Maratha Vidya Prasarak Samaj's

Rajarshi Shahu Maharaj Polytechnic, Nashik

Udoji Maratha Boarding Campus, Near Pumping Station, Gangapur Road, Nashik-13.

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Subject:-
Computer Network
(22417)

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SYLLABUS

Chapter No.	Name of chapter	Marks With Option
1	Fundamental of Computer Network	20
2	Network Components and Topologies	28
3	Reference model for Computer Network	18
4	TCP/IP Protocol Suite	16
5	IP Addressing	22
	Total Marks :-	104

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BOARD THEORY PAPER PATTERN
FOR CNE (22417)

Q.1		**Attempt any FIVE**	**5*2=10**
	a)	Fundamental of Computer Network	
	b)	Network Components and Topologies	
	c)	TCP/IP Protocol Suite	
	d)	Fundamental of Computer Network	
	e)	IP Addressing	
	f)	IP Addressing	
	g)	Reference Model for computer Network	
Q.2		**Attempt any THREE**	**3*4=12**
	a)	Network Topologies	
	b)	Reference models	
	c)	Reference models	
	d)	TCP/IP Protocol suite	
Q.3		**Attempt any THREE**	**3*4=12**
	a)	Fundamental of Computer Network	
	b)	Network components	
	c)	Reference models	
	d)	TCP/IP Protocol suite	
Q.4		**Attempt any TWO**	**2*6=12**
	a)	Fundamental of Computer Network	
	b)	Network Topologies	
	c)	Fundamental of Computer Network	
	d)	IP Addressing	

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Q.5		**Attempt any TWO**	**2*6=12**
	a)	TCP/IP Protocol suite	
	b)	IP Addressing	
	c)	Network Components	
Q.6		**Attempt any TWO**	**2*6=12**
	a)	Reference models	
	b)	IP Addressing	
	c)	Network Topologies	

CLASS TEST - I
PAPER PATTERN

COURSE: Computer Network (22417)

PROGRAMME: - Information Technology

Syllabus:-

Unit No.	Name of the Unit	Course Outcome (CO)
1	**Fundamental of Computer Network**	**Co-417-1**
2	**Network Components and Topologies**	**Co-417-2**
3	**Reference model for Computer Network**	**Co-417-3**

Q.1	**Attempt any FOUR** **4*2=8Marks**	**Course Outcome (CO)**
a)	Fundamental of Computer Network	CO-417.1
b)	Fundamental of Computer Network	CO-417.1
c)	Network Components and Topologies	CO-417.2
d)	Network Components and Topologies	CO-417.2
e)	Reference model for Computer Network	CO-417.3
f)	Network Components and Topologies	CO-417.2
Q.2	**Attempt any TWO** **2*6=12Marks**	
a)	Fundamental of Computer Network	CO-417.1
b)	Reference model for Computer Network	CO-417.3
c)	Network Components and Topologies	CO-417.2

CLASSTEST- II
PAPER PATTERN

COURSE: Computer Network (22417)

PROGRAMME: - Information Technology

Syllabus:-

Unit No.	Name of the Unit	Course Outcome (CO)
3	**Reference model for Computer Network**	**Co-417-3**
4	**TCP/IP Protocol Suite**	**Co-417-4**
5	**IP Addressing**	**Co-417-5**

Q.1	Attempt any FOUR 4*2=8Marks	Course Outcome (CO)
a)	Reference model for Computer Network	(CO-417.3)
b)	TCP/IP Protocol Suite	(CO-417.4)
c)	TCP/IP Protocol Suite	(CO-417.4)
d)	Reference model for Computer Network	(CO-417.3)
e)	IP Addressing	(CO-417.5)
f)	IP Addressing	(CO-417.5)
Q.2	Attempt any TWO 2*6=12Marks	
a)	Reference model for Computer Network	(CO-417.3)
b)	TCP/IP Protocol Suite	(CO-417.4)
c)	TCP/IP Protocol Suite	(CO-417.4)
d)	IP Addressing	(CO-417.5)

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COURSE OUTCOME (CO)

COURSE: Computer Network (22417)

PROGRAMME: - Information Technology

CO.NO	Course Outcome
CO-417.01	Use basic concepts of networking for setting-up computer network.
CO-417.02	Setup a computer network for specific requirements.
CO-417.03	Configure basic network services.
CO-417.04	Configure the different TCP/IP services.
CO-417.05	Implement subnetting for improved network address management.

1. FUNDAMENTAL OF COMPUTER NETWORK

Position in Question Paper   **Total Marks=14**

Q.1. a) 2-Marks.

Q.1. d) 4-Marks.

Q.3. a) 4-Marks.

Q.4. b) 4-Marks.

 Q.4. a) 4-Marks.

