

COMPUTER NETWORKS

26. Which of the following devices takes data sent from one network device and forwards it to the destination node based on MAC address?

- (1) Hub
- (2) Modem
- (3) Switch
- (4) Gateway

Answer: 3

27. do not take their decisions on measurements or estimates of the current traffic and topology.

- (1) Static algorithms
- (2) Adaptive algorithms
- (3) Non - adaptive algorithms
- (4) Recursive algorithms

Answer: 3

28. The number of bits used for addressing in Gigabit Ethernet is

- (1) 32 bits
- (2) 48 bits
- (3) 64 bits
- (4) 128 bits

Answer: 2

30. The IP address is used by hosts when they are being booted.

- (1) 0.0.0.0
- (2) 1.0.0.0
- (3) 1.1.1.1
- (4) 255.255.255.255

Answer: 1

29. Distance vector routing algorithm is a dynamic routing algorithm. The routing tables in distance vector routing algorithm are updated

- (1) automatically
- (2) by server
- (3) by exchanging information with neighbour nodes.
- (4) with back up database

Answer: 3

30. In link state routing algorithm after construction of link state packets, new routes are computed using:

- (1) DES algorithm
- (2) Dijkstra's algorithm
- (3) RSA algorithm
- (4) Packets

Answer: 2

26. Which of the following statements is not true with respect to microwaves?

- (A) Electromagnetic waves with frequencies from 300 GHz to 400 THz.
- (B) Propagation is line-of-sight.
- (C) Very high-frequency waves cannot penetrate walls.
- (D) Use of certain portions of the band requires permission from authorities.

Answer: A

27. In a fast Ethernet cabling, 100 Base-TX uses cable and maximum segment size is
- (A) twisted pair, 100 metres (B) twisted pair, 200 metres
(C) fibre optics, 1000 metres (D) fibre optics, 2000 metres
- Answer: A**
28. A network with bandwidth of 10 Mbps can pass only an average of 12,000 frames per minute with each frame carrying an average of 10,000 bits. What is the throughput of this network ?
- (A) 1 Mbps (B) 2 Mbps
(C) 10 Mbps (D) 12 Mbps
- Answer: B**
26. A multiplexer combines four 100-Kbps channels using a time slot of 2 bits. What is the bit rate?
- (A) 100 Kbps (B) 200 Kbps
(C) 400 kbps (D) 1000 Kbps
- Answer: C**
27. In a fully-connected mesh network with 10 computers, total number of cables are required and number of ports are required for each device.
- (A) 40, 9 (B) 45, 10
(C) 45, 9 (D) 50, 10
- Answer: C**
28. In TCP/IP Reference model, the job of layer is to permit hosts to inject packets into any network and travel them independently to the destination.
- (A) Physical (B) Transport
(C) Application (D) Host-to-network
- Answer: Marks to all**
29. If there are N people in the world and are using secret key encryption/decryption for privacy purpose, then number of secret keys required will be:
- (A) N (B) (N-1)
(C) $N(N-1)/2$ (D) $N(N+1)/2$
- Answer: C**
30. Optical fiber uses reflection to guide light through a channel, in which angle of incidence is the critical angle.
- (A) equal to (B) less than
(C) greater than (D) less than or equal to
- Answer: C**

25. Using $p=3$, $q=13$, $d=7$ and $e=3$ in the RSA algorithm, what is the value of ciphertext for a plain text 5?
- (A) 13 (B) 21
(C) 26 (D) 33

Answer: Marks to all

Explanation:

$$p=3, q=13, d=7, e=3, M=5, C=?$$

$$C = M^e \text{ mod } n$$

$$n = p * q$$

$$= 3 * 13 = 39$$

$$C = 5^3 \text{ mod } 39$$

= 8

Answer is 8.

27. Match the following port numbers with their uses:

List – I

- (a) 23
- (b) 25
- (c) 80
- (d) 119

List – II

- (i) World wide web
- (ii) Remote Login
- (iii) USENET news
- (iv) E-mail

(a) (b) (c) (d)

- (A) (iv) (i) (ii) (iii)
- (B) (ii) (i) (iv) (iii)
- (C) (ii) (iv) (iii) (i)
- (D) (ii) (iv) (i) (iii)

Answer: D

30. Which of the following is/are restriction(s) in classless addressing ?

- (A) The number of addresses needs to be a power of 2.
- (B) The mask needs to be included in the address to define the block.
- (C) The starting address must be divisible by the number of addresses in the block.
- (D) All of the above

Answer: D

26. The period of a signal is 10 ms. What is its frequency in Hertz ?

- (A) 10
- (B) 100
- (C) 1000
- (D) 10000

Answer: B

27. In a classful addressing, first four bits in Class A IP address is

- (A) 1010
- (B) 1100
- (C) 1011
- (D) 1110

Answer: A,B,C,D

28. Which of the following algorithms is not a broadcast routing algorithm ?

- (A) Flooding
- (B) Multidestination routing
- (C) Reverse path forwarding
- (D) All of the above

Answer: D

29. An analog signal has a bit rate of 6000 bps and a baud rate of 2000 baud. How many data elements are carried by each signal element ?

- (A) 0.336 bits/ baud
- (B) 3 bits/ baud
- (C) 120,00,000 bits/ baud
- (D) None of the above

Answer: B

30. How many distinct stages are there in DES algorithm, which is parameterized by a 56-bit key ?

- (A) 16
- (B) 17
- (C) 18
- (D) 19

Answer: D

1. Infrared signals can be used for short range communication in a closed area using propagation.

- (A) ground
- (B) sky
- (C) line of sight
- (D) space

Answer: C

2. A bridge has access to address in the same network.

- (A) Physical (B) Network
(C) Datalink (D) Application

Answer: A

3. The minimum frame length for 10 Mbps Ethernet is bytes and maximum is bytes.

- (A) 64 & 128 (B) 128 & 1518
(C) 1518 & 3036 (D) 64 & 1518

Answer: D

4. The bit rate of a signal is 3000 bps. If each signal unit carries 6 bits, the baud rate of the signal is

- (A) 500 baud/sec (B) 1000 baud/sec
(C) 3000 baud/sec (D) 18000 baud/sec

Answer: A

5. Match the following:

List - I

- a. Physical Layer
b. Datalink Layer
c. Network Layer
d. Transport Layer
e. Application Layer

List - II

- i. Allow resources to network access
ii. Move packets from one destination to other
iii. Process to process message delivery
iv. Transmission of bit stream
v. Formation of frames

Codes:

- a b c d e
(A) iv v ii iii i
(B) v iv i ii iii
(C) i iii ii v iv
(D) i ii iv iii v

Answer: A

1. When data and acknowledgement are sent in the same frame, this is called as

- (A) Piggy packing (B) Piggy backing
(C) Back packing (D) Good packing

Answer: B

3. An analog signal carries 4 bits in each signal unit. If 1000 signal units are sent per second, then baud rate and bit rate of the signal are and

- (A) 4000 bauds \ sec & 1000 bps
(B) 2000 bauds \ sec & 1000 bps
(C) 1000 bauds \ sec & 500 bps
(D) 1000 bauds \ sec & 4000 bps

Answer: D

Explanation:

Bit rate is the number of bits per second. Baud rate is the number of signal units per second.

