lower layer header are a. Added b. Removed c. Refined d. Redirected ANSWER: A MARK: 1 UNIT: Chapter 1.5 MIX CHOICES: Yes

QN=6 (8679) A program running in a network attached device that passively (th? ??ng) receives all packet passing by the device's network interface is a. Packet sniffer b. Packet snoofer c. Packet catcher d. Network virus ANSWER: A MARK: 1 UNIT: Chapter 1.6 MIX CHOICES: Yes

QN=7 (8694) Suppose there are 5 routers between the source host and the destination host, 10ms is the processing delay at each router, 10ms is the propagation delay at each link, and 12ms is the transmission delay out of each router and the source, then the total delay is (ignore all other delays) a. 192ms b. 96ms c. 160ms d. 32ms ANSWER: A (10 + 12 + 10) * 6 MARK: 1 UNIT: Chapter 1.7 MIX CHOICES: Yes

QN=8 (8702) Assume that an image is about 1000 x 800 pixels with 1 byte/pixel and it is uncompressed. How long does it take to transmit it over a 2 Mbps channel? a. 3.2 sec b. 0.4 sec c. 32 sec d. 4 sec ANSWER: A (10008008) / (2*10^6) MARK: 1 UNIT: Chapter 1.8 MIX CHOICES: Yes

QN=10 (8714) The time delay for checking bit-level error in the packet that occurs at the router can be classified as the _ a. Processing Delay b. Transmission delay c. Propagation delay d. Queueing delay ANSWER: A MARK: 1 UNIT: Chapter 1.10 MIX CHOICES: Yes

QN=11 (8743) Assume that the time it takes for a small packet to travel from the client to the server and then back to the client is 100 ms, then the round-trip time is a. 100ms b. 200ms c. 50ms d. 250ms ANSWER: A MARK: 1 UNIT: Chapter 2.1 MIX CHOICES: Yes

QN=12 (8748) Which one is not belong to application layer? a. ARP b. HTTP c. DNS d. P2P ANSWER: A MARK: 1 UNIT: Chapter 2.2 MIX CHOICES: Yes

QN=13 (8760) An HTTP request message always contains ___. a. a request line and a header b. a header and a body c. a status line, a header, and a body d. a reply code ANSWER: A MARK: 1 UNIT: Chapter 2.3 MIX CHOICES: Yes

QN=14 (8770) FTP uses port 21 for sending…. and port 20 for sending….. a. Identification and password…. Data file b. Data file… Identification and password c. Data file…Control signal d. Identification… Control signal ANSWER: A MARK: 1 UNIT: Chapter 2.4 MIX CHOICES: Yes

QN=15 (8777) To talk with a mail server (with name serverName), we can use command a. telnet serverName 25 b. telnet serverName 80 c. telnet serverName 21 d. put serverName 21 ANSWER: A MARK: 1 UNIT: Chapter 2.5 MIX CHOICES: Yes

QN=16 (8781) The**__** that together implement the DNS distributed database, store____ for the hostname to IP address mappings. a. DNS servers….Resource Records b. Resource Records…DNS servers c. Root servers….IP address d. Root servers…IP address and port number ANSWER: A MARK: 1 UNIT: Chapter 2.6 MIX CHOICES: Yes

QN=17 (8791) What type of DNS Server has the IP addresses of all names in the Autonomous? a. authoritative b. top level c. root d. local ANSWER: A MARK: 1 UNIT: Chapter 2.7 MIX CHOICES: Yes

QN=18 (8802) Which one is correct about P2P network? a. A user computer can be both client

and server b. A user computer is not allowed to change its IP address c. The must be a server containing all files for clients to download d. One user computer failure can lead to the whole P2P network to fail ANSWER: A MARK: 1 UNIT: Chapter 2.8 MIX CHOICES: Yes

QN=19 (8813) Assume the RTT 50ms, the size of the Web object 0.4Mb and the transmission rate 10Mbps, how long does it take to download that object from a Web Server to a client if using non-persistent HTTP?? a. 140ms b. 240ms c. 440ms d. 90ms e. 9 ANSWER: A MARK: 1 UNIT: Chapter 2.9 MIX CHOICES: Yes

QN=20 (8821) Which statement is correct about cookie technology? a. Most major commercial Web sites today use cookies b. None of them c. Web server does not has back-end database to record user's last activity d. User's browser has a back-end database to contain the web's content ANSWER: A MARK: 1 UNIT: Chapter 2.10 MIX CHOICES: Yes

QN=21 (8845) Which of the following is the pipelining protocol: a. Selective Repeat b. Sliding Window c. Premature Timeout d. Stop and Wait ANSWER: A MARK: 1 UNIT: Chapter 3.1 MIX CHOICES: Yes

QN=22 (8852) The job of gathering data at the source host from different application processes, enveloping the data and passing the segments to the network layer is called a. Multiplexing b. De-multiplexing c. Congestion control d. Gathering ANSWER: A MARK: 1 UNIT: Chapter 3.2 MIX CHOICES: Yes

QN=23 (8858) Electronic mail uses __ while streaming multimedia typically uses**_****** a. TCP……..UDP b. UDP……..TCP c. TCP……..HTTP d. FTP……..DNS ANSWER: A MARK: 1 UNIT: Chapter 3.3 MIX CHOICES: Yes

QN=24 (8868) Pipelined reliable data transfer protocols allow the sender to ___ a. transmit multiple packets without waiting for an ACK b. Transmit only one packet and waiting for an ACK c. Transmit unlimited number of packet without ACK d. Stop transmission when there is NAK ANSWER: A MARK: 1 UNIT: Chapter 3.4 MIX CHOICES: Yes

QN=25 (8877) TCP connection provides **___**. a. Full-duplex service b. Half-duplex service c. Simplex service d. One way communications ANSWER: A MARK: 1 UNIT: Chapter 3.5 MIX CHOICES: Yes

QN=26 (8892) How many duplicate ACKs to trigger the Fast Retransmission mode? a. 3 b. 2 c. 1 d. An option. ANSWER: A MARK: 1 UNIT: Chapter 3.6 MIX CHOICES: Yes

QN=27 (8898) UDP and TCP use 1s complement checksum. Suppose you have the followings 2 bytes: 00110111 and 01001100. What is the 1s complement of the sum of those two bytes? a. 01111100 b. 10000011 c. 00110111 d. 01001100 ANSWER: A MARK: 1 UNIT: Chapter 3.7 MIX CHOICES: Yes

QN=28 (8909) Suppose that Host A then sends two segments to Host B over a TCP connection. The first and second segments contain 30 and 40 bytes of data, respectively. In the first

segment, the sequence number is 165. In the acknowledgement of the first arriving segment, what is the acknowledgment number? a. 195 b. 235 c. 205 d. 135 ANSWER: A MARK: 1 UNIT: Chapter 3.8 MIX CHOICES: Yes

QN=29 (8913) Host A and B are communicating over a TCP connection, host A send to host B the first segment with size 40 bytes, sequence number 410, the source port 1028, the destination port 80. What is the ACK number, the source port number, the destination port number in the ACK segment sent by host B to host A a. ACK number: 450, source port: 80, destination port: 1028 b. ACK number: 400, source port: 1028, destination port: 80 c. ACK number: 451, source port: 80, destination port: 1028 d. ACK number: 450, source port:1028, destination port: 80 ANSWER: A MARK: 1 UNIT: Chapter 3.9 MIX CHOICES: Yes

QN=30 (8933) In ____, if timeout occurs while the current congestion window size is 64, the congestion window will reduce to 1 a. The congestion avoidance phase of TCP congestion control b. The congestion avoidance phase of UDP congestion control c. The timeout phase of TCP flow control d. The timeout phase of UDP flow control ANSWER: A MARK: 1 UNIT: Chapter 3.10 MIX CHOICES: Yes

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========== MULTIPLE CHOICES QUESTIONS: QN=1 (8845) Which of the following is the pipelining protocol: a. Selective Repeat b. Sliding Window c. Premature Timeout d. Stop and Wait ANSWER: A MARK: 1 UNIT: Chapter 3.1 MIX CHOICES: Yes

QN=2 (8849) The job of gathering data at the source host from different…..,enveloping the data with header information to create ….is called multiplexing a. application processes…. segments b. application processes…..data link frame c. hosts…. segments d. Application flows… data link frame ANSWER: A MARK: 1 UNIT: Chapter 3.2 MIX CHOICES: Yes

QN=3 (8859) Which one is incorrect about UDP? a. Has congestion control b. No connection establishment. c. No connection state. d. Smaller segment header overhead in comparison with TCP ANSWER: A MARK: 1 UNIT: Chapter 3.3 MIX CHOICES: Yes