Descriptive Question

1. Define the following terms:

1. Network 2. Protocol 3. Handshaking.

2. Distinguish between computer network and distributed system.

3. What is LAN? Explain its advantages.

4. Enlist & explain four characteristics of LAN.

5. Compare LAN and WAN on following points:

a) Speed b) Area c) Installation cost d) Communication media

6. Write note on: peer to peer network.

7. Compare peer to peer network and Client server network.

8. Explain human network and Family network.

9. State various components of a computer network.

10. Explain two models of network computing.

11. State and explain benefits of computer networks.

12. Explain LAN, MAN, WAN.

13. Explain Network features in details.

14. Explain Network operating system.

15. State different types of servers and explain.

MCQ Question

(Total number of Question=Marks*3=14*3=42)

Note: Correct answer is marked with **bold.**

1. In computer network nodes are _____
   a) the computer that originates the data
   b) The computer that routes the data
   c) the computer that terminates the data
   d) all of the mentioned

2. Communication channel is shared by all the machines on the network in _____
   a) broadcast network   b) unicast network
   c) multicast network   d) anycast network

3. Bluetooth is an example of _____
   a) personal area network   b) local area network
   c) virtual private network   d) wide area network

4. A _____ is a device that forwards packets between networks by processing the routing information included in the packet.
   a) bridge   b) firewall
   c) router   d) hub

5. A list of protocols used by a system, one protocol per layer, is called _____
   a) protocol architecture   **b) protocol stack**
   c) protocol suite   d) protocol system

6. Which of the following networks extends a private network across public networks?
   a) local area network   **b) virtual private network**
   c) enterprise private network   d) storage area network

7. The structure or format of data is called _____
   a) Syntax   b) Semantics
   c) Struct   d) Formatting

8. Communication between a computer and a keyboard involves _____ transmission.
   a) Automatic   b) Half-duplex
   c) Full-duplex   **d) Simplex**

9. A _____ is the physical path over which a message travels.
   a) Path   **b) Medium**
   c) Protocol   d) Route

10. Which of this is not a network edge device?
    a) PC   b) Smart phones
    c) Servers   **d) Switch**

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11. When collection of various computers seems a single coherent system to its client, then it is called _____
a) computer network **b) distributed system**
c) networking system d) mail system

12. Two devices are in network if _____
a) a process in one device is able to exchange information with a process in another device
b) a process is running on both devices
c) PIDs of the processes running of different devices are same
d) a process is active and another is inactive

13. Which of the following computer networks is built on the top of another network?
a) prior network b) chief network
c) prime network **d) overlay network**

14. In computer network nodes are _____
a) the computer that originates the data
b) the computer that routes the data
c) the computer that terminates the data
d) all of the mentioned

15. Communication channel is shared by all the machines on the network in _____
a) broadcast network b) unicast network
c) multicast network d) anycast network

16. A _____ is a device that forwards packets between networks by processing the routing information included in the packet.
a) bridge b) firewall
c) router d) hub

17. A list of protocols used by a system, one protocol per layer, is called _____
a) protocol architecture **b) protocol stack**
c) protocol suite d) protocol system

18. Network congestion occurs _____
a) in case of traffic overloading
b) when a system terminates
c) when connection between two nodes terminates
d) in case of transfer failure

19. Which of the following networks extends a private network across public networks?
a) local area network **b) virtual private network**
c) enterprise private network d) storage area network

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20. Physical or logical arrangement of network is _____

   a) Topology   b) Routing

   c) Networking   d) Control

21. Data communication system spanning states, countries, or the whole world is _____

   a) LAN   **b) WAN**

   c) MAN   d) PAN

22. Data communication system within a building or campus is_____

   a) LAN   b) WAN

   c) MAN   d) PAN

23. WAN stands for _____

   a) World area network   **b) Wide area network**

   c) Web area network   d) Web access network

24. _____ is the multiplexing technique that shifts each signal to a different carrier frequency.

   a) FDM   b) TDM

   c) Both FDM & TDM   d) PDM

25. Data communication system spanning states, countries, or the whole world is _____

   a) LAN   b) WAN

   c) MAN   d) PAN

26. Data communication system within a building or campus is_____

   a) LAN   b) WAN

   c) MAN   d) PAN

27. WAN stands for _____

   a) World area network   **b) Wide area network**

   c) Web area network   d) Web access network

28. In terms of the size of the network the correct order (ascending) is –

   a) PAN, MAN, LAN, WAN   b) LAN, MAN, WAN, PAN

   c) PAN, LAN, MAN, WAN   d) LAN, PAN, MAN, WAN

29. The types of transmission channel or media used for LAN or WAN are __.

   a) Twisted Pair Cables

   b) Coaxial Cables

   c) Fiber-Optic Cables and Radio Waves

   d) All the above

30. In process-to-process delivery, two processes communicate in which of the following methods?

   a) Client/Server   b) Source/Destination
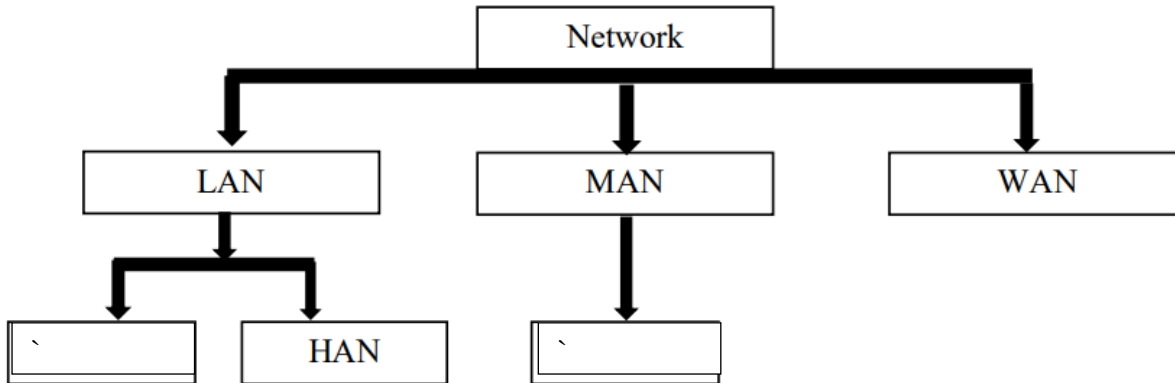
   c) Message Transfer   d) Peer to Peer

