POSTAL
Book Package

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Computer Science & IT
Objective Practice Sets

Computer Networks

MADE EASY
Publications

1 CHAPTER

Networking Fundamentals and Physical Layer

Multiple Choice Questions & NAT Questions

1. Computer networks is
   (a) Collection of hardware components and computers
   (b) Interconnected by communication channels
   (c) Sharing of resources and information
   (d) All of the above

2. Protocols are
   (a) Agreements on how communication components and DTE's are to communicate.
   (b) Logical communication channels used for transferring data.
   (c) Physical communication channels used for transferring data.
   (d) None of the above

3. Match the following groups based on layer of OSI model.

Group-1	Group-2
A. Hub	1. Physical layer
B. Bridge	2. Data link layer
C. Router	3. Network layer
D. Server	4. Application layer

   Codes:

	A	B	C	D
(a)	1	2	3	4
(b)	2	2	3	3
(c)	2	3	3	3
(d)	1	3	3	4

4. Match the following groups:

Group-1	Group-2
A. Link	1. Message
B. Network	2. Segment
C. Application	3. Datagram
D. Transport	4. Frame

   Codes:

	A	B	C	D
(a)	3	4	2	1
(b)	4	3	2	1
(c)	4	3	1	2
(d)	3	4	1	2

5. Match **List-I** with **List-II** and select the correct answer using the codes given below the lists:

   List-I
   A. Session layer
   B. Transport layer
   C. Application layer
   D. MDI (Medium Dependent Interface)

   List-II
   1. Connects DCE into physical channel.
   2. Provides end to end connectivity.
   3. Provides organized means to exchange data between users. (Like synchronization points).
   4. Supports an end user process and performs required file transfer.

   Codes:

	A	B	C	D
(a)	3	4	2	1
(b)	3	2	4	1
(c)	2	4	1	3
(d)	4	3	2	1

6. Match the following:

   List-I
   A. Data link layer
   B. Physical layer
   C. Presentation layer
   D. Network layer

   List-II
   1. The lowest layer whose function is to activate, deactivate and maintain the circuit between DTE and DCE.
   2. Performs routing and communication.
   3. Detection and recovery from errors in the transmitted data.
   4. Concerned with for the syntax of the data.

   Codes:

	A	B	C	D
(a)	3	1	4	2
(b)	2	1	4	3
(c)	4	1	2	3
(d)	2	1	3	4

7. Which of the following OSI level is more closely related to the physical communications facilities?
   (a) Application   (b) Session
   (c) Network   (d) Data link

8. Which of the following connectivity devices typically work at the physical layer of the OSI model?
   (a) Routers   (b) Bridges
   (c) Repeaters   (d) Gateways

9. The method of communication in which transmission takes place in both directions, but only in one directions at a time is called
   (a) Simplex   (b) Four wire circuit
   (c) Full duplex   (d) Half duplex

10. In a broad sense, a railway track is an example of
    (a) Simplex   (b) Half-duplex
    (c) Full-duplex   (d) All of these

11. Which of the following is not true?
    (a) Ring topology of N-devices contains (N – 1) dropline and N-Ring cables.
    (b) Bus topology of N-devices needs 1 dropline and N-Backbone cables.
    (c) Star topology of N-devices contains N + 1 links and N-ports.
    (d) All of these

12. A network that requires human intervention to route signals is called a
    (a) Bus network   (b) Ring network
    (c) Star network   (d) T-switched network

13. Match the following cables with there bandwidth
List-I		List-II	
I.	Coaxial cable	A.	4 Mbps to 1 Gbps
II.	UTP	B.	10 Gbps
III.	STP	C.	10 Mbps
IV.	Fiber optic	D.	10 to 100 Mbps

    (a) I - B, II - D, III - A, IV - C
    (b) I - C, II - A, III - D, IV - B
    (c) I - C, II - D, III - B, IV - C
    (d) I - B, II - A, III - D, IV - B

14. Baseband is
    (a) Transmission of signals without modulation.
    (b) A signal all of whose energy is contained within a finite frequency range is finite but near to zero.