QN=4 (8873) __ in the Internet is achieved through the use of acknowledgments and retransmissions. a. Reliable data transfer b. Interacting procedure c. Exchanging procedure d. Data moving ANSWER: A MARK: 1 UNIT: Chapter 3.4 MIX CHOICES: Yes

QN=5 (8881) To accomplish (hoàn thành) flow control, TCP uses a **___** window protocol. a. sliding b. limited-size c. fixed-size d. Variable-size ANSWER: A MARK: 1 UNIT: Chapter 3.5 MIX CHOICES: Yes

QN=6 (8889) In the ____ algorithm of the TCP congestion control, the size of the CONGWIN (congestion window) increases exponentially. a. slow start b. congestion detection c. congestion avoidance d. Exponential increasing ANSWER: A MARK: 1 UNIT: Chapter 3.6 MIX CHOICES: Yes

QN=8 (8908) Suppose that Host A then sends two segments to Host B over a TCP connection. The first and second segments contain 30 and 40 bytes of data, respectively. In the first segment, the sequence number is 145. In the acknowledgement of the first arriving segment, what is the acknowledgment number? a. 175 b. 185 c. 215 d. 125 ANSWER: A MARK: 1 UNIT: Chapter 3.8 MIX CHOICES: Yes

QN=9 (8921) Host A and B are communicating over a TCP connection, host A send to host B the first segment with size 2105 bytes, sequence number 100, the source port 1028, the destination port 1029. What is the ACK number, the source port number, the destination port number in the ACK segment sent by host B to host A a. ACK number: 2205, source port: 1029, destination port: 1028 b. ACK number: 2206, source port: 1028, destination port: 1029 c. ACK number: 2200, source port: 1029, destination port: 1028 d. ACK number: 2205, source port:1028, destination port: 1029 ANSWER: A MARK: 1 UNIT: Chapter 3.9 MIX CHOICES: Yes

QN=10 (8932) In the congestion avoidance phase of TCP congestion control, if the timeout occurs at the current congestion window size 80, the congestion size will reduce to _ and the is set to ___ a. 1…. 40 b. 1……80 c. 0…40 d. 0… 32 ANSWER: A MARK: 1 UNIT: Chapter 3.10 MIX CHOICES: Yes

QN=11 (8950) In classless addressing, **__** is assigned to an organization. a. a variable-length block b. a fixed-length c. a fixed number of blocks d. an infinite number of addresses ANSWER: A MARK: 1 UNIT: Chapter 4.1 MIX CHOICES: Yes

QN=12 (8955) What type of service that Virtual Circuit network provide? a. Connection-oriented b. Connectionless c. Both connection-oriented and connectionless d. Virtual Private Network (PVN) ANSWER: A MARK: 1 UNIT: Chapter 4.2 MIX CHOICES: Yes

QN=13 (8971) What field in the IP header changes when a datagram is forwarded by a simple router? a. TTL b. ToS c. HL d. Source IP address ANSWER: A MARK: 1 UNIT: Chapter 4.3 MIX CHOICES: Yes

QN=14 (8981) What is the data unit used in Internet Protocol (IP)? a. Datagram b. Segment c. Frame d. Message ANSWER: A MARK: 1 UNIT: Chapter 4.4 MIX CHOICES: Yes

QN=15 (8990) What is tracert (in Windows machine) or traceroute (in Linux machine) program for? a. To find the route path between the sender and receiver and to measure transit times of packets along the path b. To find the nearest router and the shortest path c. To find the shortest path between the sender and receiver and the longest transmission time among routers d. To find the average path between the sender and receiver and the longest transmission time among routers ANSWER: A MARK: 1 UNIT: Chapter 4.5 MIX CHOICES: Yes

QN=16 (8999) What does NAT stand for? a. Network Address Translation b. Network Address Transfer c. Network Address Taking d. Network Address Table ANSWER: A MARK: 1 UNIT: Chapter 4.6 MIX CHOICES: Yes

QN=17 (9003) Which one is not an IP address? a. 256.222.255.1 b. 255.222.1.1 c. 10.10.10.10 d. 10.100.200.0 ANSWER: A MARK: 1 UNIT: Chapter 4.7 MIX CHOICES: Yes

QN=18 (9020) What is the 32-bit binary equivalent of the IP address 13.253.17.253? a. 00001101.1111101.00010001.11111101 b. 00010011.1111101.00010001.11111101 c. 00001101.1111111.00010011.11111110 d. 00001101.1111101.00010000.11111110 ANSWER: A MARK: 1 UNIT: Chapter 4.8 MIX CHOICES: Yes

QN=19 (9027) Suppose a subnet has a block of IP addresses 101.101.101.0/24, which address belongs to that block? a. 101.101.101.122 b. 101.101.121.122 c. 101.121.101.111 d. 101.101.131.131 ANSWER: A MARK: 1 UNIT: Chapter 4.9 MIX CHOICES: Yes

QN=20 (9031) Suppose datagrams are limited to 1500bytes including IP header of 20 bytes. UDP header is 8 bytes. How many datagrams would be required to send an MP3 of 80000 bytes a. 55 b. 54 c. 53 d. 56 ANSWER: A MARK: 1 UNIT: Chapter 4.10 MIX CHOICES: Yes

QN=21 (9059) Which of the following is the service of link layer? a. Error detection. b. Connection setup. c. Congestion control. d. Delay guarantees. ANSWER: A MARK: 1 UNIT: Chapter 5.1 MIX CHOICES: Yes

QN=22 (9075) In CRC, both receiver and sender knows a. The Generator b. The Correct Frame c. Divided Frame d. Polynomial ANSWER: A MARK: 1 UNIT: Chapter 5.2 MIX CHOICES: Yes

QN=23 (9077) Assume the original message to be sent 101110, the generator is 1001. What is the transmitted message? a. 101110011 b. 101110010 c. 101110001 d. 101110111 ANSWER: A MARK: 1 UNIT: Chapter 5.3 MIX CHOICES: Yes

QN=24 (9088) CSMA/CA belong to**__** group, one of three broad classes of MAC protocols. a. Random access b. Multiple channels c. Channel partitioning d. Resource reservation ANSWER: A MARK: 1 UNIT: Chapter 5.4 MIX CHOICES: Yes

QN=25 (9096) CSMA/CD stands for a. Carrier Sense Medium Access/Collision Detection b. Caring System Medium Access/ Collision Detection c. Carrier Sense Medium Access/Career Detection d. Carrier Sense Medium Access/Carrier Detection ANSWER: A MARK: 1 UNIT: Chapter 5.5 MIX CHOICES: Yes

QN=26 (9105) What is cut-through operation in switches? a. They start forwarding frames as soon as the destination header field has come in, but before the rest of frame has arrived b. They receive the whole frame before forwarding to next station c. As soon as they receive the first bit of the frame, they forward to the next station d. They forward the last bit first ANSWER: A MARK: 1 UNIT: Chapter 5.6 MIX CHOICES: Yes

QN=27 (9116) ARP is a. Plug-and-play b. Autonomous c. Implemented by network

administrators d. An authorative protocol ANSWER: A MARK: 1 UNIT: Chapter 5.7 MIX CHOICES: Yes

QN=28 (9126) Which one is a MAC address: a. F0-F0-16-F2-15-00 b. GF-D0-56-F2-05-12 c. FF-62-DE-6F-D2 d. F0-62-DE5-75E-EA6 ANSWER: A MARK: 1 UNIT: Chapter 5.8 MIX CHOICES: Yes

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QN=3 (8652) Which statement is correct about packet switching and circuit switching? a. With the same delay performance, packet-switching allows more number of users than circuit switching b. With the same delay performance, packet-switching allows less number of users than circuit switching c. Circuit switching is always more efficient than packet-switching in term of delay performance and number of users d. Circuit switching and Packet switching have the same performance and utilization ANSWER: A MARK: 1 UNIT: Chapter 1.3 MIX CHOICES: Yes

QN=4 (8660) Total nodal delay is accumulated from the following delays: a. Processing delay, queuing delay, transmission delay and propagation delay b. Queuing delay, transmission delay and propagation delay c. Transmission delay and propagation delay d. Transmission delay and buffering delay ANSWER: A MARK: 1 UNIT: Chapter 1.4 MIX CHOICES: Yes

QN=5 (8676) Which layer in the Internet that connects directly to wire? a. None of them b. Link Layer c. Transport layer d. Network Layer ANSWER: A MARK: 1 UNIT: Chapter 1.5 MIX CHOICES: Yes