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31. In a peer to peer computer networking architecture, each computer acts as a _____.
   a) Server
   b) Client
   c) Both server and client depending the need
   d) All

32. Advantages of a Peer to Peer computer network are __.
   a) Easy maintenance   b) Cost effective
   c) Easy to setup   **d) All the above**

33. In a Client-Server computer network or architecture, all nodes can __ data.
   a) send   b) receive
   c) send and receive   d) None

34. A Network in which every computer is capable of playing the role Client server or both at the same time is called
   a) Peer to peer network   b) Local area network
   c) Dedicated server network   d) Wide area network

35. Network operating system runs on _____
   a) server
   b) every system in the network
   c) both server and every system in the network
   d) none of the mentioned

36. Operating System which provides all particular features required to communicate over a network to access or share network resources is known as
   a) Disk operating System   **b) Network operating System**
   c) Mac operating System   d) Android Operating System

37. Which of the following is a Application of Computer Network?
   a) E- mail   b) Banking
   c) Information Services   **d) All of Above**

38. Which of the following is a Need of Computer Network?
   a) File/Folder Sharing   b) Hardware Sharing
   c) User Communication   **d) All of Above**

39. What are the Features of Network Operating System ?
   a) Printer and Application Sharing
   b) Common file System and Database Sharing
   c) Network Security Capabilities
   d) All of Above

40. What is the Advantages of Computer Network?
   a) Resource Sharing   b) Data Backup
   c) Cost Effective   **d) All of Above**

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41. Fill the Blank.

```
                    Network
        ┌──────────────┼──────────────┐
        ▼              ▼              ▼
      LAN            MAN            WAN
    ┌───┴───┐         │
    ▼       ▼         ▼
   `      HAN         `
```

    a) MAN, PAN   b) CAN , PAN

    c) PAN, CAN   d) None of Above

42. Protocol is a set of

    a) Formats   b) Procedures

    c) Formats & Procedures   d) None of these

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2. NETWORK COMPONENTS AND TOPOLOGIES

Position in Question Paper   **Total Marks=16**

Q.1. b) 2-Marks.
Q.2. a) 4-Marks.
Q.3. b) 4-Marks.
Q.4. b) 4-Marks.
Q.5. c) 6-Marks.
Q.6. c) 6-Marks.

Descriptive Question

1. List different network connecting devices.
2. List in which layer following device works:
   1. Router
   2. Repeater
   3. Bridge
   4. Gateway
3. Explain with neat sketch repeater in OSI model .state its advantages.
4. State the advantages and disadvantages of repeater.
5. Explain working principal of bridges and also explain the functions.
6. Describe router with neat and label diagram.
7. Describe the Router and Gateway.
8. Explain various gateways in OSI reference model.
9. What is Hub& Switch?
10. What is topology? List various topologies.
11. Explain Bus topology & also explain advantages and disadvantages.
12. What is star topology? Give its advantages over other topologies.
13. What is Hub? Explain different types of hub.
14. What is mesh topologies? Explain advantages and disadvantages.
15. Write a short note on tree and ring topologies.

MCQ Question

(Total number of Question=Marks*3=16*3=48)

Note: Correct answer is marked with **bold.**

1. What is the function of Network Interface Cards?
    a) connects the clients, servers and peripherals to the network through a port
    b) allows you to segment a large network into smaller, efficient networks
    c) connects networks with different protocols like TCP/IP
    d) boost the signal between two cable segments or wireless access points

2. A device which is used to boost the signal between two cable segments or wireless access points is
    a) Booster   b) Repeater
    c) Switch   d) Router

3. A device that provides a central connection point for cables is –
    a) Switch   b) Hub
    c) Gateway   d) Proxy Server

4. A device that connects networks with different protocols –
    a) Switch   b) Hub
    c) Gateway   d) Proxy Server

5. A device that is used to connect a number of LANs is –
    a) Router   b) Repeater
    c) Bridge   d) Switch

6. Bus is a type of topology.
    a) True   b) False

7. _____ LAN topology describes the possible connections between pairs of networked end-points that can communicate.
    a) Complex   b) Physical
    c) Logical   d) Incremental

8. A term that refers to the way in which the nodes of a network are linked together.
    a) network   **b) topology**
    c) connection   d) interconnectivity

9. A network comprising o multiple topologies.
    a) Complex   **b) Hybrid**
    c) Bus   d) Star

10. The participating computers in a network are referred to as:
    a) Clients   b) Servers
    c) Nodes   d) CPUs

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11. A topology that involves Tokens.
   a) Star   **b) Ring**
   c) Bus   d) Daisy Chaining

12. A _____WAN can be developed using leased private lines or any other transmission facility
   a) Hybrids   **b) peer-to-peer**
   c) Two-tiered   d) Three-tiered