Baud rate is less than or equal to the bit rate.

Baud rate = 1000 bauds per second (baud/s)

Bit rate = 1000 x 4 = 4000 bps

4. The VLF and LF bauds use propagation for communication.

- (A) Ground (B) Sky
(C) Line of sight (D) Space

Answer: A

Explanation:

VLF (Very Low Frequency)

LF (Low Frequency)

In general there are three type of propagation.1.Ground Propagation 2.Sky propagation 3.Line-of-sight propagation.

In ground propagation, radio waves travel through the lowest portion of the atmosphere. These low-frequency signals travel in all directions from the transmitting antenna.

5. Using the RSA public key crypto system, if $p=13$, $q=31$ and $d=7$, then the value of e is
(A) 101 (B) 103
(C) 105 (D) 107

Answer: B

Explanation:

Basic RSA Algorithm:

1. Choose two primes, p & q .
2. Compute $n=p*q$ and $z=(p-1)*(q-1)$.
3. Choose a number relatively prime to z and call it d .
4. Find e such that $e*d=1 \text{ mod } z$.

Given $p=13$, $q=31$ & $d=7$, $e=?$

$$n=p*q=403$$

$$z=(p-1)(q-1)=360$$

$$e*d=1 \text{ mod } z$$

$7e=1 \text{ mod } 360$, then $7e$ must be 361, 721, 1081, 1441, etc. Dividing each of these in turn by 7 to see which is divisible by 7, we find that $721/7 = 103$, hence $e = 103$.

1. A file is downloaded in a home computer using a 56 kbps MODEM connected to an Internet Service Provider. If the download of file completes in 2 minutes, what is the maximum size of data downloaded?
(A) 112 Mbits (B) 6.72 Mbits
(C) 67.20 Mbits (D) 672 Mbits

Answer: B

2. In CSMA protocol, after the station finds the line idle, it sends or refrains from sending based on the outcome of a random number generator.
(A) Non-persistent (B) 0-persistent
(C) 1-persistent (D) p-persistent

Answer: D

3. Which of the following substitution technique have the relationship between a character in the plaintext and a character in the ciphertext as one-to-many?
(A) Monoalphabetic (B) Polyalphabetic
(C) Transpositional (D) None of the above

Answer: B

4. What is the maximum length of CAT-5 UTP cable in Fast Ethernet network?
(A) 100 meters (B) 200 meters
(C) 1000 meters (D) 2000 meters

Answer: A

6. The count-to-infinity problem is associated with
(A) Flooding algorithm
(B) Hierarchical routing algorithm
(C) Distance vector routing algorithm
(D) Link state routing algorithm

Answer: C

16. In substitution, a character in the plaintext is always changed to the same character in the ciphertext, regardless of its position in the text.
(A) polyalphabetic (B) monoalphabetic

(C) transpositional (D) multialphabetic

Answer: B

17. In classful addressing, the IP address 190.255.254.254 belongs to

- (A) Class A (B) Class B
(C) Class C (D) Class D

Answer: B

18. In hierarchical routing with 4800 routers, what region and cluster sizes should be chosen to minimize the size of the routing table for a three layer hierarchy?

- (A) 10 clusters, 24 regions and 20 routers
(B) 12 clusters, 20 regions and 20 routers
(C) 16 clusters, 12 regions and 25 routers
(D) 15 clusters, 16 regions and 20 routers

Answer: D

Rooters minimum, then regions minimum, then clusters minimum.

33. Using data $p=3$, $q=11$, $n=pq$, $d=7$ in RSA algorithm find the cipher text of the given plain text SUZANNE

- (A) BUTAEEZ (B) SUZANNE
(C) XYZABCD (D) ABCDXYZ

Answer: A

3. The GSM network is divided into the following three major systems:

- (A) SS, BSS, OSS (B) BSS, BSC, MSC
(C) CELL, BSC, OSS (D) SS, CELL, MSC

Answer: A

9. If a packet arrive with an M-bit value is '1' and a fragmentation offset value '0', then it is fragment.

- (A) First (B) Middle
(C) Last (D) All of the above

Answer: A

10. The number of bit strings of length eight that will either start with a 1 bit or end with two bits 00 shall be

- (A) 32 (B) 64
(C) 128 (D) 160

Answer: D

Explanation:

Number of bit strings of length 8 that start with 1 (1 x x x x x x x): $2^7 = 128$.

Number of bit strings of length 8 that end with 00 (x x x x x x 0 0): $2^6 = 64$.

Number of bit strings of length 8 that start with 1 and end with 00 (0 0 x x x x x 1): $2^5 = 32$.

Applying the subtraction rule, the number is $128 + 64 - 32 = 160$.

23. Coaxial cables are categorized by Radio Government rating are adapted for specialized functions. Category RG-59 with impedance 75Ω used for

- (A) Cable TV (B) Ethernet
(C) Thin Ethernet (D) Thick Ethernet

Answer: A

37. AES is a round cipher based on the Rijndal Algorithm that uses a 128-bit block of data. AES has three different configurations. rounds with a key size of 128 bits, rounds with a key size of 192 bits and rounds with a key size of 256 bits.

- (A) 5, 7, 15 (B) 10, 12, 14

(C) 5, 6, 7 (D) 20, 12, 14

Answer: B

16. In which circuit switching, delivery of data is delayed because data must be stored and retrieved from RAM ?

(A) Space division (B) Time division

(C) Virtual (D) Packet

Answer: B

17. In which Routing Method do all the routers have a common database?

(A) Distance vector (B) Link state

(C) Link vector (D) Dijkstra method

Answer: B

18. Page Shift Keying (PSK) Method is used to modulate digital signal at 9600 bps using 16 level. Find the line signals and speed (i.e. modulation rate).