QN=6 (8678) Which one is correct about Denial of Service (DoS) attack? a. Attackers make network resources unavailable by overwhelming resource with bogus traffic b. Attackers put some malware in a hidden part of some otherwise useful software c. The web program is infected a virus by receiving object (e.g., e-mail attachment) d. Attackers make control the whole server ANSWER: A MARK: 1 UNIT: Chapter 1.6 MIX CHOICES: Yes

QN=7 (8687) Suppose there are 3 routers between the source host and the destination host, 10ms is the processing delay at each router or host, 12ms is the propagation delay at each link, and 2ms is the transmission delay out of each router and the source, then the total delay is (ignore all other delays) a. 96ms b. 72ms c. 48ms d. 24ms ANSWER: A MARK: 1 UNIT: Chapter 1.7 MIX CHOICES: Yes

QN=9 (8711) There are 4 serial links between the client and the server, with the transmission rates being 1Mbps, 3Mbps, 2 Mbps, and 1 Mbps. What is the throughput between the client and the server? a. 1 Mbps b. 4 Mbps c. 3 Mbps d. 2 Mbps ANSWER: A MARK: 1 UNIT: Chapter 1.9 MIX CHOICES: Yes

QN=10 (8721) The lower the _ of the router, the higher the __ a. Speed….processing delay b. Speed….routing speed c. Layer….processing delay d. Layer….transmission delay ANSWER:

A MARK: 1 UNIT: Chapter 1.10 MIX CHOICES: Yes

QN=11 (8739) As soon as the browser receives the IP address from__, it can initiate a TCP connection to the HTTP server located at port___ at that IP address a. DNS… 80 b. HTTP… 80 c. User…80 d. Client…60 ANSWER: A MARK: 1 UNIT: Chapter 2.1 MIX CHOICES: Yes

QN=12 (8746) While the_**_ significantly relies on always-on infrastructure servers, the__**does not (or minimally relies on) a. Client-server model…Peer-to-Peer model b. Peer-to-Peer model …Client-server model c. Client-server model…DNS d. DNS... Client-server model ANSWER: A MARK: 1 UNIT: Chapter 2.2 MIX CHOICES: Yes

QN=13 (8763) A Web page consists of ___ such as a HTML file, a JPEG image, a GIF image, a Java applet, an audio clip, etc. a. Objects b. Blocks c. Files d. Structures ANSWER: A MARK: 1 UNIT: Chapter 2.3 MIX CHOICES: Yes

QN=14 (8771) FTP uses port__ for sending identification and password and port__ for sending data a. 21…20 b. 20…21 c. 20…80 d. 80..20 ANSWER: A MARK: 1 UNIT: Chapter 2.4 MIX CHOICES: Yes

QN=16 (8782) The DNS servers that together implement the _, store____ for the hostname to IP address mappings. a. DNS database ….Resource Records b. IP Records…DNS data c. Root servers….IP address d. Root servers…IP address and port number ANSWER: A MARK: 1 UNIT: Chapter 2.6 MIX CHOICES: Yes

QN=17 (8798) An ISP has a DNS server that holds both names of Web servers and their IP addresses. That DNS servers is called a. Authorative (có th?m quy?n) b. Centralized c. Distributed d. Cooperative ANSWER: A MARK: 1 UNIT: Chapter 2.7 MIX CHOICES: Yes

QN=18 (8806) The ability of P2P networks to handle many peers is called a. Scalability b. Multiplexing c. Multiple client-server model d. Self-controlled ANSWER: A MARK: 1 UNIT: Chapter 2.8 MIX CHOICES: Yes

QN=19 (8811) Assume the RTT 100ms, the size of the Web object 1kb and the transmission rate 100kbps, how long does it take to download that object from the Web Server to a client if using non-persistent HTTP? a. 220ms b. 110ms c. 410ms d. 210ms ANSWER: D MARK: 1 UNIT: Chapter 2.9 MIX CHOICES: Yes

QN=20 (8826) Which one is INCORRECT about proxy? a. Proxy helps to remove the bottleneck of access link b. Proxy reduces the response time for a client request to a webserver c. Proxy reduces the traffic on the institution's access link to the Internet d. None of them ANSWER: A MARK: 1 UNIT: Chapter 2.10 MIX CHOICES: Yes

QN=21 (8845) Which of the following is the pipelining protocol: a. Selective Repeat b. Sliding Window c. Premature Timeout d. Stop and Wait ANSWER: A MARK: 1 UNIT: Chapter 3.1 MIX CHOICES: Yes

QN=22 (8850) This job of delivering the data in a…. to the correct…. is called de-multiplexing a. transport-layer segment….. application process b. transport-layer segment….. IP address c. Data link frame….. application process d. IP address… application port ANSWER: A MARK: 1 UNIT: Chapter 3.2 MIX CHOICES: Yes

QN=23 (8860) Which one is not in UDP segment header? a. ACK number b. Source port c. Destination port d. Length ANSWER: A MARK: 1 UNIT: Chapter 3.3 MIX CHOICES: Yes

QN=24 (8871) Reliable data transfer in TCP ensures that data is delivered from sending process to receiving process**__** a. Correctly and in order b. In any order c. Without congestion d. Unreliably ANSWER: A MARK: 1 UNIT: Chapter 3.4 MIX CHOICES: Yes

QN=25 (8882) TCP allows the sending process to deliver data as a ___of bytes and allows the receiving process to obtain data as a **_** of bytes. a. stream; stream b. message; message c. block; block d. Frame; frame ANSWER: A MARK: 1 UNIT: Chapter 3.5 MIX CHOICES: Yes

QN=26 (8887) In Congestion avoidance of TCP congestion control, if timeout occurs while the current congestion window size is 16, the congestion window will****___**** a. Reduce to 1 b. Reduce to 8 c. Remain 16 d. Reduce to 0 ANSWER: A MARK: 1 UNIT: Chapter 3.6 MIX CHOICES: Yes

QN=27 (8900) UDP and TCP use 1s complement checksum. Suppose you have the followings 2 bytes: 00111101 and 01010001. What is the 1s complement of the sum of those thow bytes? a. 01110001 b. 10001110 c. 10001111 d. 01110010 ANSWER: A MARK: 1 UNIT: Chapter 3.7 MIX CHOICES: Yes

QN=28 (8907) Suppose that Host A then sends two segments to Host B over a TCP connection. The first and second segments contain 20 and 40 bytes of data, respectively. In the first segment, the sequence number is 145. In the acknowledgement of the first arriving segment, what is the acknowledgment number? a. 165 b. 185 c. 205 d. 125 ANSWER: A MARK: 1 UNIT: Chapter 3.8 MIX CHOICES: Yes

QN=29 (8919) Host A and B are communicating over a TCP connection, host A send to host B the first segment with size 105 bytes, sequence number 600, the source port 1028, the destination port 1029. What is the ACK number, the source port number, the destination port number in the ACK segment sent by host B to host A a. ACK number: 705, source port: 1029, destination port: 1028 b. ACK number: 706, source port: 1028, destination port: 1029 c. ACK number: 700, source port: 1029, destination port: 1028 d. ACK number: 705, source port:1028, destination port: 1029 ANSWER: A MARK: 1 UNIT: Chapter 3.9 MIX CHOICES: Yes

QN=30 (8925) In the congestion avoidance phase of TCP congestion control, if the timeout occurs while the current**__** size is 64, the ____size will reduce to 1 a. congestion window…. congestion window b. Timeout window……timeout window c. Flow

window…control window d. Timeout window… congestion window ANSWER: A MARK: 1 UNIT: Chapter 3.10 MIX CHOICES: Yes

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MULTIPLE CHOICES QUESTIONS: QN=1 (8642) Which method of networks access has the biggest difference between download and upstream speed? a. ADSL b. DSL c. LAN d. HFC ANSWER: A MARK: 1 UNIT: Chapter 1.1 MIX CHOICES: Yes

QN=2 (8651) That an application can rely(d?a vào) on the connection to deliver all of its data without error and in the proper order is called a. Reliable(?áng tin c?y) data transfer b. Correctable data transfer c. Non-Error data transfer d. Approximated data transfer ANSWER: A MARK: 1 UNIT: Chapter 1.2 MIX CHOICES: Yes

QN=3 (8654) What are two fundamental switching approaches for building a network core? a. Circuit switching and packet switching b. Message switching and automatic switching c. Channel switching and datagram switching d. Frame switching and circuit switching ANSWER: A MARK: 1 UNIT: Chapter 1.3 MIX CHOICES: Yes

QN=4 (8664) When does packet loss happen? a. Packet arriving to the full queue at the routers b. Packet errors by noise c. Packet is sent by server with limited bandwidth d. Packet contains 7-bits ASCII characters ANSWER: A MARK: 1 UNIT: Chapter 1.4 MIX CHOICES: Yes