13. A serially connected system of all the hubs of networks.
   a) Bus   b) Ring
   c) Daisy chains   d) Star

14. Physical or logical arrangement of network is _____
   a) Topology   b) Routing
   c) Networking   d) Control

15. Network topology requires a central controller or hub?
   a) Star   b) Mesh
   c) Ring   d) Bus

16. A topology that is responsible for describing the geometric arrangement of components that make up the LAN.
   a) Complex   **b) Physical**
   c) Logical   d) Incremental

17. A device that helps prevent congestion and data collisions –
   a) Switch   b) Hub
   c) Gateway   d) Proxy Server

18. A device that connects networks with different protocols –
   a) Switch   b) Hub
   c) Gateway   d) Proxy Server

19. What is the access point (AP) in a wireless LAN?
   a) device that allows wireless devices to connect to a wired network
   b) wireless devices itself
   c) both device that allows wireless devices to connect to a wired network and wireless devices itself
   d) all the nodes in the network

20. In wireless ad-hoc network _____
   a) access point is not required   b) access point is must
   c) nodes are not required   d) all nodes are access points

21. Which multiple access technique is used by IEEE 802.11 standard for wireless LAN?
   a) CDMA   **b) CSMA/CA**
   c) ALOHA   d) CSMA/CD

22. In wireless distribution system _____
   a) multiple access point are inter-connected with each other
   b) there is no access point
   c) only one access point exists
   d) access points are not required

23. A wireless network interface controller can work in _____
   a) infrastructure mode
   b) ad-hoc mode
   c) both infrastructure mode and ad-hoc mode
   d) WDS mode

24. In wireless network an extended service set is a set of _____
   a) connected basic service sets   b) all stations
   c) all access points   d) connected access points

25. Mostly _____ is used in wireless LAN.
   a) time division multiplexing
   b) orthogonal frequency division multiplexing
   c) space division multiplexing
   d) channel division multiplexing

26. Which one of the following event is not possible in wireless LAN?
   a) collision detection
   b) acknowledgement of data frames
   c) multi-mode data transmission
   d) connection to wired networks

27. What is Wired Equivalent Privacy (WEP)?
   a) security algorithm for ethernet
   b) security algorithm for wireless networks
   c) security algorithm for usb communication
   d) security algorithm for emails

28. What is WPA?
   a) wi-fi protected access   b) wired protected access
   c) wired process access   d) wi-fi process access

29. MAC address is of _____
   a) 24 bits   b) 36 bits
   c) 42 bits   **d) 48 bits**

30. Ethernet in metropolitan area network (MAN) can be used as _____
   a) pure Ethernet   b) ethernet over SDH
   c) ethernet over MPLS   **d) all of the mentioned**

31. A point-to-point protocol over ethernet is a network protocol for _____
   a) encapsulating PPP frames inside ethernet frames

b) encapsulating ehternetframse inside PPP frames

c) for security of ethernet frames

d) for security of PPP frames

32. High speed ethernet works on _____

a) coaxial cable　　　　　　b) twisted pair cable

c) optical fiber　　　　　d) unshielded twisted pair cable

33. The maximum size of payload field in ethernet frame is _____

a) 1000 bytes　　　　　　b) 1200 bytes

c) 1300 bytes　　　　　　**d) 1500 bytes**

34. If you want to find the number of routers between a source and destination, the utility to be used is _____

a) route　　　　　　b) Ipconfig

c) Ifconfig　　　　　**d) Traceroute**

35. Choose the wrong statement from the following.

a) Nslookup is used to query a DNS server for DNS data

b) Ping is used to check connectivity

c) Pathping combines the functionality of ping with that of route

d) Ifconfig can configure TCP/IP network interface parameters

36. Ping can _____

a) Measure round-trip time　　　b) Report packet loss

c) Report latency　　　　　　**d) All of the mentioned**

37. What is the function of Network Interface Cards?

a) connects the clients, servers and peripherals to the network through a port

b) allows you to segment a large network into smaller, efficient networks

c) connects networks with different protocols like TCP/IP

d) boost the signal between two cable segments or wireless access points

38. A device which is used to boost the signal between two cable segments or wireless access points is

a) Booster　　　　　　b) Repeater

c) Switch　　　　　　d) Router

39. A device that provides a central connection point for cables is –

a) Switch　　　　　　b) Hub

c) Gateway　　　　　d) Proxy Server

40. A device that connects networks with different protocols –

a) Switch　　　　　　b) Hub

c) Gateway　　　　　d) Proxy Server

41. A device that is used to connect a number of LANs is –

a) Router　　　　　b) Repeater

c) Bridge　　　　　　d) Switch

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42. A device that helps prevent congestion and data collisions –

    a) Switch   b) Hub

    c) Gateway   d) Proxy Server

43. Physical or logical arrangement of network is _____

    a) Topology   b) Routing

    c) Networking   d) Control

44. Which network topology requires a central controller or hub?

    a) Star   b) Mesh

    c) Ring   d) Bus

45. _____ topology requires a multipoint connection.

    a) Star   b) Mesh

    c) Ring   **d) Bus**

46. Switch is a_____ Device.

    a) Network layer   b) Application Layer

    c) Data Link Lyer   d) Session Layer

47. Router is a _____Device.

    a) Network layer   b) Application Layer

    c) Data Link Layer   d) Session Layer

48. What is the access point (AP) in a wireless LAN?

    a) device that allows wireless devices to connect to a wired network

    b) wireless devices itself

    c) both device that allows wireless devices to connect to a wired network and wireless devices itself

    d) all the nodes in the network

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3. REFERENCE MODEL FOR COMPUTER NETWORK

Position in Question Paper   **Total Marks=16**

Q.1. g) 2-Marks.
Q.2. b) 4-Marks.
Q.2. c) 4-Marks.
Q.3. c) 4-Marks.
Q.6. a) 6-Marks.

