

NGM COLLEGE
PG DEPARTMENT OF COMPUTER SCIENCE
SUBJECT CODE: 18PCS207
SUBJECT TITLE: Advanced Networks

K1-Multiple Choice Questions with Answers

Unit-I

1) What layer in the TCP/IP stack is equivalent to the Transport layer of the OSI model?

- A. Application
- B. Host-to-Host
- C. Internet
- D. Network Access

Answer: **B**

2) You want to implement a mechanism that automates the IP configuration, including IP address, subnet mask, default gateway, and DNS information. Which protocol will you use to accomplish this?

- A. SMTP
- B. SNMP
- C. DHCP
- D. ARP

Answer: C

3) Which of the following is private IP address?

- A. 12.0.0.1
- B. 168.172.19.39
- C. 172.15.14.36
- D. 192.168.24.43

Answer: **D**

4) MAC address is of

- A. 24 bits
- B. 36 bits
- C. 42 bits
- D. 48 bits

Answer: **D**

5) A point-to-point protocol over ethernet is a network protocol for

- A. encapsulating PPP frames inside ethernet frames
- B. encapsulating ethernet frames inside PPP frames
- C. for security of ethernet frames
- D. for security of PPP frames

Answer: **A**

6) High speed ethernet works on

- A. coaxial cable
- B. twisted pair cable
- C. optical fiber
- D. none of the mentioned

Answer: **C**

7) Address Resolution Protocol (ARP) is a

- A. 8 Bit Field
- B. 10 Bit Field
- C. 12 Bit Field
- D. 16 Bit Field

Answer: **D**

8) In Address Resolution Protocol (ARP), each LAN has been assigned a

- A. Trigger
- B. Integer
- C. Repeater
- D. Process header

Answer: **B**

9) In Address Resolution Protocol (ARP), a packet is encapsulated directly into a

- A. Data link Integer
- B. Network Frame
- C. Network Station
- D. Data link Frame

Answer: **D**

10) If an Address Resolution Protocol (ARP) request is broadcast, an ARP reply is

- A. Universal
- B. Unicast
- C. Multicast
- D. Generated locally

Answer: **B**

Unit-II

11) Switching in Internet is done by using datagram approach to packet switching at the

- A. network layer
- B. application layer
- C. data link layer
- D. physical layer.

Answer: **A**

12) A switch in a datagram network uses a

- A. destination address
- B. sender address
- C. routing table
- D. header

Answer: **C**

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

- A. session layer
- B. data link layer
- C. network layer
- D. physical layer

Answer: **B**

14) Asynchronous Transfer Mode (ATM) network is an example of

- A. Packet switching network
- B. Datagram Networks
- C. Virtual circuit network
- D. message switched network

Answer: **C**

15) IPV4 Address is

- A. 8 bit
- B. 16 bit
- C. 32 bit
- D. 64 bit

Answer: **C**

16) Internet Control Message Protocol (ICMP) has header size of

- A. 12 Bytes
- B. 10 Bytes
- C. 08 Bytes
- D. 06 Bytes

Answer: **C**

17) Internet Control Message Protocol (ICMP) is companion of

- A. IP Transmission
- B. IP Packet
- C. IP Frame
- D. IP protocol

Answer: **D**

18) IP is a connectionless

- A. Source
- B. Protocol
- C. Station
- D. Destination

Answer: **B**

19) Parameter that is normally achieved through a trailer added to end of frame is

- A. Access Control
- B. Flow Control
- C. Error Control

D. Physical addressing.

Answer: **C**

20) Application layer provides basis for

- A. Email services
- B. Frame Division
- C. File Making
- D. None of the above

Answer: **A**

Unit-III

21) In IPv4, value of Maximum Transfer Unit (MTU) depends on the

- A. Physical network protocol
- B. DataLink network protocol
- C. UD protocol
- D. Transport network protocol

Answer: **A**

22) In IPv4 layer, datagrams are the

- A. Frames
- B. Addresses
- C. Protocol
- D. Packets

Answer: **D**

23) 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

Answer: **A**

24) CRC stands for

- A. cyclic redundancy check
- B. code repeat check
- C. code redundancy check
- D. cyclic repeat check

Answer: **A**

25) Which one of the following is the multiple access protocol for channel access control?