QN=5 (8669) Which layer in the Internet that connects directly to wire (dây ?i?n)? a. None of them b. Network layer c. Transport layer d. Application layer ANSWER: A MARK: 1 UNIT: Chapter 1.5 MIX CHOICES: Yes

QN=6 (8683) What is DDoS stand for? a. Distributed Denial-of-Service b. Data Denial-of-Service c. Data Domain Open System d. Directed Denial-of-Service ANSWER: A MARK: 1 UNIT: Chapter 1.6 MIX CHOICES: Yes

QN=7 (8686) In the transmission delay calculation t = L/R, what is R? a. Link bandwidth of the link b. Speed of switch c. Propagation speed d. Time to process at router ANSWER: A MARK: 1 UNIT: Chapter 1.7 MIX CHOICES: Yes

QN=8 (8700) Assume that an image is about 1000 x 800 pixels with 1 byte/pixel and it is uncompressed. How long does it take to transmit it over a 1 Mbps channel? a. 6.4sec b. 64 sec c. 0.8 sec d. 8 sec ANSWER: A MARK: 1 UNIT: Chapter 1.8 MIX CHOICES: Yes

QN=9 (8706) There are 4 serial links between the client and the server, with the transmission rates being 1Mbps, 3Mbps, 2 Mbps, and 0.5 Mbps. What is the throughput between the client and the server? a. 0.5 Mbps b. 1 Mbps c. 3 Mbps d. 2 Mbps ANSWER: A MARK: 1 UNIT: Chapter 1.9 MIX CHOICES: Yes

QN=10 (8715) The higher the _ of the router, the lower the __ a. Speed….processing delay b. Speed….transmission delay c. Layer….processing delay d. Layer….transmission delay ANSWER: A MARK: 1 UNIT: Chapter 1.10 MIX CHOICES: Yes

QN=11 (8741) As soon as the browser receives the IP address from__, it can initiate a TCP connection to the HTTP server located at port___ at that IP address a. DNS… 80 b. FTP… 20 and 21 c. User…80 d. Client…60 ANSWER: A MARK: 1 UNIT: Chapter 2.1 MIX CHOICES: Yes

QN=12 (8754) The client-server model significantly relies on __ infrastructure servers, the Peer-to-Peer model, instead, pairs of interminably connected peers, communicates __ with each other a. Always-on….directly b. Always-off….indirectly c. Rarely-on…indirectly d. Rarely-off…indirectly ANSWER: A MARK: 1 UNIT: Chapter 2.2 MIX CHOICES: Yes

QN=13 (8761) Although HTTP is_**_, if the webserver wants to identify the users, __**is used a. Stateless…Cookies b. Stateless…Caches c. Heavy…Password d. Heavy…Cookies ANSWER: A MARK: 1 UNIT: Chapter 2.3 MIX CHOICES: Yes

QN=14 (8770) FTP uses port 21 for sending…. and port 20 for sending….. a. Identification and password…. Data file b. Data file… Identification and password c. Data file…Control signal d. Identification… Control signal ANSWER: A MARK: 1 UNIT: Chapter 2.4 MIX CHOICES: Yes

QN=15 (8778) MIME is short for a. Multipurpose Internet Mail Extensions b. Multiple Internet Mail Extensions c. Message Internet Mail External d. Multipurpose Internet Message Extensions ANSWER: A MARK: 1 UNIT: Chapter 2.5 MIX CHOICES: Yes

QN=16 (8789) Regarding to the DNS, IP addresses such as 209.191.122.70 or 10.22.8.8 are __ to remember by human, but ___ to process by routers a. Difficult… Easy b. Easy…Difficult c. Easy…clear d. Difficult…heavy ANSWER: A MARK: 1 UNIT: Chapter 2.6 MIX CHOICES: Yes

QN=17 (8791) What type of DNS Server has the IP addresses of all names in the Autonomous? a. authoritative b. top level c. root d. local ANSWER: A MARK: 1 UNIT: Chapter 2.7 MIX CHOICES: Yes

QN=18 (8803) Which of the following is hybrid of client-server and P2P? a. Skype b. BitTorrent c. Telnet d. EBay ANSWER: A MARK: 1 UNIT: Chapter 2.8 MIX CHOICES: Yes

QN=19 (8814) Assume the RTT 40ms, the size of the Web object 0.2Mb and the transmission rate 20Mbps, how long does it take to download that object from a Web Server to a client if using non-persistent HTTP?? a. 90ms b. 50ms c. 170ms d. 60ms ANSWER: A MARK: 1 UNIT: Chapter 2.9 MIX CHOICES: Yes

QN=20 (8828) Which one is incorrect about proxy? a. Client caches the whole website to improve the downloading speed b. Proxy reduces the response time for a client request to

a webserver c. Proxy reduces the traffic on the institution's access link to the Internet d. Proxy can reduce the cost for ISP and the Institution ANSWER: A MARK: 1 UNIT: Chapter 2.10 MIX CHOICES: Yes

QN=21 (8848) The connection establishment procedure in TCP is susceptible (d? b? t?n công) to a serious security problem called the **_** attack. a. SYN flooding b. FIN flooding c. ACK flooding d. POST flooding ANSWER: A MARK: 1 UNIT: Chapter 3.1 MIX CHOICES: Yes

QN=22 (8853) The job of delivering the data in a transport-layer segment to the correct socket is called**_**. a. De-multiplexing b. multiplexing c. Congestion control d. De-capsulation ANSWER: A MARK: 1 UNIT: Chapter 3.2 MIX CHOICES: Yes

QN=23 (8863) Which one is not in UDP segment header? a. Receiving Windows b. Source port c. Destination port d. Length ANSWER: A MARK: 1 UNIT: Chapter 3.3 MIX CHOICES: Yes

QN=24 (8867) rdt 1.1 assumes that the channel is a. Perfectly reliable b. Fiber optic c. Error vulnerable d. Unlimited bandwidth ANSWER: A MARK: 1 UNIT: Chapter 3.4 MIX CHOICES: Yes

QN=25 (8877) TCP connection provides **___**. a. Full-duplex service b. Half-duplex service c. Simplex service d. One way communications ANSWER: A MARK: 1 UNIT: Chapter 3.5 MIX CHOICES: Yes

QN=26 (8888) In TCP congestion control, two important variables the sender has to keep track are a. Congestion window and the threshold b. Congestion window and socket number c. Threshold and Receiving window d. MSS and RTT ANSWER: A MARK: 1 UNIT: Chapter 3.6 MIX CHOICES: Yes

QN=27 (8899) UDP and TCP use 1s complement checksum. Suppose you have the followings 2 bytes: 00110111 and 01011100. What is the 1s complement of the sum of those two bytes? a. 01101100 b. 10010011 c. 10010010 d. 01101101 ANSWER: A MARK: 1 UNIT: Chapter 3.7 MIX CHOICES: Yes

QN=28 (8910) If the segment has sequence number of 128 and length of 8 bytes, the receiving computer will send ACK with value of **_** a. 136 b. 128 c. 137 d. 138 ANSWER: A MARK: 1 UNIT: Chapter 3.8 MIX CHOICES: Yes

QN=29 (8915) Host A and B are communicating over a TCP connection, host A send to host B the first segment with size 45 bytes, sequence number 200, the source port 1038, the destination port 80. What is the ACK number, the source port number, the destination port number in the ACK segment sent by host B to host A a. ACK number: 245, source port: 80, destination port: 1038 b. ACK number: 246, source port: 1038, destination port: 80 c. ACK number: 200, source port: 80, destination port: 1038 d. ACK number: 245, source port:1038, destination port: 80 ANSWER: A MARK: 1 UNIT: Chapter 3.9 MIX CHOICES: Yes

QN=30 (8933) In ____, if timeout occurs while the current congestion window size is 64, the

congestion window will reduce to 1 a. The congestion avoidance phase of TCP congestion control b. The congestion avoidance phase of UDP congestion control c. The timeout phase of TCP flow control d. The timeout phase of UDP flow control ANSWER: A MARK: 1 UNIT: Chapter 3.10 MIX CHOICES: Yes

QN=31 (8948) How many default gateway addresses does a computer need to function on a LAN (assume that not connect to other network)? a. 0 b. 1 c. 2 d. 3 ANSWER: A MARK: 1 UNIT: Chapter 4.1 MIX CHOICES: Yes

QN=32 (8956) In a Datagram networks, a. No call setup and packets may take different paths for the same source-destination pair b. No call setup and packets must take strictly one path for the same source-destination pair c. Packets must take the same path for the same source-destination pair d. Need the call setup ANSWER: A MARK: 1 UNIT: Chapter 4.2 MIX CHOICES: Yes