Descriptive Question

1. What is connection oriented service and connectionless service?
2. Draw OSI reference model. Describe working of session and presentation layer.
3. List any four layers of OSI model.
4. What is peer to peer process?
5. Describe the function of hierarchical and peer to peer communication.
6. What is encapsulation?
7. Describe the concept of data encapsulation.
8. Explain virtual communication between layers.
9. Define packets.
10. Draw OSI reference model. Describe working of session and presentation layers.
11. Explain the function of following layers:
    1. Physical
    2. DLL
    3. Network
    4. Transport
12. Describe the functions of data link layers.
13. What are the services provided by the network layer of OSI model?
14. Describe connectionless and connection oriented protocols.
15. Give the functions of transport layer.
16. Draw OSI reference model. Describe working of session and presentation layer.
17. Describe the role of presentation layer.
18. Enlist and explain function of application layer.
19. Explain TCP/IP reference model.

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20. Explain the relation between TCP and IP.

21. Draw layered architecture of TCP/IP.

22. Compare OSI and TCP/IP.

MCQ Question

(Total number of Question=Marks*3=16*3=48)

Note: Correct answer is marked with **bold.**

1. OSI stands for _____
   a) open system interconnection   b) operating system interface
   c) optical service implementation   d) open service Internet

2. The number of layers in ISO OSI reference model is _____
   a) 4   b) 5
   c) 6   **d) 7**

3. TCP/IP model does not have _____ layer but OSI model have this layer.
   a) session layer   b) transport layer
   c) application layer   d) network layer

4. layer is used to link the network support layers and user support layers?
   a) session layer   b) data link layer
   c) transport layer   d) network layer

5. address is used on the internet for employing the TCP/IP protocols?
   a) physical address and logical address
   b) port address
   c) specific address
   d) all of the mentioned

6. TCP/IP model was developed _____ the OSI model.
   a) prior to   b) after
   c) simultaneous to   d) with no link to

7. Which layer is responsible for process to process delivery in a general network model?
   a) network layer   **b) transport layer**
   c) session layer   d) data link layer

8. address is used to identify a process on a host by the transport layer?
   a) physical address   b) logical address
   c) port address   d) specific address

9. Which layer provides the services to user?
   a) application layer   b) session layer
   c) presentation layer   d) physical layer

10. Transmission data rate is decided by _____
    a) network layer   **b) physical layer**
    c) data link layer   d) transport layer

11. The physical layer is concerned with _____
    a) bit-by-bit delivery   b) process to process delivery
    c) application to application delivery d) port to port delivery

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12. In asynchronous serial communication the physical layer provides _____

a) start and stop signalling

b) Flow control

c) both start & stop signalling and flow control

d) only start signalling

13. The physical layer is responsible for _____

a) line coding   b) channel coding

c) modulation   **d) all of the mentioned**

14. The physical layer translates logical communication requests from the _____ into hardware specific operations.

a) data link layer   b) network layer

c) transport layer   d) application layer

15. .... Address is used on the internet for employing the TCP/IP protocols?

a) physical address and logical address

b) Port address

c) specific address

d) all of the mentioned

16. TCP/IP model was developed _____ the OSI model.

a) prior to   b) after

c) simultaneous to   d) with no link to

17. The physical layer is concerned with _____

a) bit-by-bit delivery   b) process to process delivery

c) application to application delivery   d) port to port delivery

18. Bits can be sent over guided and unguided media as analog signal by _____

a) digital modulation   b) amplitude modulation

c) frequency modulation   d) phase modulation

19. The physical layer provides _____

a) mechanical specifications of electrical connectors and cables

b) electrical specification of transmission line signal level

c) specification for IR over optical fiber

d) all of the mentioned

20. In asynchronous serial communication the physical layer provides _____

a) start and stop signalling

b) flow control

c) both start & stop signalling and flow control

d) only start signalling

21. The physical layer is responsible for _____

a) line coding   b) channel coding

c) modulation   **d) all of the mentioned**

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22. The physical layer translates logical communication requests from the _____ into hardware specific operations.