(A) 2400 bauds (B) 1200 bauds

(C) 4800 bauds (D) 9600 bauds

Answer: A

19. The station to hub distance in which it is 2000 metres.

(A) 100 Base-Tx (B) 100 Base-Fx

(C) 100 Base-T4 (D) 100 Base-T1

Answer: B

39. For the transmission of the signal, Bluetooth wireless technology uses

(A) time division multiplexing

(B) frequency division multiplexing

(C) time division duplex

(D) frequency division duplex

Answer: C

41. What is the routing algorithm used by RIP and IGRP ?

(A) OSPF (B) Link-state

(C) Dynamic (D) Dijkstra vector

Answer: D

7. BCC in the internet refers to

(A) Black carbon copy (B) Blind carbon copy

(C) Blank carbon copy (D) Beautiful carbon copy

Answer: B

8. Hub is a term used with

(A) A Star Networks (B) A Ring Networks

(C) A Router (D) A Bridge

Answer: A

9. The amount of uncertainty in a system of symbol is called

(A) Bandwidth (B) Entropy

(C) Loss (D) Quantum

Answer: B

10. Which of the following network access standard disassembler is used for connection station to a packet switched network?

(A) X.3 (B) X.21

(C) X.25 (D) X.75

Answer: C

11. A station in a network in a network forward incoming packets by placing them on its shortest output queue. What routing algorithm is being used?

- (A) Hot potato routing (B) Flooding
(C) Static routing (D) Delta routing

Answer: A

12. Start and stop bits are used in serial communications for
(A) Error detection (B) Error correction
(C) Synchronization (D) Slowing down the communication

Answer: C

13. For a data entry project for office staff who have never used computers before (user interface and user-friendliness are extremely important), one will use
(A) Spiral model (B) Component based model
(C) Prototyping (D) Waterfall model

Answer: C

35. The cellular frequency reuse factor for the cluster size N is
(A) N (B) N^2
(C) $1/N$ (D) $1/N^2$

Answer: C

37. Handoff is the mechanism that
(A) transfer an ongoing call from one base station to another
(B) initiating a new call
(C) dropping an ongoing call
(D) none of above

Answer: A

39. All of the following are examples of real security and privacy risks except
(A) Hackers (B) Spam
(C) Viruses (D) Identify theft

Answer: B

40. Identify the incorrect statement :
(A) The ATM adoption layer is not service dependent.
(B) Logical connections in ATM are referred to as virtual channel connections.
(C) ATM is streamlined protocol with minimal error and flow control capabilities
(D) ATM is also known as cell delays.

Answer: A

27. If carrier modulated by a digital bit stream, has one one of the possible phase of 0, 90, 180 and 270 degrees, then modulation called
(A) BPSK (B) QPSK
(C) QAM (D) MSK

Answer: B

28. Consider the following statement :
(i) The bandwidth of the A.M., wave depends on the band width of the modulating signal.
(ii) The bandwidth of the A.M., wave depends on the modulation index.
(iii) The bandwidth of the F.M, wave for all practical purpose depends on the amplitude of the carrier. Of these statements the correct statements are
(A) (i, ii) (B) (i, iii)
(C) (ii, iii) (D) All of the above

Answer: B

29. A smart modem can dial, hangup and answer incoming calls automatically. Can you tell who provides the appropriate instructions to the modem for this purpose ?
(A) Communication software
(B) Error detection protocols
(C) Link access procedure (LAP)

(D) Telecommunications

Answer: A

30. Which of the following switching techniques is most suitable for interactive traffic ?

- (A) Circuit switching
- (B) Message switching
- (C) Packet switching
- (D) All of the above

Answer: C

26. Frequency shift keying is used mostly in

- (A) Radio transmission
- (B) Telegraphy
- (C) Telephone
- (D) None of the above

Answer: B

27. The baud rate is

- (A) always equal to the bit transfer rate
- (B) equal to twice the bandwidth of an ideal channel
- (C) not equal to the signalling rate
- (D) equal to half of the bandwidth of an ideal channel

Answer: B

28. How much bandwidth is there in 1 micron of spectrum at a wavelength of 1 micron?

- (A) 300 MHz
- (B) 3 GHz
- (C) 300 THz
- (D) 30 KHz

Answer: C

30. The threshold effect in demodulator is

- (A) exhibited by all demodulator, when the input signal to noise ratio is low.
- (B) the rapid fall on output signal to noise ratio when the input signal to noise ratio fall below a particular value.
- (C) the property exhibited by all A.M. suppressed carrier coherent demodulator.
- (D) the property exhibited by correlation receiver.

Answer: B

26. The field is the SNMP PDV reports an error in a response message.

- (A) error index
- (B) error status
- (C) set request
- (D) agent index

Answer: B

28. End-to-End connectivity is provided from Last-to-Last in

- (A) Network layer
- (B) Session layer
- (C) Transport layer
- (D) Data link layer

Answer: C

29. What services does the internet layer provide?

1. Quality of service
2. Routing
3. Addressing
4. Connection oriented delivery
5. Framing bits

- (A) 1, 2, 3
- (B) 2, 3, 4
- (C) 1, 3, 4, 5
- (D) 2, 3, 4, 5

Answer:

30. What is the maximum operating rate of a wireless LAN using infrared communication?

- (A) 1 mbps
- (B) 2 mbps
- (C) 5 mbps
- (D) 11mbps

Answer: A

26. Device on one network can communicate with devices on another network via a

- (A) Hub/Switch
- (B) Utility server
- (C) File server
- (D) Gateway

Answer: D

27. What is the maximum window size in sliding window protocol used in a computer network?

- (A) 4
- (B) 8
- (C) 15
- (D) 16

Answer: A

28. Which of the following are Data Link Layer standard?

1. Ethernet
2. HSSI
3. Frame Relay
4. 10 – Base T
5. Token Ring

- (A) 1, 2, 3
- (B) 1, 3, 5
- (C) 1, 3, 4, 5
- (D) 1, 2, 3, 4, 5

Answer: C

29. In case of Bus/Tree topology signal balancing issue is overcome by

- (A) Modulation
- (B) Polling
- (C) Segmentation
- (D) Strong transmitter

Answer: C

30. Match the following :

List-I

- (i) Ethernet
- (ii) Token Ring
- (iii) Cut-through switch
- (iv) Spanning tree

List-II

- (a) Deterministic
- (b) Utilize the full wire speed

- (c) Prevent looping
- (d) Checking valid address

Codes:

- (A) i – d, ii – a, iii – b, iv – c
- (B) i – a, ii – d, iii – b, iv – c
- (C) i – d, ii – d, iii – c, iv – b
- (D) i – d, ii – c, iii – b, iv – a

Answer: A

6. The throughput of pure ALOHA is given by:

- (A) $S=G$
- (B) $S=e^{2G}$
- (C) $S=Ge^{2G}$
- (D) Ge^{-2G}

Answer: D

7. The Fiber Distributed Data Interface uses:

- (A) single mode fibers and LEDs
- (B) multimode fibers and LEDs
- (C) single mode fibers and ILDs
- (D) multimode fibers and ILDs