QN=33 (8973) The purpose of echo request and echo reply is to a. check node-to-node communication b. Echo error c. check packet lifetime d. Prevent congestion ANSWER: A MARK: 1 UNIT: Chapter 4.3 MIX CHOICES: Yes

QN=34 (8980) Which field in the IP header is used to prevent an IP packet from continuously looping through a network? a. Time-to-Live (TTL) b. Header Checksum c. Identifier d. Port number ANSWER: A MARK: 1 UNIT: Chapter 4.4 MIX CHOICES: Yes

QN=35 (8985) What type of routing algorithm that OSPF use? a. Link State Routing Algorithm b. Distance Vector Routing Algorithm c. Longest Path Routing Algorithm d. Multicast Routing Algorithm ANSWER: A MARK: 1 UNIT: Chapter 4.5 MIX CHOICES: Yes

QN=36 (8998) What is (are) correct about DHCP? a. All of the others b. It is “plug and play” c. DHCP server discovery message has the IP destination address: 255.255.255.255 d. DHCP server offer message has the IP destination address: 255.255.255.255 ANSWER: A MARK: 1 UNIT: Chapter 4.6 MIX CHOICES: Yes

QN=38 (9012) What is the 32-bit binary equivalent of the IP address 254.1.8.252? a. 11111110.00000001.00001000.11111100 b. 11111111.00000001.00001000.11111101 c. 11111110.00000011.00001000.11111100 d. 11111110.00000001.00001000.11111101 ANSWER: A MARK: 1 UNIT: Chapter 4.8 MIX CHOICES: Yes

QN=39 (9021) Suppose an ISP owns the block of addresses of the form 101.101.101.128/30, which address can be assigned to its customer? a. 101.101.101.129 b. 101.101.101.118 c. 101.101.101.128 d. 101.101.101.127 ANSWER: A MARK: 1 UNIT: Chapter 4.9 MIX CHOICES: Yes

QN=40 (9034) Suppose datagrams are limited to 1500bytes including IP header of 20 bytes. UDP header is 8 bytes. How many datagrams would be required to send an MP3 of 50000 bytes a. 34 b. 33 c. 32 d. 35 ANSWER: A MARK: 1 UNIT: Chapter 4.10 MIX CHOICES: Yes

QN=41 (9065) _ in link layer guarantees to move each _ datagrams across the link without error a. Reliable delivery…..network b. Appropriate delivery…network c. Error-free transmission ….transport d. Reliable delivery… transport ANSWER: A MARK: 1 UNIT: Chapter 5.1 MIX CHOICES: Yes

QN=42 (9068) Single parity check can a. Detect a single bit error b. Detect a single bit error and correct it c. Detect a bust of bit errors d. Correct a bust of bit errors ANSWER: A MARK: 1 UNIT: Chapter 5.2 MIX CHOICES: Yes

QN=43 (9079) Assume the original message to be sent 101110, the generator is 1001. What is the remainder resulted during the CRC computation? a. 011 b. 100 c. 001 d. 101 ANSWER: A MARK: 1 UNIT: Chapter 5.3 MIX CHOICES: Yes

QN=44 (9094) **__**is used in Ethernet a. CSMA/CD b. ALOHA c. CDMA d. CSMA/CA ANSWER: A MARK: 1 UNIT: Chapter 5.4 MIX CHOICES: Yes

QN=45 (9099) Ethernet technologies provides ____ to the network layer a. Unreliable service b. Reliable service c. Safe service d. Unsafe service ANSWER: A MARK: 1 UNIT: Chapter 5.5 MIX CHOICES: Yes

QN=46 (9112) Switch has a characteristic of a. Self-learning b. Interactive c. Self-connecting d. Self-improving ANSWER: A MARK: 1 UNIT: Chapter 5.6 MIX CHOICES: Yes

QN=47 (9121) While MAC address is bit long, IP address is bit long a. 48…32 b. 32…48 c. 128…32 d. 64…32 ANSWER: A MARK: 1 UNIT: Chapter 5.7 MIX CHOICES: Yes

QN=48 (9126) Which one is a MAC address: a. F0-F0-16-F2-15-00 b. GF-D0-56-F2-05-12 c. FF-62-DE-6F-D2 d. F0-62-DE5-75E-EA6 ANSWER: A MARK: 1 UNIT: Chapter 5.8 MIX CHOICES: Yes

QN=49 (9144) In the exponential backoff phase of CSMA/CD for a 50Mbps Ethernet, after the first collision of a frame, the adapter then waits …. before sensing the channel again. a. Either 0 or 10.24 microseconds b. 0 microsecond or 51.2 microseconds c. 1 microsecond d. 512 microseconds ANSWER: A MARK: 1 UNIT: Chapter 5.9 MIX CHOICES: Yes

QN=50 (9149) Which is a protocol for wireless LAN a. 802.11 b. Ethernet c. CSMA/CD d. 802.3 ANSWER: A MARK: 1 UNIT: Chapter 5.10 MIX CHOICES: Yes

QN=51 (8726) There are two categories of physical transmission medium: a. Guided medium and unguided medium b. Optical medium and copper medium c. Wireless and Radio d. Satellite and Terrestrial ANSWER: A MARK: 1 UNIT: Chapter 1.11 MIX CHOICES: Yes

QN=52 (8732) What are the two methods of circuit switching? a. FDM and TDM b. FDM and PDM c. TDM and PPP d. TDM and Multiplexing ANSWER: A MARK: 1 UNIT: Chapter 1.12 MIX CHOICES: Yes

QN=53 (8829) POP3 is short for a. Post Office Protocol-Version 3 b. Popular Open Protocol-Level 3 c. Palm Open Protocol-Server 3 d. People Open Protocol-Version 3 ANSWER: A MARK: 1 UNIT: Chapter 2.11 MIX CHOICES: Yes

QN=54 (8839) Assume a webpage has only 10 different images, using non-persistent HTTP, a client needs __ to the server to load. a. 10 different TCP connections b. 10 different UDP connections c. 11 different TCP connections d. Only 1 TCP connection ANSWER: A MARK: 1 UNIT: Chapter 2.12 MIX CHOICES: Yes

QN=55 (8935) In TCP, what can happen if timeout is much larger than the round-trip time? a. When a segment is lost, TCP would not quickly retransmit the segment, resulting in long data transfer delays into the application. b. The sender may sleep for longer time c. Triple ACK will be activated d. Fast transmission will be used ANSWER: A MARK: 1 UNIT: Chapter 3.11 MIX CHOICES: Yes

QN=56 (8943) The transport layer protocol provides logical communication between __, while the network layer protocol provides logical communication between _. a. Processes…..Hosts b. Hosts…..Processes c. Points…..Processing d. Layers….Hosts ANSWER: A MARK: 1 UNIT: Chapter 3.12 MIX CHOICES: Yes

QN=57 (9043) While IPv4 is …byte-long, IPv6 is … byte-long a. 4….16 b. 4….6 c. 4….8 d. 6….16 ANSWER: A MARK: 1 UNIT: Chapter 4.11 MIX CHOICES: Yes

QN=58 (9051) Given the subnet with address 201.14.78.0 and the subnet mask 255.255.255.0, which address belongs to that subnet? a. 201.14.78.64 b. 201.14.79.68 c. 201.14.79.32 d. 211.14.78.0 ANSWER: A MARK: 1 UNIT: Chapter 4.12 MIX CHOICES: Yes

QN=59 (9153) Manchester encoding is to a. Synchronize between the sender and the receiver b. Avoid bit 0 and bit 1 c. Increase bit rate d. Decrease bit error rate ANSWER: A MARK: 1 UNIT: Chapter 5.11 MIX CHOICES: Yes

QN=60 (9160) Slotted ALOHA efficiency (useful transmission time) is approximately a. 40% b. 80% c. 70% d. 100% ANSWER: A MARK: 1 UNIT: Chapter 5.12 MIX CHOICES: Yes

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MULTIPLE CHOICES QUESTIONS: QN=1 (8640) …. are sets of rules or guidelines that govern interactions between two computer systems in a computer network a. Network protocols b. Network conventions c. Network policies d. Network rules ANSWER: A MARK: 1 UNIT: Chapter 1.1 MIX CHOICES: Yes

QN=2 (8648) The packets in the application layer is called a. Message b. Frame c. Segment d. Datagram ANSWER: A MARK: 1 UNIT: Chapter 1.2 MIX CHOICES: Yes

QN=3 (8657) Today's Internet is a **___******network. a. packet-switched b.

circuit-switched c. data-switched d. Telephone ANSWER: A MARK: 1 UNIT: Chapter 1.3 MIX CHOICES: Yes