 a) data link layer   b) network layer

 c) transport layer   d) application layer

23. A single channel is shared by multiple signals by _____

 a) analog modulation   b) digital modulation

 c) multiplexing   d) phase modulation

24. Wireless transmission of signals can be done via _____

 a) radio waves   b) microwaves

 c) infrared   **d) all of the mentioned**

25. Header of a frame generally contains _____

 a) synchronization bytes   b) addresses

 c) frame identifier   **d) all of the mentioned**

26. Automatic repeat request error management mechanism is provided by _____

 a) logical link control sublayer   b) media access control sublayer

 c) network interface control sublayer   d) application access control sublayer

27. When 2 or more bits in a data unit has been changed during the transmission, the error is called _____

 a) random error   **b) burst error**

 c) inverted error   d) double error

28. Which of the following is a data link protocol?

 a) Ethernet   b) point to point protocol

 c) hdlc   **d) all of the mentioned**

29. The technique of temporarily delaying outgoing acknowledgements so that they can be hooked onto the next outgoing data frame is called _____

 a) piggybacking   b) cyclic redundancy check

 c) fletcher's checksum   d) parity check

30. How many layers are present in the Internet protocol stack (TCP/IP model)?

 a) 5   b) 7

 c) 6   d) 10

31. The number of layers in ISO OSI reference model is _____

 a) 5   **b) 7**

 c) 6   d) 10

32. Which of the following layers is an addition to OSI model when compared with TCP IP model?

 a) Application layer   b) Presentation layer

 c) Session layer   **d) Session and Presentation layer**

33. Application layer is implemented in _____

 a) End system   b) NIC

 c) Ethernet   d) Packet transport

34. Transport layer is implemented in _____
a) End system   b) NIC
c) Ethernet   d) Signal transmission

35. In OSI model, when data is sent from device A to device B, the 5th layer to receive data at B is _____
a) Application layer   b) Transport layer
c) Link layer   **d) Session layer**

36. In TCP IP Model, when data is sent from device A to device B, the 5th layer to receive data at B is _____
a) Application layer   b) Transport layer
c) Link layer   d) Session layer

37. Which of the following statements can be associated with OSI model?
a) A structured way to discuss and easier update system components
b) One layer may duplicate lower layer functionality
c) Functionality at one layer no way requires information from another layer
d) It is an application specific network model

38. OSI stands for _____
a) open system interconnection   b) operating system interface
c) optical service implementation   d) open service Internet

39. TCP/IP model does not have _____ layer but OSI model have this layer.
a) session layer   b) transport layer
c) application layer   d) network layer

40. Which layer is used to link the network support layers and user support layers?
a) session layer   b) data link layer
c) transport layer   d) network layer

41. Which address is used on the internet for employing the TCP/IP protocols?
a) physical address and logical address
b) port address
c) specific address
d) all of the mentioned

42. Which layer provides the services to user?
a) application layer   b) session layer
c) presentation layer   d) physical layer

43. Protocols are set of rules to govern _____
a) Communication   b) Standard
c) Metropolitan communication   d) Bandwidth

44. The data link layer takes the packets from _____ and encapsulates them into frames for transmission.
a) network layer   b) physical layer
c) transport layer   d) application layer

45. Which transmission media provides the highest transmission speed in a network?
   a) coaxial cable   b) twisted pair cable
   c) optical fiber   d) electrical cable
46. The physical layer is responsible for _____
   a) line coding   b) channel coding
   c) modulation   **d) all of the mentioned**
47. The physical layer is responsible for _____
   a) line coding   b) channel coding
   c) modulation   **d) all of the mentioned**
48. Which of the following is an application layer service?
   a) Network virtual terminal
   b) File transfer, access, and management
   c) Mail service
   d) All of the mentioned

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4. TCP/IP PROTOCOL SUITE

Position in Question Paper   **Total Marks=12**

Q.1. c) 2-Marks.
Q.2. d) 4-Marks.
Q.3. d) 4-Marks.
Q.5. a) 6-Marks.

Descriptive Question

1. Give difference between SLIP and PPP.

2. Explain the function of ARP and RARP.

3. Explain the protocol ARP.

4. Describe the working of ARP

5. What is Encapsulation?

6. Explain RARP with neat diagram.

7. Draw format of IP datagram.

8. Write a note on ICMP.

9. Explain working of ICMP.

10. State and explain the feature of TCP.

11. Draw and explain TCP segment header format.

12. Compare TCP and UDP.

13. Explain DNS with suitable example.

14. Explain DNS server? Describe the concept of DNS.

15. State the function of name resolver in DNS.

16. Explain any three protocols related with data communication.

17. List four commands of SMTP. **18.** Describe FTP.

19. Explain three protocols related with data communication.

20. Explain the HTTP protocol.

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MCQ Question

(Total number of Question=Marks*3=12*3=36)

Note: Correct answer is marked with **bold.**

1. The network layer is concerned with _____ of data.
   a) bits
   b) frames
   c) packets
   d) bytes

2. Which one of the following is not a function of network layer?
   a) routing
   b) inter-networking
   c) congestion control
   d) error control

3. A 4 byte IP address consists of _____
   a) only network address
   b) only host address
   c) network address & host address
   d) network address & MAC address

4. In virtual circuit network each packet contains _____
   a) full source and destination address
   b) a short VC number
   c) only source address
   d) only destination address

5. Which of the following routing algorithms can be used for network layer design?
   a) shortest path algorithm
   b) distance vector routing
   c) link state routing
   d) all of the mentioned

6. following is not correct in relation to multi-destination routing?
   a) is same as broadcast routing
   b) contains the list of all destinations
   c) data is not sent by packets
   d) there are multiple receivers

7. A subset of a network that includes all the routers but contains no loops is called _____
   a) spanning tree
   b) spider structure
   c) spider tree
   d) special tree