Answer: B

8. To employ multi-access in GSM, users are given different:

- (A) time slots
- (B) bandpass filters
- (C) handsets
- (D) frequency bands

Answer: B

29. X.25 protocol consists of:

- (A) Physical and Frame levels
- (B) Frame and Packet levels
- (C) Physical, Frame and Packet levels
- (D) None of the above

Answer: C

30. GSM/CDMA systems:

- (A) are limited to very low speed data
- (B) require no local loop wires
- (C) are predominantly used for voice
- (D) all of the above

Answer: D

31. Usually information security in a network is achieved by:

- (A) Layering
- (B) Cryptography
- (C) Grade of service
- (D) None of the above

Answer: B

49. The device which connects dissimilar LANs of different topologies using different sets of communication protocols so that information can flow from one to another is called:

- (A) Router
- (B) Bridge
- (C) Gateway
- (D) Switch

Answer: C

1. The channel capacity of a band-limited Gaussian channel is given by:
- (A) $B \log_2(2+S/N)$
 - (B) $B \log_2(1+S/N)$
 - (C) $B \log_{10}(1+S/N)$
 - (D) $B \log_e(1+S/N)$

Answer: B

Explanation:

$C=B \log_2 (1 + S/N)$ where C is the capacity in bits per second. B is the bandwidth of the channel in Hertz and S/N is the signal to noise ratio.

6. An example of a layer that is absent in broadcast networks is:
- (A) Physical layer
 - (B) Presentation layer
 - (C) Network layer
 - (D) Application layer

Answer: C

7. The ATM cell is:
- (A) 48 bytes long
 - (B) 53 bytes long
 - (C) 64 bytes long
 - (D) 69 bytes long

Answer: B

Explanation:

An ATM cell always consists of a 5-byte header followed by a 48-byte payload. So the size is 53 bytes long.

10. Transmission of N signals, each band limited to f_m Hz by TDM, requires a minimum band-width of:
- (A) f_m
 - (B) $2 f_m$
 - (C) $N f_m$
 - (D) $2N f_m$

Answer: C

Explanation:

Minimum transmission band-width of TDM channel is given by the following equation.

$B_t=NW$ Where N is the total number of channels, which are band limited to 'W' Hz.

In the above problem, the number of signals are N, each band limited to F_m Hz.

So the minimum band-width $=NW = N f_m$.

11. If a code is 't' error detecting, the minimum hamming distance should be equal to:
- (A) t-1
 - (B) t
 - (C) t+1
 - (D) 2t+1

Answer: C

Explanation:

For error detection, formula is t+1

For error correction, formula is 2t+1

16. The throughput of slotted ALOHA is given by:
- (A) $S=G$

- (B) $S=Ge^G$
- (C) $S=Ge^{-G}$
- (D) $S=e^G$

Answer: C

17. Congestion control is done by:

- (A) Network layer
- (B) Physical layer
- (C) Presentation layer
- (D) Application layer

Answer: A

Explanation:

Routing and forwarding are functions of this layer, as well as addressing, internetworking, error handling, congestion control and packet sequencing.

18. **Assertion (A):** Twisted pairs are widely used as transmission medium.

Reasoning (R): Twisted pairs have adequate performance and low cost.

- (A) Both (A) and (R) are true and (R) is the correct explanation for (A)
- (B) Both (A) and (R) are true but (R) is not the correct explanation
- (C) (A) is true but (R) is false
- (D) (A) is false but (R) is true

Answer: A

19. An example of a non-adaptive routing algorithm is:

- (A) Shortest path routing
- (B) Centralised routing
- (C) Baran's hot potato routing
- (D) Baran's backward learning algorithm

Answer: A

Explanation:

Non-Adaptive Routing Algorithm: These algorithms do not base their routing decisions on measurements and estimates of the current traffic and topology. Instead the route to be taken in going from one node to the other is computed in advance, off-line, and downloaded to the routers when the network is booted. This is also known as static routing.

Eg: Shortest path routing:- To send a packet from one node to another find the shortest path between the pair of nodes.

Adaptive Routing Algorithm: These algorithms change their routing decisions to reflect changes in the topology and in traffic as well. These get their routing information from adjacent routers or from all routers. The optimization parameters are the distance, number of hops and estimated transit time.

20. IP address in B class is given by:

- (A) 125.123.123.2
- (B) 191.023.21.54
- (C) 192.128.32.56
- (D) 10.14.12.34

Answer: B

35. A high performance switching and multiplexing technology that utilizes fixed length packets to carry different types of traffic is:

- (A) ATM
- (B) ADSL
- (C) SONET
- (D) None of the above

Answer: A

36. A conventional LAN bridge specifies only the functions of OSI:

- (A) layers 1 and 2
- (B) layers 1 through 3
- (C) all layers
- (D) none of the above

Answer: A

26. The ATM cells are bytes long.

- (A) 48
- (B) 53
- (C) 64
- (D) 69

Answer: B

27. For slotted ALOHA, the maximum channel utilization is :

- (A) 100%
- (B) 50%
- (C) 36%
- (D) 18%

Answer: C

28. For a channel of 3 KHz bandwidth and signal to noise ratio of 30 dB, the maximum data rate is:

- (A) 3000 bps
- (B) 6000 bps
- (C) 15000 bps
- (D) 30000 bps

Answer: D

29. An example of a public key encryption algorithm is:

- (A) Caesar cipher algorithm
- (B) DES algorithm
- (C) AES algorithm
- (D) Knapsack algorithm

Answer: D

30. With reference to hierarchical routing, the optimum number of levels for an m router subnet is:

- (A) m^2
- (B) m
- (C) $\ln m$
- (D) \sqrt{m}

Answer: C

26. The best known example of a MAN is:

- (A) Ethernet
- (B) Cable Television
- (C) FDDI
- (D) IEEE 802.3

Answer: B

27. In a broadcast network, a layer that is often thin or non-existent is:

- (A) network layer
- (B) transport layer
- (C) presentation layer
- (D) application layer

Answer: A

28. The maximum data rate of binary signals on a noiseless 3 KHz channel is:

- (A) 3000 bps
- (B) 6000 bps

(C) 9000 bps (D) 12,000 bps

Answer: B

29. For pure ALOHA, the maximum channel utilization is:

- (A) 100%
- (B) 50%
- (C) 36%
- (D) 18%

Answer: D

30. An example of an adaptive routing algorithm is:

- (A) distance vector routing
- (B) flooding
- (C) selective flooding
- (D) shortest path routing