QN=4 (8665) Total nodal delay is accumulated from the following delays: a. Processing delay, queuing delay, transmission delay and propagation delay b. Queuing delay, and propagation delay c. Transmission delay and propagation delay d. Transmission delay and buffering delay ANSWER: A MARK: 1 UNIT: Chapter 1.4 MIX CHOICES: Yes

QN=5 (8671) In OSI model, as data packet moves from the upper to the lower layer header are a. Added b. Removed c. Rearranged d. Modified ANSWER: A MARK: 1 UNIT: Chapter 1.5 MIX CHOICES: Yes

QN=6 (8682) A program running in a network attached device that passively receives all packet passing by the device's network interface is a. Packet sniffer b. Packet proofer c. Packet obtainer d. Network virus ANSWER: A MARK: 1 UNIT: Chapter 1.6 MIX CHOICES: Yes

QN=8 (8701) What is the total delay for transmission of 1.25MB of images over fiber optic cable with distance of 4500 km with transmission rate of 1Gbps (ignore all other delays). Assume that the speed of propagation is 300,000km/sec. a. 25msec b. 2.5msec c. 250msec d. 20msec ANSWER: A MARK: 1 UNIT: Chapter 1.8 MIX CHOICES: Yes

QN=9 (8709) There are 4 serial links between the client and the server, with the transmission rates being 1Mbps, 1Mbps, 2 Mbps, and 0.7 Mbps. What is the throughput between the client and the server? a. 0.7 Mbps b. 1 Mbps c. 3 Mbps d. 2 Mbps ANSWER: A MARK: 1 UNIT: Chapter 1.9 MIX CHOICES: Yes

QN=10 (8719) The ____on the physical medium of the link is a little less than or equal to the speed of light a. Propagation delay b. Transmission delay c. Queueing delay d. Processing Delay ANSWER: A MARK: 1 UNIT: Chapter 1.10 MIX CHOICES: Yes

QN=11 (8744) HTTP, FTP, SMTP and POP3 run on top of… a. TCP b. UDP c. IMAP d. DNS ANSWER: A MARK: 1 UNIT: Chapter 2.1 MIX CHOICES: Yes

QN=12 (8753) The client-server model significantly relies on __ infrastructure servers, the Peer-to-Peer model, instead, pairs of interminably connected peers, communicates __ with each other a. Always-on….directly b. Always-off….indirectly c. Rarely-on…directly d. Rarely-off…directly ANSWER: A MARK: 1 UNIT: Chapter 2.2 MIX CHOICES: Yes

QN=14 (8767) Because FTP uses a separate control connection different from data connection, FTP is said to sent its control information**_** a. Out-of-band b. Inside-band c. On-Bandwidth d. Different Band ANSWER: A MARK: 1 UNIT: Chapter 2.4 MIX CHOICES: Yes

QN=15 (8776) Which one is correct about SMTP? a. SMTP restricts the body of all mail messages to be in simple seven-bit ASCII. b. SMTP is able to transfer attachment files c. SMTP transfers files faster than HTTP d. SMTP

allows transferring multimedia files such as images, video… ANSWER: A MARK: 1 UNIT: Chapter 2.5 MIX CHOICES: Yes

QN=16 (8787) ____ are responsible for domains such as com, org, gov, and all of the country domains such as uk, fr, ca, and jp a. Top-level domain servers b. Root DNS servers c. Authoritative severs d. Country DNS servers ANSWER: A MARK: 1 UNIT: Chapter 2.6 MIX CHOICES: Yes

QN=17 (8794) In DNS, TLD is short for a. Top-Level Domain b. Tier-1 Level Domain c. Time Lookup Domain d. Top Lookup Domain ANSWER: A MARK: 1 UNIT: Chapter 2.7 MIX CHOICES: Yes

QN=18 (8809) Skype is a a. None of them b. Transport Layer application c. Network Layer application d. Kazza application ANSWER: A MARK: 1 UNIT: Chapter 2.8 MIX CHOICES: Yes

QN=19 (8813) Assume the RTT 50ms, the size of the Web object 0.4Mb and the transmission rate 10Mbps, how long does it take to download that object from a Web Server to a client if using non-persistent HTTP?? a. 140ms b. 240ms c. 440ms d. 90ms e. 9 ANSWER: A MARK: 1 UNIT: Chapter 2.9 MIX CHOICES: Yes

QN=20 (8822) Which statement is correct about cookie technology? a. All of the others b. Cookie files are managed by the user's browser c. Webserver has a back-end database to store status of user's last activity d. Cookie files are kept on the user's end system ANSWER: A MARK: 1 UNIT: Chapter 2.10 MIX CHOICES: Yes

QN=21 (8844) The combination of an IP address and a port number is called a **_**. a. socket b. network address c. service information d. transport address ANSWER: A MARK: 1 UNIT: Chapter 3.1 MIX CHOICES: Yes

QN=22 (8854) The job of gathering data at the source host from different sockets, enveloping the data and passing the segments to the network layer is called a. Multiplexing b. De-multiplexing c. Data Enveloping d. Encapsulation ANSWER: A MARK: 1 UNIT: Chapter 3.2 MIX CHOICES: Yes

QN=23 (8864) _ applications typically uses ____

a. Loss-tolerant……..UDP b. Loss-tolerant……..TCP c. Elastic……..HTTP d. Elastic……..DNS ANSWER: A MARK: 1 UNIT: Chapter 3.3 MIX CHOICES: Yes

QN=24 (8873) __ in the Internet is achieved through the use of acknowledgments and retransmissions. a. Reliable data transfer b. Interacting procedure c. Exchanging procedure d. Data moving ANSWER: A MARK: 1 UNIT: Chapter 3.4 MIX CHOICES: Yes

QN=25 (8883) TCP assigns a sequence number to each segment that is being sent. The sequence number for each segment is the number of the ___ byte carried in that segment. a. first b. last c. middle d. Next ANSWER: A MARK: 1 UNIT: Chapter 3.5 MIX CHOICES: Yes

QN=26 (8894) In modern implementations of TCP, a retransmission occurs if the retransmission timer expires or ____ duplicate ACK segments have arrived a. three b. two c. one d. four ANSWER: A MARK: 1 UNIT: Chapter 3.6 MIX CHOICES: Yes

QN=27 (8895) UDP and TCP use 1s complement checksum. Suppose you have the followings 2 bytes: 00101010 and 11001100. What is the 1s complement of the sum of those two bytes? a. 00001001 b. 11110111 c. 11110010 d. 11110110 ANSWER: A MARK: 1 UNIT: Chapter 3.7 MIX CHOICES: Yes

QN=28 (8911) If the segment has sequence number of 118 and length of 8 bytes, the receiving computer will send ACK with value of **_** a. 126 b. 136 c. 127 d. 128 ANSWER: A MARK: 1 UNIT: Chapter 3.8 MIX CHOICES: Yes

QN=29 (8916) Host A and B are communicating over a TCP connection, host A send to host B the first segment with size 55 bytes, sequence number 100, the source port 1028, the destination port 80. What is the ACK number, the source port number, the destination port number in the ACK segment sent by host B to host A a. ACK number: 155, source port: 80, destination port: 1028 b. ACK number: 156, source port: 1028, destination port: 80 c. ACK number: 100, source port: 80, destination port: 1028 d. ACK number: 155, source port:1028, destination port: 80 ANSWER: A MARK: 1 UNIT: Chapter 3.9 MIX CHOICES: Yes

QN=30 (8924) In the congestion(t?c ngh?n) avoidance phase of TCP congestion control, if __ occurs while the current congestion window size is 32, the congestion window will__ a. Timeout……reduce to 1 b. Timeout……reduce to 16 c. Triple duplicate ACKs….reduce to 10 d. Triple duplicate ACKs….reduce to 0 ANSWER: A MARK: 1 UNIT: Chapter 3.10 MIX CHOICES: Yes

QN=31 (8954) The IP broadcast address is a. 255.255.255.255 b. 256.256.256.256 c. FF.FF.FF.FF.FF d. 00.00.00.00 ANSWER: A MARK: 1 UNIT: Chapter 4.1 MIX CHOICES: Yes

QN=32 (8959) A Virtual Circuit maintains a. Path from source to destination and forwarding tables in routers along path b. Address tables in routers along path c. A MAC address of the destination host d. Port numbers of the path from source to destination ANSWER: A MARK: 1 UNIT: Chapter 4.2 MIX CHOICES: Yes

QN=33 (8974) Who can send ICMP error-reporting messages? a. Routers and destination hosts b. destination port c. Switch d. repeaters and senders ANSWER: A MARK: 1 UNIT: Chapter 4.3 MIX CHOICES: Yes