    (c) The simultaneous transmission of data to a number of stations.
    (d) All of the above

15. Broad band uses
    (a) Manchester encoding
    (b) FSK encoding
    (c) ASK encoding
    (d) PSK encoding

16. Baud means the
    (a) Number of bits transfer per unit time
    (b) Number of bytes transmitted per unit time
    (c) Rate at which the signal changes
    (d) None of these

17. The effective bandwidth is based on _____.
    (a) Average data rate
    (b) Peak data rate
    (c) Maximum burst size
    (d) All of the above

18. Choose the correct statements(s):
    (a) Baseband network uses analog technology.
    (b) Baseband network is Time Division Multiplexed.
    (c) Broadband network uses digital technology.
    (d) In broadband network, the carrier signals operate at lower frequency.

19. A device that can convert digital signals to analog signals is (only in networking)
    (a) An emulator   (b) A packet
    (c) A modem   (d) None of these

20. When a signal travels through a transmission medium, its power becomes 100 times. Then there power would be
    (a) Loss of 100   (b) Loss of 20 dB
    (c) Gain of 100   (d) Gain of 20 dB

21. There are three IP addresses as given below:
    X = 202.23.14.150
    Y = 168.19.200.12
    Z = 72.192.52.210
    Which of the following statements is/are correct?
    (a) X is Class A, Y is Class B and Z is Class C
    (b) X is Class C, Y is Class A and Z is Class B
    (c) X is Class C, Y is Class B and Z is Class A
    (d) X is Class A, Y is Class C and Z is Class B

Answers	**Networking Fundamentals and Physical Layer**

1.	(d)	**2.**	(a)	**3.**	(a)	**4.**	(c)	**5.**	(b)	**6.**	(a)	**7.**	(d)	**8.**	(c)	**9.**	(d)
10.	(b)	**11.**	(d)	**12.**	(d)	**13.**	(b)	**14.**	(a)	**15.**	(d)	**16.**	(c)	**17.**	(d)	**18.**	(b)
19.	(b)	**20.**	(d)	**21.**	(c)	**22.**	(b)	**23.**	(b)	**24.**	(c)	**25.**	(c)	**26.**	(b)	**27.**	(c)
28.	(b)	**29.**	(d)	**30.**	(a)	**31.**	(c)	**32.**	(255)	**33.**	(c)	**34.**	(d)	**35.**	(b)	**36.**	(b)
37.	(d)	**38.**	(b)	**39.**	(d)	**40.**	(222)	**41.**	(a)	**42.**	(b)	**43.**	(b)	**44.**	(c)	**45.**	(c)
46.	(a)	**47.**	(b)	**48.**	(252 and 0)			**49.**	(d)	**50.**	(a)	**51.**	(a)	**52.**	(c)	**53.**	(d)
54.	(c)	**55.**	(c)	**56.**	(c)	**57.**	(c)	**58.**	(d)	**59.**	(d)	**60.**	(b)	**61.**	(16)	**62.**	(39.8)
63.	(a)	**64.**	(c)	**65.**	(c)	**66.**	(d)	**67.**	(c)	**68.**	(a)	**69.**	(c)	**70.**	(b)	**71.**	(b)
72.	(b)	**73.**	(c)	**74.**	(a)	**75.**	(33)	**76.**	(c)	**77.**	(c)	**78.**	(b)	**79.**	(a)	**80.**	(1)
81.	(2)	**82.**	(b)	**83.**	(a)	**84.**	(14)	**85.**	(d)	**86.**	(c)	**87.**	(62)	**88.**	(c)	**89.**	(d)
90.	(c)	**91.**	(a)	**92.**	(64)	**93.**	(a)	**94.**	(c)	**95.**	(d)	**96.**	(b)	**97.**	(a)	**98.**	(a)
99.	(d)	**100.**	(320)	**101.**	(111)	**102.**	(a, b, c, d)	**103.**	(b, c)	**104.**	(a, c)	**105.**	(b, c)	**106.**	(a, b)		
107.	(a, b)	**108.**	(a, c, d)	**109.**	(a, b, d)	**110.**	(a, b)	**111.**	(c, d)	**112.**	(b, c)						

Explanations	**Networking Fundamentals and Physical Layer**

2. (a)

Protocols is a set of rules. It is an agreement between the communicating parties on how communication should proceed.

3. (a)

Hub works in physical layer
Bridge works in data link layer
Router works in network layer
PC, Server works in application layer.

4. (c)

Link layer unit of data is frame
Network layer unit of data is datagram
Application layer unit of data is message
Transport layer unit of data is segment
Note: Network layer can use the term packet if communication is reliable (via TCP).