8. one of the following algorithm is not used for congestion control?
   a) traffic aware routing
   b) admission control
   c) load shedding
   d) routing information protocol

9. The network layer protocol for internet is _____
   a) Ethernet
   b) internet protocol
   c) hypertext transfer protocol
   d) file transfer protocol

10. ICMP is primarily used for _____
    a) error and diagnostic functions
    b) addressing
    c) forwarding
    d) routing

11. Transport layer aggregates data from different applications into a single stream before passing it to _____
    a) Network layer
    b) data link layer
    c) application layer
    d) physical layer

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12. Following are transport layer protocols used in networking?

a) TCP and FTP   b) UDP and HTTP

c) TCP and UDP   d) HTTP and FTP

13. User datagram protocol is called connectionless because _____

a) all UDP are treated independently by transport layer

b) it sends data as a stream of related packets

c) it is received in the same order as sent order

d) it sends data very quickly

14. Transmission control protocol _____

a) is a connection-oriented protocol

b) uses a three way handshake to establish a connection

c) receives data from application as a single stream

d) all of the mentioned

15. An endpoint of an inter-process communication flow across a computer network is called _____

a) socket   b) pipe

c) port   d) machine

16. Socket-style API for windows is called _____

a) wsock   b) winsock

c) wins   **d) sockwi**

17. Which one of the following is a version of UDP with congestion control?

a) datagram congestion control protocol

b) stream control transmission protocol

c) structured stream transport

d) user congestion control protocol

18. A _____ is a TCP name for a transport service access point.

a) port   b) pipe

c) node   d) protocol

19. Transport layer protocols deals with _____

a) application to application communication

b) process to process communication

c) node to node communication

d) man to man communication

20. Following is a transport layer protocol?

a) stream control transmission protocol

b) internet control message protocol

c) neighbour discovery protocol

d) dynamic host configuration protocol

21. The _____ translates internet domain and host names to IP address.

    a) domain name system   b) routing information protocol

    c) network time protocol   d) internet relay chat

22. Which one of the following allows a user at one site to establish a connection to another site and then pass keystrokes from local host to remote host?

    a) HTTP   b) FTP

    c) Telnet   d) TCP

23. Application layer protocol defines _____

    a) types of messages exchanged

    b) message format, syntax and semantics

    c) rules for when and how processes send and respond to messages

    d) all of the mentioned

24. Which one of the following protocol delivers/stores mail to receiver server?

    a) simple mail transfer protocol   b) post office protocol

    c) internet mail access protocol   d) hypertext transfer protocol

25. The PPP protocol _____

    a) Is designed for simple links which transport packets between two peers

    b) Is one of the protocols for making an Internet connection over a phone line

    c) Is designed for simple links which transport packets between two peers and making an Internet connection over a phone line

    d) Is used for sharing bandwidth

26. PPP provides the _____ layer in the TCP/IP suite.

    a) Link   b) Network

    c) Transport   d) Application

27. SLIP stands for _____

    a) System line internet protocol   **b) Serial line internet protocol**

    c) Signal line internet protocol   d) Signal internet protocol

28. Internet Control Message Protocol (ICMP) has been designed to compensate _____

    a) Error-reporting   b) Error-correction

    c) Host and management queries   **d) All of the mentioned**

29. A_____ is an ARP that act on behalf of a set of Host.

    a) ARP   b) RARP

    c) Proxy ARP   d) None of These

30. Expansion of FTP is _____

    a) Fine Transfer Protocol   **b) File Transfer Protocol**

    c) First Transfer Protocol   d) Fast Transfer Protocol

31. The first line of HTTP request message is called _____

    a) Request line   b) Header line

    c) Status line   d) Entity line

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32. _____ allows you to connect and login to a remote computer
   a) Telnet   b) FTP
   c) HTTP   d) SMTP

33. Expansion of SMTP is _____
   a) Simple Mail Transfer Protocol
   b) Simple Message Transfer Protocol
   c) Simple Mail Transmission Protocol
   d) Simple Message Transmission Protocol

34. DNS database contains _____
   a) name server records   b) hostname-to-address records
   c) hostname aliases   **d) all of the mentioned**

35. The DHCP server _____
   a) maintains a database of available IP addresses
   b) maintains the information about client configuration parameters
   c) grants a IP address when receives a request from a client
   d) All of the mentioned

36. Beyond IP, UDP provides additional services such as _____
   a) Routing and switching
   b) Sending and receiving of packets
   c) Multiplexing and demultiplexing
   d) Demultiplexing and error checking

5. IP ADDRESSING

Position in Question Paper   **Total Marks=12**

Q.1. e) 2-Marks.

Q.1. f) 2-Marks.

Q.4. d) 4-Marks.

Q.5. b) 6-Marks.

Q.6. b) 6-Marks.