QN=34 (8981) What is the data unit used in Internet Protocol (IP)? a. Datagram b. Segment c. Frame d. Message ANSWER: A MARK: 1 UNIT: Chapter 4.4 MIX CHOICES: Yes

QN=35 (8991) Which statement is correct about tracert program? a. To determine a router on the path, the program sends three packets with the

same TTL b. To find the nearest router and the shortest path c. To find the shortest path between the sender and receiver and the longest transmission time among routers d. To find the average path between the sender and receiver and the longest transmission time among routers ANSWER: A MARK: 1 UNIT: Chapter 4.5 MIX CHOICES: Yes

QN=36 (9001) NAT table in router a. Store pairs of the host's IP address and the port number b. Store the IP address without the port number c. Store the MAC addresses and IP addresses d. Store the domain names and IP addresses ANSWER: A MARK: 1 UNIT: Chapter 4.6 MIX CHOICES: Yes

QN=37 (9009) Which one is not an IP address? a. 251.222.258.1 b. 255.222.1.171 c. 10.10.10.110 d. 10.100.200.0 ANSWER: A MARK: 1 UNIT: Chapter 4.7 MIX CHOICES: Yes

QN=38 (9019) What is the 32-bit binary equivalent of the IP address 13.253.17.252? a. 00001101.1111101.00010001.11111100 b. 00010011.1111101.00010001.11111100 c. 00001101.1111111.00010001.11111101 d. 00001101.1111101.00010001.11111110 ANSWER: A MARK: 1 UNIT: Chapter 4.8 MIX CHOICES: Yes

QN=39 (9025) Suppose a subnet has a block of IP addresses 101.101.101.0/24, which address does not belong to that block? a. 101.101.111.0 b. 101.101.101.1 c. 101.101.101.211 d. 101.101.101.201 ANSWER: A MARK: 1 UNIT: Chapter 4.9 MIX CHOICES: Yes

QN=40 (9033) Suppose datagrams are limited to 1500bytes including IP header of 20 bytes. UDP header is 8 bytes. How many datagrams would be required to send an MP3 of 600,000 bytes a. 408 b. 407 c. 409 d. 406 ANSWER: A MARK: 1 UNIT: Chapter 4.10 MIX CHOICES: Yes

QN=41 (9066) What is the name of packet in Link layer of Internet protocol stack? a. Frame b. Segment c. Datagram d. Message ANSWER: A MARK: 1 UNIT: Chapter 5.1 MIX CHOICES: Yes

QN=42 (9073) For even parity scheme (single), if the information is 101110, then information after adding parity bit is a. 1011100 b. 1011101 c. 1111111 d. 1011111 ANSWER: A MARK: 1 UNIT: Chapter 5.2 MIX CHOICES: Yes

QN=43 (9084) Assume the original message to be sent 100001, the generator is 1001. What is the transmitted message? a. 100001101 b. 100001100 c. 100001001 d. 100001011 ANSWER: A MARK: 1 UNIT: Chapter 5.3 MIX CHOICES: Yes

QN=44 (9093) **__**is used in Ethernet a. CSMA/CD b. ALOHA c. ATM d. CSMA/CA ANSWER: A MARK: 1 UNIT: Chapter 5.4 MIX CHOICES: Yes

QN=45 (9098) In CSMA/CD, if the adapter detects signal energy (phát hi?n tín hi?u) from other adapters while transmitting, a. It stops transmitting its frame and transmits a jam signal. b. It continues transmitting its frame c. It continues transmitting its frame and begins to transmit a jam signal d. It stops transmitting its

frame immediately and enters a sleep mode ANSWER: A MARK: 1 UNIT: Chapter 5.5 MIX CHOICES: Yes

QN=46 (9104) A method for encapsulating data in a PPP frame, identifying the beginning and end of the frame is called a. Framing b. Error detecting c. Frame identifying d. Datagram encapsulating ANSWER: A MARK: 1 UNIT: Chapter 5.6 MIX CHOICES: Yes

QN=47 (9117) The destination address field in an Ethernet frame is a. 6-byte long b. 4-byte long c. 16-byte long d. 48-byte long ANSWER: A MARK: 1 UNIT: Chapter 5.7 MIX CHOICES: Yes

QN=48 (9129) Which one is not a MAC address: a. A1-000-6C-2D-15-0A b. AF-D0-56-F2-05-12 c. FF-62-DE-6F-D2-DD d. F0-62-D5-EE-EA-6B ANSWER: A MARK: 1 UNIT: Chapter 5.8 MIX CHOICES: Yes

QN=49 (9141) Assume an Ethernet network has speed of 15Mbps. In the exponential backoff phase of CSMA/CD, after the first collision of a frame, the adapter then waits …. before sensing the channel again. a. Either 0 or 34 microseconds b. Either 0 or 51.2 microseconds c. Either 1 or 34 microsecond d. Either 1 or 512 microseconds ANSWER: A MARK: 1 UNIT: Chapter 5.9 MIX CHOICES: Yes

QN=50 (9147) Multiple access link in 802.11 wireless LAN is a a. Broadcast link b. Point-to-point link c. Single link d. Multiple link ANSWER: A MARK: 1 UNIT: Chapter 5.10 MIX CHOICES: Yes

QN=51 (8729) _ is a guided transmission medium, while_ is an unguided transmission medium a. Fiber-optic cable…… Wireless LAN channel b. LAN channel ……Fiber-optic cable c. LAN channel ……Copper cable d. Fiber-optic cable…… LAN channel ANSWER: A MARK: 1 UNIT: Chapter 1.11 MIX CHOICES: Yes

QN=52 (8737) The telephone networks are examples of **__**. a. Circuit-switched networks b. Packet-switched networks c. Optical network d. Internet ANSWER: A MARK: 1 UNIT: Chapter 1.12 MIX CHOICES: Yes

QN=53 (8835) Three popular mail access protocols are a. POP3,IMAP and HTTP b. POP3, IMAP and HTML c. POP3, SMTP and HTTP d. PAN, SMTP, and HTTP ANSWER: A MARK: 1 UNIT: Chapter 2.11 MIX CHOICES: Yes

QN=54 (8842) Assume a website has only 15 different objects, using persistent HTTP, a client needs __ to the server a. A single TCP connection b. 14 UDP connections c. 14 TCP connections d. Multiple TCP connections ANSWER: A MARK: 1 UNIT: Chapter 2.12 MIX CHOICES: Yes

QN=55 (8936) In TCP, what can happen if the timeout is smaller than the connection's round-trip time? a. It can result in unnecessary retransmissions. b. It can increase transmission speed c. It reduces slow start phase d. It has result in unnecessary adding packet overhead ANSWER: A MARK: 1 UNIT: Chapter 3.11 MIX CHOICES: Yes

QN=56 (8942) One of the responsibilities of the transport layer protocol is to create a logical communication between: a. Processes b. Hosts c. Nodes d. Routers ANSWER: A MARK: 1 UNIT: Chapter 3.12 MIX CHOICES: Yes

QN=57 (9042) While IPv4 address is …bit-long, IPv6 address is … bit-long a. 32….128 b. 32…48 c. 4….16 d. 6….128 ANSWER: A MARK: 1 UNIT: Chapter 4.11 MIX CHOICES: Yes

QN=58 (9055) Consider an IP subnet with prefix 139.27.229.96/28. Which address belongs to the subnet? a. 139.27.229.100 b. 139.27.229.247 c. 139.27.229.177 d. 139.27.229.199 ANSWER: A MARK: 1 UNIT: Chapter 4.12 MIX CHOICES: Yes

QN=59 (9154) And encoding technique used in Ethernet that encodes bit 1 a transition from up to down and bit 0 a transition from down to up (of electrical signal) is called a. Manchester encoding b. CRC encoding c. Parity Encoding d. ADSL encoding ANSWER: A MARK: 1 UNIT: Chapter 5.11 MIX CHOICES: Yes

QN=60 (9162) Two types of ALOHA are: a. Pure (nguyên ch?t) ALOHA and slotted ALOHA b. Random ALOHA and Slotted ALOHA c. Access ALOHA and Random ALOHA d. CSMA-ALOHA and CDMA-ALOHA ANSWER: A MARK: 1 UNIT: Chapter 5.12 MIX CHOICES: Yes

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MULTIPLE CHOICES QUESTIONS: QN=1 (8950) In classless addressing, **__** is assigned to an organization (t? ch?c). a. a variable-length block b. a fixed-length c. a fixed number of blocks d. an infinite number of addresses ANSWER: A MARK: 1 UNIT: Chapter 4.1 MIX CHOICES: Yes