5. (b)

- Session layer provide organised means to exchange data between uses.
- Layer support an end user process and performs required file transfer.
- Transport layer provides end to end connectivity.
- Medium dependent interface connects DCE into physical channel.

6. (a)

Data link layer: It is associated with the detection and recovery from the errors in the transmitted data.
Physical layer: It is the lowest layer whose function is to activate, deactivate and maintain the circuit between Data Terminal Equipment (DTE).
Presentation layer: It is concerned with the syntax and semantics of the information exchanged between two systems.
Network layer: This layer has some specific responsibilities:
(i) Logical addressing [communication]
(ii) Routing

7. (d)

OSI model layer division is as application layer, session layer, transport layer, network layer, data-link layer, physical layer. Hence the ISO level which is more closely related to the physical communication facilities is data link layer among other given layers.

8. (c)

Router — network layer
Bridges — data link layer

Repeater — physical layer

Gateways — application layer

9. (d)

In simplex mode, transmission takes place in one direction.

In duplex mode, transmission take place simultaneously in both direction.
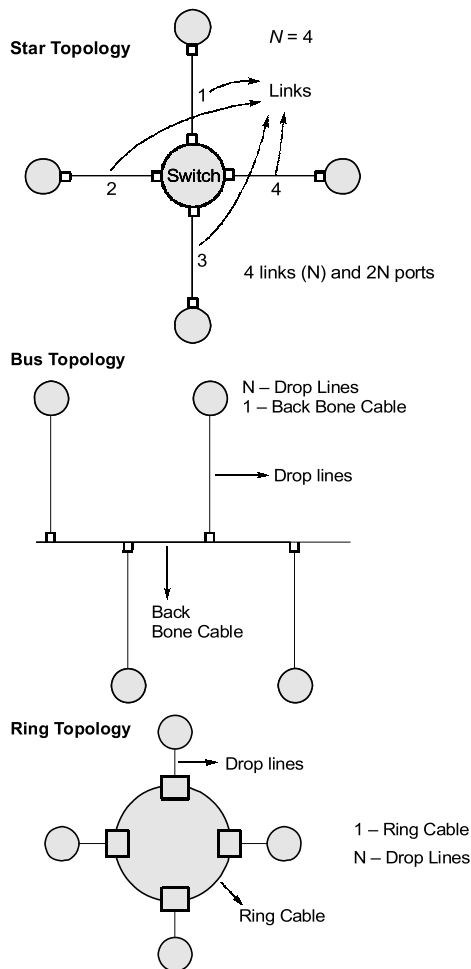
In half-duplex transmission take place in both direction but not at the same time.

10. (b)

In half duplex mode the transmission is takes place in both direction, but only in one direction at a time.

Hence, railway track is an example of this half-duplex mode.

11. (d)

12. (d)

T-switched network requires human intervention to route signals.

13. (b)

Coaxial : 10 Mbps

UTP : 4 Mbps to 1 Gbps

STP : 10 to 100 Gbps

Fiber optic : 10 Gbps

14. (a)

Baseband is a signal that has a very narrow and near zero frequency range. Baseband can be synonymous with low pass or non-modulated. In broadband simultaneous transmission of data to a number of station possible but not in baseband.

15. (d)

Broad band uses phase shift key encoding technique.

16. (c)

Baud rate is the number of signals units per second that are required to represents the bits transmitted during one second.

17. (d)

The effective data burst is a measure of average data rate, peak data rate and maximum data rate.

18. (b)

Baseband transmission typically use digital signalling over a single wire. Using this, it is possible to transmit multiple signals on a single cable by time-division multiplexing. In broadband transmission multiple channels are created using frequency-division multiplexing.

19. (b)

Modem stands for modulator/demodulator. Modulator converts a digital signals into an analog signal using ASK, FSK, PSK or QAM. Demodulator converts an analog signal into digital signal.

20. (d)

Formulated at amplification $= 10 \log_{10} \dfrac{P_2}{P_1}$ dB

Here, $P_2 = 100\, P_1$

$\therefore$ Amplification $= 10 \log_{10} \dfrac{100 P_1}{P_1}$ dB

$= 10 \log_{10} 10^2 = 20$ dB

Here, value is +ve. Hence gain at 20 dB