Descriptive Question

1. Explain IP addressing procedure in details.

2. List the classes of IP address.

3. What is subnetting in IP network? Explain with suitable example.

4. Define the following:

       a.MAC address

       b. Logical address

5. Compare IPV4 and IPV6.

6. Write a note on IPV4 addressing.

7. Explain tow level addressing.

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MCQ Question

(Total number of Question=Marks*3=12*3=36)

Note: Correct answer is marked with **bold.**

1. Each block in class A contains _____ addresses.
   a) 2^{16} **b) 2^{24}**
   c) 2^{8} d) 2^{14}

2. Each block in class B contains _____ addresses.
   a) 2^{8} b) 2^{24}
   c) 2^{14} **d) 2^{16}**

3. Number of Blocks in class B are –
   a) 2^{12} b) 2^{16}
   c) 2^{14}   d) 2^{18}

4. Percent of addresses occupied by Class D?
   a) 50 %   b) 25 %
   c) 6.25 %   d) 12.5 %

5. Which of the following does not have a Net ID and Host ID?
   a) Class A   b) Class B
   c) Class C   **d) Class D**

6. Which Class is reserved for future use?
   a) A   b) B
   c) D   **d) None of the Mentioned**

7. What is the size of the Host ID in Class C?
   a) 24 bits   b) 16 bits
   c) 8 bits   d) 14 bits

8. A router receives a packet with the destination address 132.7.21.84. Find the network address of the packet.
   a) 1.32.7   **b) 132.7**
   c) 13.27   d) 21.84

9. Convert the following binary notation to dotted-decimal notation –
   10000000 00001011 00000011 00011111
   a) 128.11.5.32   **b) 128.11.3.31**
   c) 127.11.3.32   d) 127.12.5.31

10. What is the error (if any) in the following representation – 111.56.045.78?
    a) There should be no leading zeros
    b) We cannot have more than 4 bytes in an IPv4 address
    c) Each byte should be less than or equal to 255
    d) No error

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11. The following IPv4 addresses in hexadecimal notation is – 10000001 00001011 00001011 11101111-

    a) 0x810B0BEF   b) 0x810D0AFF

    c) 0x810B0BFE   d) 0x810C0CEF

12. Which of the following is not applicable for IP?

    a) Error reporting   b) Handle addressing conventions

    c) Datagram format   d) Packet handling conventions

13. Following field in IPv4 datagram is not related to fragmentation?

    a) Flags   b) Offset

    c) TOS   d) Identifier

14. If the value in protocol field is 17, the transport layer protocol used is _____

    a) TCP   **b) UDP**

    c) ICMP   d) IGMP

15. The data field cannot carry which of the following?

    a) TCP segment   b) UDP segment

    c) ICMP messages   d) SMTP messages

16. What should be the flag value to indicate the last fragment?

    a) 0   b) 1

    c) TTl value   d) Protocol field value

17. Which of these is not applicable for IP protocol?

    a) is connectionless   **b) offer reliable service**

    c) offer unreliable service   d) does not offer error reporting

18. Which of the following demerits does Fragmentation have?

    a) complicates routers   b) open to DOS attack

    c) overlapping of fragments.   **d) all of the mentioned**

19. Which field helps to check rearrangement of the fragments?

    a) offset   b) flag

    c) ttl   d) identifier

20. In IPv4 Addresses, classful addressing is replaced with _____

    a) Classless Addressing   b) Classful Addressing

    c) Classful Advertising   d) Classless Advertising

21. First address in a block is used as network address that represents the _____

    a) Class Network   b) Entity

    c) Organization   d) Codes

22. Which of this is not a class of IP address?

    a) Class E   b) Class C

    c) Class D   **d) Class F**

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23. The size of an IP address in IPv6 is _____
a) 4 bytes **b) 128 bits**
c) 8 bytes d) 100 bits

24. The header length of an IPv6 datagram is _____
a) 10bytes b) 25bytes
c) 30bytes **d) 40bytes**

25. In the IPv6 header, the traffic class field is similar to which field in the IPv4 header?
a) Fragmentation field b) Fast-switching
c) ToS field d) Option field

26. IPv6 does not use _____ type of address.
a) broadcast b) multicast
c) anycast d) unicast

27. Among the following features is present in IPv6 but not in IPv4?
a) Fragmentation b) Header checksum
c) Options **d) Anycast address**

28. The _____ field determines the lifetime of IPv6 datagram
a) Hop limit b) TTL
c) Next header d) Type of traffic

29. Dual-stack approach refers to _____
a) implementing Ipv4 with 2 stacks
b) implementing Ipv6 with 2 stacks
c) node has both IPv4 and IPv6 support
d) implementing a MAC address with 2 stacks

30. Teredo is an automatic tunneling technique. In each client the obfuscated IPv4 address is represented by bits _____
a) 96 to 127 b) 0 to 63
c) 80 to 95 d) 64 to 79

31. Which of the following is not applicable for IP?
a) Error reporting b) Handle addressing conventions
c) Datagram format d) Packet handling conventions

32. The size of an IP address in IPv6 is _____
a) 4 bytes **b) 128 bits**
c) 8 bytes d) 100 bits

33. Unicasting delivers the content to _____
a) a single client
b) all clients, regardless whether they want the content or not
c) a group of receivers who indicate they wish to receive the content
d) none of the mentioned

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34. Broadcasting delivers the content to _____

    a) a single client

    b) all clients, regardless whether they want the content or not

    c) a group of receivers who indicate they wish to receive the content

    d) none of the mentioned

35. Multicasting delivers the content to _____

    a) a single client

    b) all clients, regardless whether they want the content or not

    c) a group of receivers who indicate they wish to receive the content

    d) none of the mentioned

36. The address generated by the CPU is referred to as _____

    a) Physical address

    b) Logical address

    c) Neither physical nor logical

    d) None of the mentioned