Answer: A

26. In case of Bus/Tree topology signal balancing issue is overcome by:

- (A) Strong Transmitter
- (B) Polling
- (C) Segmentation
- (D) Modulation

Answer: C

27. Which of the following techniques are used to control data flow?

- 1. Windowing
- 2. Routing
- 3. RPCs
- 4. Buffering

- (A) 1, 4
- (B) 2, 3, 4
- (C) 1, 3, 4
- (D) 1, 2, 3, 4

Answer: A

28. TDM is

- (A) A primary/secondary type protocol
- (B) A peer/peer protocol
- (C) A Non-priority peer/peer protocol
- (D) A priority type protocol

Answer: C

29. What services does the Internet Layer provide?

- 1. Quality of service
- 2. Routing
- 3. Addressing
- 4. Connection-oriented delivery
- 5. Framing bits

- (A) 1, 2, 3
- (B) 2, 3, 4
- (C) 1, 3, 4, 5
- (D) 2, 3, 4, 5

Answer: A

30. Which of the following protocols is used to prevent looping?

- (A) OSPF
- (B) Spanning tree
- (C) SRB
- (D) Fragment free switching

Answer: B

26. How many DS1 signals are transported on a DS3 signal ?

- (A) 24 (B) 672 (C) 14 (D) 28

Answer: D

27. A 10 BASE-2 network is limited to:

- (A) 20 bytes per data field
(B) 30 stations per segment
(C) 40 segments
(D) 50 feet of cable

Answer: B

30. The LAPB frame structure and the frame structure of SDLC are:

- (A) Opposite (B) Identical
(C) Reversed (D) Non-identical

Answer: B

26. What is the transmission signal coding method for a T1 carrier called ?

- (A) Binary
(B) NRZ
(C) Bipolar
(D) Manchester

Answer: C

27. How much bandwidth is required to send 132 voice-grade channels by FDM on an international satellite system ?

- (A) 500 MHz
(B) 10 MHz
(C) 1320 MHz
(D) 50 MHz

Answer: A

28. What is the difference between the Ethernet frame preamble field and the IEEE 802.3 preamble and start of frame Delimiter fields ?

- (A) 1 byte
(B) 1 bit
(C) 4 bits
(D) 16 bits

Answer: A

29. What is the function of a translating bridge ?

- (A) Connect similar remote LANs
(B) Connect similar local LANs
(C) Connect different types of LANs
(D) Translate the network addresses into a layer 2 address

Answer: C

30. The program used to determine the round-trip delay between a workstation and a destination address is:

- (A) Tracert
(B) Traceroute
(C) Ping
(D) Pop

Answer: B

29. points provide a method to recover data that has been delivered but not yet used.

- (A) Segmentation
(B) Concatenation
(C) Translation
(D) Synchronization

Answer: D

28. Which type of links are used for a connection between two DTE devices ?
(A) X.21 (B) Frame Relay
(C) ATM (D) Modem

Answer: D

29. Which protocol is used to encapsulate a data packet created of a higher OSI model layer ?
(A) HDLC (B) SDLC
(C) LAPB (D) LAPD

Answer: D

30. What is the correct subnet mask to use for a class-B address to support 30 Networks and also have the most hosts possible ?
(A) 255.255.255.0
(B) 255.255.192.0
(C) 255.255.240.0
(D) 255.255.248.0

Answer: D

26. Error control is needed at the transport layer because of potential error occurring
(A) from transmission line noise
(B) in router
(C) from out of sequence delivery
(D) from packet losses

Answer: B

27. Making sure that all the data packets of a message are delivered to the destination is control.
(A) Error (B) Loss
(C) Sequence (D) Duplication

Answer: A

28. Which transport class should be used with a perfect network layer?
(A) TP0 and TP2 (B) TP1 and TP3
(C) TP0, TP1, TP3 (D) TP0, TP1, TP2, TP3, TP4

Answer: A

29. Which transport class should be used with residual-error network layer?
(A) TP0, TP2 (B) TP1, TP3
(C) TP1, TP3, TP4 (D) TP0, TP1, TP2, TP3, TP4

Answer: B

30. Virtual circuit is associated with a service.
(A) Connectionless (B) Error-free
(C) Segmentation (D) Connection-oriented

Answer: D

25. Suppose there are n stations in a slotted LAN. Each station attempts to transmit with a probability P in each time slot. The probability that only one station transmits in a given slot is
- (1) $nP(1-P)^{n-1}$
(2) nP
(3) $P(1-P)^{n-1}$
(4) $n^P(1-P)^{n-1}$

Answer: 1

26. Station A uses 32 byte packets to transmit messages to station B using sliding window protocol. The round trip delay between A and B is 40 milli seconds and the bottleneck bandwidth on the path between A and B is 64 kbps. The optimal window size of A is

- (1) 20
- (2) 10
- (3) 30
- (4) 40

Answer: 2

28. In a packet switching network, if the message size is 48 bytes and each packet contains a header of 3 bytes. If 24 packets are required to transmit the message, the packet size is

-
- (1) 2 bytes
 - (2) 1 byte
 - (3) 4 bytes
 - (4) 5 bytes

Answer: 4

30. A node X on a 10 Mbps network is regulated by a token bucket. The token bucket is filled at a rate of 2 Mbps. Token bucket is initially filled with 16 megabits. The maximum duration taken by X to transmit at full rate of 10 Mbps is secs.

- (1) 1
- (2) 2
- (3) 3
- (4) 4

Answer: 2

25. Suppose transmission rate of a channel is 32 kbps. If there are '8' routes from source to destination and each packet p contains 8000 bits. Total end to end delay in sending packet P is

- (A) 2 sec (B) 3 sec
- (C) 4 sec (D) 1 sec

Answer: A

27. In CRC checksum method, assume that given frame for transmission is 1101011011 and the generator polynomial is $G(x) = x^4 + x + 1$.

After implementing CRC encoder, the encoded word sent from sender side is

- (A) 11010110111110
- (B) 11101101011011
- (C) 110101111100111
- (D) 110101111001111

Answer: A

28. A slotted ALOHA network transmits 200 bits frames using a shared channel with 200 kbps bandwidth. If the system (all stations put together) produces 1000 frames per second, then the throughput of the system is

- (A) 0.268 (B) 0.468
- (C) 0.368 (D) 0.568

Answer: C

29. An analog signal has a bit rate of 8000 bps and a baud rate of 1000.

Then analog signal has signal elements and carry data elements in each signal.

- (A) 256, 8 bits (B) 128, 4 bits
- (C) 256, 4 bits (D) 128, 8 bits

Answer: A

25. If link transmits 4000 frames per second and each slot has 8 bits, the transmission rate of circuit of this TDM is
- (A) 64 Kbps (B) 32 Mbps
(C) 32 Kbps (D) 64 Mbps

Answer: C

26. Given the following statements:
- (a) Frequency Division Multiplexing is a technique that can be applied when the bandwidth of a link is greater than combined bandwidth of signals to be transmitted.
(b) Wavelength Division Multiplexing (WDM) is an analog multiplexing Technique to combine optical signals.
(c) WDM is a Digital Multiplexing Technique.
(d) TDM is a Digital Multiplexing Technique.
- Which of the following is correct?
- (A) (a), (b), (c) and (d) are true.
(B) (a), (b), (c) and (d) are false.
(C) (a), (b) and (d) are false; (c) is true.
(D) (a), (b) and (d) are true; (c) is false.