QN=2 (8957) A datagram is fragmented (phân m?nh) into three smaller datagrams. Which of the following is true? a. The identification field is the same for all three datagrams. b. The more fragment bit is set to 0 for all three datagrams. c. The do not fragment bit is set to 1 for all three datagrams. d. The offset field is the same for all three datagrams ANSWER: A MARK: 1 UNIT: Chapter 4.2 MIX CHOICES: Yes

QN=3 (8971) What field in the IP header changes when a datagram is forwarded (chuy?n ti?p) by a simple router? a. TTL b. ToS c. HL d. Source IP address ANSWER: A MARK: 1 UNIT: Chapter 4.3 MIX CHOICES: Yes

QN=4 (8977) IP is **_** datagram protocol. a. An unreliable(không ?áng tin c?y) and connectionless (không k?t n?i) b. A connection-oriented c. A reliable d. A connecting ANSWER: A MARK: 1 UNIT: Chapter 4.4 MIX CHOICES: Yes

QN=5 (8988) What is tracert or traceroute program for? a. To find the route path between the sender and receiver and to measure transit times of packets along the path b. To find the nearest router and the shortest path c. To find the longest path between the sender and receiver and the longest transmission time among

routers d. To find the shortest path between the sender and receiver and the longest transmission time among routers ANSWER: A MARK: 1 UNIT: Chapter 4.5 MIX CHOICES: Yes

QN=6 (8996) Which of the following describe the DHCP Discover message? a. It does not use a layer 2 destination address. (2 ??a ch?) b. It sent as a unicast packet to the DHCP server. c. It uses TCP as the Transport layer protocol. d. It uses FF:FF:FF:FF:FF:FF as a layer 2 broadcast. ANSWER: A MARK: 1 UNIT: Chapter 4.6 MIX CHOICES: Yes

QN=7 (9004) Which one is not an IP address? a. 254.322.255.1 b. 235.222.1.1 c. 30.80.80.80 d. 90.190.200.0 ANSWER: A MARK: 1 UNIT: Chapter 4.7 MIX CHOICES: Yes

QN=8 (9013) What is the 32-bit binary equivalent of the IP address 1.255.8.252? a. 00000001.1111111.00001000.11111100 b. 00000011.1111110.00001000.11111100 c. 00000001.1111110.00001000.11111110 d. 00000111.1111111.00001000.11111100 ANSWER: A MARK: 1 UNIT: Chapter 4.8 MIX CHOICES: Yes

QN=9 (9024) Suppose a subnet has a block of IP addresses 101.101.101.0/24, which address does not belong to that block? a. 101.101.102.0 b. 101.101.101.1 c. 101.101.101.11 d. 101.101.101.201 ANSWER: A MARK: 1 UNIT: Chapter 4.9 MIX CHOICES: Yes

QN=10 (9040) Consider sending a 5550-byte datagram into a link that has an MTU of 520 bytes (including IP header of 20 bytes). How many fragments are generated? a. 12 b. 11 c. 13 d. 10 ANSWER: A MARK: 1 UNIT: Chapter 4.10 MIX CHOICES: Yes

QN=11 (9057) Where is link layer implemented? a. NIC b. IP c. Bus d. Interface ANSWER: A MARK: 1 UNIT: Chapter 5.1 MIX CHOICES: Yes

QN=12 (9071) For even parity scheme (single), if the information is 101010, then information after adding parity bit is a. 1010101 b. 0101010 c. 1111111 d. 1010000 ANSWER: A MARK: 1 UNIT: Chapter 5.2 MIX CHOICES: Yes

QN=13 (9081) Assume the original message to be sent 101001, the generator is 1001. What is the transmitted message? a. 101001001 b. 101001011 c. 101001101 d. 101001111 ANSWER: A MARK: 1 UNIT: Chapter 5.3 MIX CHOICES: Yes

QN=14 (9092) Channel partitioning, random access, and taking turns are**__** a. MAC protocols b. Channel Access Protocols c. ALOHA d. CSMA/CD ANSWER: A MARK: 1 UNIT: Chapter 5.4 MIX CHOICES: Yes

QN=15 (9101) The most popular Ethernet network topology today is a. Star b. Bus c. Ring d. Circle ANSWER: A MARK: 1 UNIT: Chapter 5.5 MIX CHOICES: Yes

QN=16 (9108) What is the framing method used in PPP? a. Byte stuffing. b. Bit stuffing. c. Character count. d. Synchronizing. ANSWER: A MARK: 1 UNIT: Chapter 5.6 MIX CHOICES: Yes

QN=17 (9122) A table has following information: < IP address; MAC address; TTL>, where TTL is Time-To-Live. This table can be a (an) a. APR table b. Routing table c. Mapping table d. MAC table ANSWER: A MARK: 1 UNIT: Chapter 5.7 MIX CHOICES: Yes

QN=18 (9133) The broadcast MAC address in LAN is a. FF-FF-FF-FF-FF-FF b. FF-FF-FF-EE-EE-EE c. FF-FF-FF-FF-FF d. 00-00-00-00-00-00 ANSWER: A MARK: 1 UNIT: Chapter 5.8 MIX CHOICES: Yes

QN=19 (9139) In the exponential backoff phase of CSMA/CD for a 1Mbps Ethernet, after the first collision of a frame, the adapter then waits …. before sensing the channel again. a. Either 0 or 512 microseconds b. 0 microsecond c. 1 microsecond d. 512 microseconds ANSWER: A MARK: 1 UNIT: Chapter 5.9 MIX CHOICES: Yes

QN=20 (9150) What is the MAC protocol used in 802.11 network? a. CSMA/CA b. CSMA/CD c. Token passing d. TDMA ANSWER: A MARK: 1 UNIT: Chapter 5.10 MIX CHOICES: Yes

QN=21 (8727) There are two categories of**__**: Guided medium and unguided medium a. physical transmission medium b. Transport medium c. Traveling medium d. Virtual transmission medium ANSWER: A MARK: 1 UNIT: Chapter 1.11 MIX CHOICES: Yes

QN=22 (8735) In _, the network establishes a dedicated end-to-end connection between two hosts a. Circuit switching b. Packet switching c. Time switching d. Channel switching ANSWER: A MARK: 1 UNIT: Chapter 1.12 MIX CHOICES: Yes

QN=23 (8833) IMAP is designed to allow users to manipulate (thao tác)__, so it is more**___** than POP3 a. Remote mailboxes…. Complex b. Local mailboxes…simple c. Local mailboxes….complex d. Remote mailboxes…. interesting ANSWER: A MARK: 1 UNIT: Chapter 2.11 MIX CHOICES: Yes

QN=24 (8840) Assume a website has only 5 different images, using non-persistent HTTP, a client needs __ to the server a. 5 TCP connections b. 4 UDP connections c. 4 TCP connections d. 6 TCP connection ANSWER: A MARK: 1 UNIT: Chapter 2.12 MIX CHOICES: Yes

QN=25 (8934) In TCP, what can happen if the timeout is smaller than the connection's round-trip time? a. It can result in unnecessary retransmissions. (truy?n l?i không c?n thi?t.) b. It can increase transmission speed c. It reduces slow start phase d. It reduces the transmission speed ANSWER: A MARK: 1 UNIT: Chapter 3.11 MIX CHOICES: Yes

QN=26 (8946) The transport layer protocol provides _ communication between __ running on different applications a. Logical…..Processes b. Logical…Hosts c. Physical…processes d. Physical…Hosts ANSWER: A MARK: 1 UNIT: Chapter 3.12 MIX CHOICES: Yes

QN=27 (9044) How “big” is an IPv6 Internet address? a. 128 bits b. 32 bytes c. 32 bits d. 20 octets ANSWER: A MARK: 1 UNIT: Chapter 4.11 MIX CHOICES: Yes

QN=28 (9050) Given the IP address 201.14.78.65 and the subnet mask 255.255.255.224, what is the subnet address? a. 201.14.78.64 b. 201.14.78.68 c. 201.14.79.32 d. 201.14.78.255 ANSWER: A MARK: 1 UNIT: Chapter 4.12 MIX CHOICES: Yes

QN=29 (9157) With the following Manchester encoding, the bit stream transmitted is _

[file:9157.jpg]

a. None of them b. 11010011 c. 10100111 d. 00111010 ANSWER: A MARK: 1 UNIT: Chapter 5.11 MIX CHOICES: Yes

QN=30 (9166) Which one is correct about ALOHA? a. Less bandwidth utilization than CSMA/CA b. Only used for wired network c. Much better bandwidth utilization than any other random access protocols d. Has another version called CSMA/CD ANSWER: A MARK: 1 UNIT: Chapter 5.12 MIX CHOICES: Yes