Answer: D

27. A pure ALOHA Network transmit 200 bit frames using a shared channel with 200 Kbps bandwidth. If the system (all stations put together) produces 500 frames per second, then the throughput of the system is
- (A) 0.384 (B) 0.184
(C) 0.286 (D) 0.586

Answer: B

28. Match the following:
- (a) Line coding (i) A technique to change analog signal to digital data.
(b) Block coding (ii) Provides synchronization without increasing number of bits
(c) Scrambling (iii) Process of converting digital data to digital signal.
(d) Pulse code modulation (iv) Provides redundancy to ensure synchronization and inherits error detection.

Codes:

- (a) (b) (c) (d)
(A) (iv) (iii) (ii) (i)
(B) (iii) (iv) (ii) (i)
(C) (i) (iii) (ii) (iv)
(D) (ii) (i) (iv) (iii)

Answer: B

29. Assume that we need to download text documents at the rate of 100 pages per minute. A page is an average of 24 lines with 80 characters in each line and each character requires 8 bits. Then the required bit rate of the channel is
- (A) 1.636 Kbps (B) 1.636 Mbps
(C) 2.272 Mbps (D) 3.272 Kbps

Answer: Marks given to all

30. Encrypt the plain text Message "EXTRANET" using Transposition cipher technique with the following key:

3	5	2	1	4	(Cipher text)
1	2	3	4	5	(Plain text)

Using 'Z' as bogus character.

- (A) TAXERTZENZ (B) EXTRANETZZ
(C) EZXZTRZANZET (D) EXTZRANZETZ

Answer: A

11. A network with bandwidth of 10 Mbps can pass only an average of 15,000 frames per minute with each frame carrying an average of 8,000 bits. What is the throughput of this network ?
(A) 2 Mbps (B) 60 Mbps
(C) 120 Mbps (D) 10 Mbps

Answer: A

Explanation:

In data transmission, throughput is the amount of data moved successfully from one place to another in a given period of time, and typically measured in bits per second (bps), or in megabits per second (Mbps) or gigabits per second (Gbps).

Here, Throughput = $15000 \times 8000 / 60 = 2 \text{ Mbps}$

12. Consider a subnet with 720 routers. If a three-level hierarchy is chosen with eight clusters, each containing 9 regions of 10 routers, then total number of entries in the routing table is
- (A) 25 (B) 27
(C) 53 (D) 72

Answer: A

Explanation:

Each router needs 10 entries for local routers, 8 entries for routing to other regions within its own cluster, and 7 entries for distant clusters, for a total of 25 entries.

15. A device is sending out data at the rate of 2000 bps. How long does it take to send a file of 1,00,000 characters ?
(A) 50 (B) 200
(C) 400 (D) 800

Answer: C

Explanation:

$1,00,000 \text{ characters} = 1,00,000 \times 8 \text{ bits} = 8,00,000 \text{ bits}$
 $8,00,000 \text{ bits} / 2000 \text{ bps} = 400 \text{ seconds}$

31. In CRC based design, a CRC Team consists of :
(a) one or two users representatives
(b) several programmers
(c) project co-ordinators
(d) one or two system analysts

Codes :

- (A) (a) and (c) (B) (a), (b), (c) and (d)
(C) (a), (c) and (d) (D) (a), (b) and (d)

Answer: C

25. Which transmission technique guarantees that data packets will be received by the receiver in the same order in which they were sent by the sender?
(A) Broadcasting (B) Unicasting
(C) Packet Switching (D) Circuit Switching

Answer: D

28. A message "COMPUTERNETWORK" encrypted(ignore quotes)using columnar transposition cipher with a key "LAYER". The encrypted message is:
(A) CTTOEWMROPNRUEK (B) MROUEKCTTPNROEW
(C) OEWPNRCTTUEKMRO (D) UEKPNRMROOEWCTT
Answer: C
29. Suppose a digitized voice channel is made by digitizing 8 kHz bandwidth analog voice signal. It is required to sample the signal at twice the highest frequency (two samples per hertz). What is the bit rate required, if it is assumed that each sample requires 8 bits?
(A) 32 kbps (B) 64 kbps
(C) 128 kbps (D) 256 kbps
Answer: C
25. For n devices in a network, number of duplex-mode links are required for a mesh topology.
(A) $n(n + 1)$ (B) $n(n - 1)$
(C) $n(n + 1)/2$ (D) $n(n - 1)/2$
Answer: D
26. How many characters per second (7 bits + 1 parity) can be transmitted over a 3200 bps line if the transfer is asynchronous ? (Assuming 1 start bit and 1 stop bit)
(A) 300 (B) 320
(C) 360 (D) 400
Answer: B
28. What is the propagation time if the distance between the two points is 48,000 ? Assume the propagation speed to be 2.4×10^8 metre/second in cable.
(A) 0.5 ms (B) 20 ms
(C) 50 ms (D) 200 ms
Answer: Marks given to all
29. is a bit-oriented protocol for communication over point-to-point and multipoint links.
(A) Stop-and-wait (B) HDLC
(C) Sliding window (D) Go-back-N
Answer: B
30. Which one of the following is true for asymmetric-key cryptography ?
(A) Private key is kept by the receiver and public key is announced to the public.
(B) Public key is kept by the receiver and private key is announced to the public.
(C) Both private key and public key are kept by the receiver.
(D) Both private key and public key are announced to the public.
Answer: A
74. A Trojan horse is
(A) A program that performs a legitimate function that is known to an operating system or its user and also has a hidden component that can be used for nefarious purposes like attacks on message security or impersonation.
(B) A piece of code that can attach itself to other programs in the system and spread to other systems when programs are copied or transferred.
(C) A program that spreads to other computer systems by exploiting security holes like weaknesses in facilities for creation of remote processes
(D) All of the above
Answer: A
6. In a digital transmission, the receiver clock is 0.1 percent faster than the sender clock. How many extra bits per second does the receiver receive if the data rate is 1 Mbps?

- (A) 10 bps
- (B) 100 bps
- (C) 1000 bps
- (D) 10000 bps

Answer: C

72. Four bits are used for packed sequence numbering in a sliding window protocol used in a computer network. What is the maximum window size?

- (A) 4
- (B) 8
- (C) 15
- (D) 16

Answer: C

46. A client-server system uses a satellite network, with the satellite at a height of 40,000 kms. What is the best-case delay in response to a request? (Note that the speed of light in air is 3,00,000 km/second).

- (A) 133.33 m sec
- (B) 266.67 m sec
- (C) 400.00 m sec
- (D) 533.33 m sec

Answer: D

Explanation:

The request has to go up and down, and the response has to go up and down. The total path length traversed is thus 160,000 km. The speed of light in air and vacuum is 300,000 km/sec, so the propagation delay alone is $160,000/300,000$ sec or about 533 msec.

47. The start and stop bits are used in serial communication for

- (A) error detection
- (B) error correction
- (C) synchronization
- (D) slowing down the communication

Answer: C

48. is a type of transmission impairment in which the signal loses strength due to the resistance of the transmission medium.

- (A) Attenuation
- (B) Distortion
- (C) Noise
- (D) Decibel

Answer: A

7. Suppose a file of 10,000 characters is to be sent over a line at 2400 bps. Assume that the data is sent in frames. Each frame consists of 1000 characters and an overhead of 48 bits per frame. Using synchronous transmission, the total overhead time is

- (A) 0.05 second
- (B) 0.1 second
- (C) 0.2 second
- (D) 2.0 second

Answer: C

10. Which of the following is a bit rate of an 8-PSK signal having 2500 Hz bandwidth?
- (A) 2500 bps
 - (B) 5000 bps
 - (C) 7500 bps
 - (D) 20000 bps

Answer: C

11. Match the following :
- (a) UDP (i) Message Transfer Protocol
 - (b) OSPF (ii) Bit-oriented Protocol
 - (c) SMTP (iii) Interior Gateway Routing Protocol
 - (d) HDLC (iv) Connectionless Transport Protocol

Codes :

- (a) (b) (c) (d)
- (A) (iii) (iv) (ii) (i)
- (B) (iv) (iii) (ii) (i)
- (C) (iv) (iii) (i) (ii)
- (D) (iii) (iv) (i) (ii)

Answer: C

12. Given the IP address 201.14.78.65 and the subnet mask 255.255.255.224. What is the subnet address?
- (A) 201.14.78.32
 - (B) 201.14.78.64
 - (C) 201.14.78.65
 - (D) 201.14.78.224

Answer: B

56. If the data unit is 111111 and the divisor is 1010. In CRC method, what is the dividend at the transmission before division?
- (A) 1111110000
 - (B) 1111111010
 - (C) 111111000
 - (D) 111111

Answer: C

57. If user A wants to send an encrypted message to user B. The plain text of A is encrypted with the
- (A) Public Key of user A
 - (B) Public Key of user B
 - (C) Private Key of user A
 - (D) Private Key of user B

Answer: B

58. A can forward or block packets based on the information in the network layer and transport layer header.
- (A) Proxy firewall
 - (B) Firewall
 - (C) Packet filter firewall
 - (D) Message digest firewall

Answer: A

4. The technique of temporarily delaying outgoing acknowledgements so that they can be hooked onto the next outgoing data frame is known as

- (A) Bit stuffing
- (B) Piggy backing
- (C) Pipelining
- (D) Broadcasting

Answer: B

8. Using RSA algorithm, what is the value of cipher text C, if the plain text M=5 and p=3, q=11 & d=7?

- (A) 33
- (B) 5
- (C) 25
- (D) 26

Answer: D

Explanation:

RSA (Rivest, Shamir, & Adleman) is an algorithm used by modern computers to encrypt and decrypt messages. It is an asymmetric cryptographic algorithm. Asymmetric means that there are two different keys. The keys for the RSA algorithm are generated the following way:

Choose two different large random prime numbers p and q.

Calculate $n = pq = 3 \times 11 = 33$

Calculate the totient: $\phi(n) = (p-1)(q-1) = 2 \times 10 = 20$

(In number theory, the totient $\phi(n)$ of a positive integer is the number of integers less than the number which are coprime to n (they share no factors).)

(In mathematics, two integers (a and b) are coprime (or relatively prime) if they share no common factors. In other words, there is no number, other than 1, that divides both a and b.)

Choose an integer e, such that $1 < e < \phi(n)$, and e is coprime to $\phi(n)$, ie: e and $\phi(n)$ share no factors other than 1.

$de \equiv 1 \pmod{\phi(n)} \Rightarrow 7e \equiv 1 \pmod{20}$, then 7e must be 21, 41, 61, etc. Dividing each of these in turn by 7 to see which is divisible by 7, we find that $21/7 = 3$, hence $e = 3$.

$c = m^e \pmod n = 5^3 \pmod{33} = 125 \pmod{33} = 26$

46. The cost of the network is usually determined by

- (A) time complexity
- (B) switching complexity
- (C) circuit complexity
- (D) none of these

Answer: B

46. The single stage network is also called

- (A) one sided network

- (B) two sided network
- (C) recirculating network
- (D) pipeline network

Answer: C

48. Which technology is sometime referred to as wireless cable?
- (A) MMDS
 - (B) ATM
 - (C) LMDS
 - (D) CDMA

Answer: A

66. In a binary Hamming code the number of check digits is r then number of message digits is equal to:
- (A) $2^r - 1$
 - (B) $2^r - r - 1$
 - (C) $2^r - r + 1$
 - (D) $2^r + r - 1$

Answer: B

16. In a fully connected mesh network with n devices, there are physical channels to link all devices.
- (A) $n(n-1)/2$
 - (B) $n(n+1)/2$
 - (C) $2n$
 - (D) $2n+1$

Answer: A

21. Which one of the following media is multidrop?
- (A) Shielded Twisted pair cable
 - (B) Unshielded Twisted pair cable
 - (C) Thick Coaxial cable
 - (D) Fiber Optic cable

Answer: C

22. What is the baud rate of the standard 10 Mbps Ethernet?
- (A) 10 megabaud
 - (B) 20 megabaud
 - (C) 30 megabaud
 - (D) 40 megabaud

Answer: B

Explanation:

The Ethernet uses Manchester encoding, which means it has two signal periods per bit sent. The data rate of the standard Ethernet is 100-Mbps, so the baud rate is 200 Mbaud.

27. Let $G(x)$ be generator polynomial used for CRC checking. The condition that should be satisfied by $G(x)$ to correct odd numbered error bits, will be:
- (1) $(1+x)$ is factor of $G(x)$
 - (2) $(1-x)$ is factor of $G(x)$
 - (3) $(1+x^2)$ is factor of $G(x)$
 - (4) x is factor of $G(x)$

Answer: 1

20. The measures the relative strengths of two signals or a signal at two different points.
- (A) frequency
 - (B) attenuation
 - (C) throughput

(D) decibel

Answer: D

21. Which one of the following media is multidrop?

- (A) Shielded Twisted pair cable
- (B) Unshielded Twisted pair cable
- (C) Thick Coaxial cable
- (D) Fiber Optic cable

Answer: C

22. What is the baud rate of the standard 10 Mbps Ethernet?

- (A) 10 megabaud
- (B) 20 megabaud
- (C) 30 megabaud
- (D) 40 megabaud

Answer: B

Explanation:

The Ethernet uses Manchester encoding, which means it has two signal periods per bit sent. The data rate of the standard Ethernet is 100-Mbps, so the baud rate is 200 Mbaud.

23. At any iteration of simplex method, if $\Delta_j (Z_j - C_j)$ corresponding to any non-basic variable X_j is obtained as zero, the solution under the test is

- (A) Degenerate solution
- (B) Unbounded solution
- (C) Alternative solution
- (D) Optimal solution

Answer: C

53. Binary symmetric channel uses

- (A) Half duplex protocol
- (B) Full duplex protocol
- (C) Bit oriented protocol
- (D) None of the above

Answer: A

32. Find the false statement:

- (A) In Modern Cryptography, symmetric key algorithms use same key both for Encryption and Decryption.
- (B) The Symmetric cipher DES (Data Encryption Standard) was widely used in the industry for security product.
- (C) The AES (Advanced Encryption Standard) cryptosystem allows variable key lengths of size 56 bits and 124 bits.
- (D) Public key algorithms use two different keys for Encryption and Decryption.

Answer: C

33. The message 11001001 is to be transmitted using the CRC polynomial x^3+1 to protect it from errors. The message that should be transmitted is

- (A) 110010011001
- (B) 11001001
- (C) 110010011001001
- (D) 11001001011

Answer: D

Explanation:

CRC Polynomial x^3+1 implies that the divisor is of 4 bit length, which is 1001.

$(1*x^3 + 0*x^2 + 0*x + 1*1)$ read off the coefficients to get 1001.

11001001 000 <--- input right padded by 3 bits

```
1001 <--- divisor
01011001 000 <---- XOR of the above 2
 1001 <--- divisor
00010001 000
 1001
00000011 000
  10 01
00000001 010
  1 001
```

00000000 011 <----- remainder (3 bits)

After dividing the given message 11001001 by 1001, we get the remainder as 011, which is the CRC. The transmitted data is, message + CRC which is 11001001 011.

68. An example of a dictionary-based coding technique is
- (A) Run-length coding
 - (B) Huffman coding
 - (C) Predictive coding
 - (D) LZW coding

Answer: D

Explanation:

LZW is a "dictionary"-based compression algorithm. This means that instead of tabulating character counts and building trees (as for Huffman encoding), LZW encodes data by referencing a dictionary. Thus, to encode a substring, only a single code number, corresponding to that substring's index in the dictionary, needs to be written to the output file. Typically, you can expect LZW to compress text, executable code, and similar data files to about one-half their original size.

29. Which of the following IP address class is a multicast address?
- (A) Class A
 - (B) Class B
 - (C) Class C
 - (D) Class D

Answer: D

41. Which layer of OSI reference model uses the ICMP (Internet Control Message Protocol)?
- (A) Transport layer
 - (B) Data link layer
 - (C) Network layer
 - (D) Application layer

Answer: C

54. What is the size (in terms of bits) of Header length field in IPV4 header?
- (A) 2
 - (B) 4
 - (C) 8
 - (D) 16

Answer: B

60. Radio signals generally propagate according to the following mechanisms:
- (A) Modulation, Amplification, Scattering
 - (B) Reflection, Diffraction, Scattering
 - (C) Amplification, Diffraction, Modulation
 - (D) Reflection, Amplification, Diffraction

Answer: B

11. X.25 is Network.
(A) Connection Oriented Network
(B) Connection Less Network
(C) Either Connection Oriented or Connection Less
(D) Neither Connection Oriented nor Connection Less

Answer: A

11. X.25 is Network.
(A) Connection Oriented Network
(B) Connection Less Network
(C) Either Connection Oriented or Connection Less
(D) Neither Connection Oriented nor Connection Less

Answer: A

66. If the period of a signal is 1000 ms, then what is its frequency in kilohertz?
(A) 10^{-3} KHz
(B) 10^{-2} KHz
(C) 10^{-1} KHz
(D) 1 KHz

Answer: A

64. Match the following with link quality measurement and handoff initiation :

List - I

(a) Networked-Controlled Handoff(NCHO)

(c) Forward Handoff

(d) Hard Handoff

List - I

(i) MS connect to BS

(ii) Process via channel the target BS

(iii) First Generation Analog Cellular System

(iv) Second Generation Digital Cellular System

(a) (b) (c) (d)

(A) (iii) (iv) (ii) (i)

(B) (ii) (iii) (i) (iv)

(C) (ii) (i) (iv) (iii)

(D) (iv) (iii) (i) (ii)

Answer: A

54. Hamming distance between 100101000110 and 110111101101 is
(A) 3
(B) 4
(C) 5
(D) 6

Answer: D

55. Given code word 1110001010 is to be transmitted with even parity check bit. The encoded word to be transmitted for this code is

(A) 11100010101

(B) 11100010100

(C) 1110001010

(D) 111000101

Answer: A

57. Consider a code with five valid code words of length ten :
0000000000, 0000011111, 1111100000, 1110000011, 1111111111
Hamming distance of the code is
(A) 5
(B) 10
(C) 8
(D) 9

Answer: Marks to all

64. Let C be a binary linear code with minimum distance $2t + 1$ then it can correct uptobits of error.
(1) $t + 1$
(2) t
(3) $t - 2$
(4) $t/2$

Answer: 2

65. A t -error correcting q -nary linear code must satisfy:

$$M \sum_{i=0}^t \binom{n}{i} (q-1)^i \leq X$$

Where M is the number of code words and X is

- (1) q^n
(2) q^t
(3) q^{-n}
(4) q^{-t}
67. Ten signals, each requiring 3000 Hz, are multiplexed on to a single channel using FDM. How much minimum bandwidth is required for the multiplexed channel? Assume that the guard bands are 300 Hz wide.
(A) 30,000
(B) 32,700
(C) 33,000
(D) None of the above

Answer: 1

Answer: B

2. In order that a code is ' t ' error correcting, the minimum Hamming distance should be:
(A) t
(B) $2t-1$
(C) $2t$
(D) $2t+1$

Answer: D

3. If a code is t -error correcting, the minimum Hamming distance is equal to:
(A) $2t+1$
(B) $2t$
(C) $2t-1$
(D) $t-1$

Answer: A

49. The cost of the network is usually determined by:
(A) Time complexity (B) Switching complexity
(C) Circuit complexity (D) None of these

Answer: B