- A. CSMA/CD
- B. CSMA/CA
- C. Both CSMA/CD & CSMA/CA
- D. None of the mentioned

Answer: **C**

26) Which one of the following is a transport layer protocol used in networking?

- A. TCP
- B. UDP
- C. Both TCP and UDP
- D. None of the mentioned

Answer: **C**

27) Transport layer protocols deal with

- A. application to application communication
- B. process to process communication
- C. node to node communication
- D. none of the mentioned

Answer: **B**

28) Which one of the following is a transport layer protocol?

- A. stream control transmission protocol
- B. internet control message protocol
- C. neighbor discovery protocol
- D. dynamic host configuration protocol

Answer: **A**

29) When displaying a web page, the application layer uses the _____

- A. HTTP protocol
- B. FTP protocol
- C. SMTP protocol
- D. TCP protocol

Answer: **A**

30) 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

Answer: **D**

UNIT: IV

31) On what does BGP base the selection of the best path?

- A) Speed
- B) AS routing policy
- C) number of routers to reach a destination network
- D) bandwidth plus delay

ans: B)

32) Which routing method best describes BGP?

- A) distance vector
- B) link-state
- C) path-vector=
- D) hybrid of link-state and distance vector

ans:C)

33) Which component does a BGP update contain?

- A) multiple paths and multiple networks
- B) a single path and multiple networks
- C) a single path and a single network
- D) multiple paths and a single network

Ans: B)

34) Which BGP message is sent when an error condition is detected?

- A) BGP update message
- B) BGP keepalive message
- C) BGP open message
- D) BGP notification message=
- E) BGP error message

Ans: D) BGP notification message

35. RMI stands for?

- a) Remote Mail Invocation
- b) Remote Message Invocation
- c) Remaining Method Invocation
- d) Remote Method Invocation

Answer: d

36. A typical _____ program creates some remote objects, makes references to these objects accessible, and waits for clients to invoke methods on these objects.

- a) Server
- b) Client

- c) Thread
- d) Concurrent

Answer: a

37. A typical _____ program obtains a remote reference to one or more remote objects on a server and then invokes methods on them.

- a) Server
- b) Client
- c) Thread
- d) Concurrent

Answer: b

Explanation: A client program obtains a remote reference to one or more remote objects on a server. It then invokes methods on them.

38. The _____ layer, which provides the interface that client and server application objects use to interact with each other.

- a) Increasing
- b) Count
- c) Bit
- d) Stub/skeleton

Answer: d

39. A layer which is the binary data protocol layer.

- a) stub layer
- b) skeleton layer
- c) remote layer
- d) transport protocol

Answer: d

40. A middleware layer between the stub skeleton and transport.

- a) remote layer
- b) instruction layer
- c) reference layer
- d) remote reference layer

Answer: d

Unit V

41. The protocol used by Telnet application is

- a) Telnet
- b) FTP
- c) HTTP
- d) None of the mentioned

Answer: a

42. In “character at a time” mode

- a) Character processing is done on the local system under the control of the remote system
- b) Most text typed is immediately sent to the remote host for processing
- c) All text is echoed locally, only completed lines are sent to the remote host
- d) None of the mentioned

Answer: b

43. _____ allows you to connect and login to a remote computer

- a) Telnet
- b) FTP
- c) HTTP
- d) None of the mentioned

Answer: a

44. The correct syntax to be written in the web browser to Telnet to www.sanfoundry.com is

- a) telnet//www.sanfoundry.com
- b) telnet:www.sanfoundry.com
- c) telnet://www.sanfoundry.com
- d) telnet www.sanfoundry.com

Answer: c

45. Telnet is a

- a) Television on net
- b) Network of Telephones
- c) Remote Login
- d) Teleshopping site

Answer: c

46. Which one of the following is not correct?

- a) telnet is a general purpose client-server program
- b) telnet lets user access an application on a remote computer
- c) telnet can also be used for file transfer
- d) none of the mentioned

Answer: c

47. Which operating mode of telnet is full duplex?

- a) default mode
- b) server mode
- c) line mode
- d) none of the mentioned

Answer: c

48. Simple mail transfer protocol (SMTP) utilizes _____ as the transport layer protocol for electronic mail transfer.

- a) TCP
- b) UDP
- c) DCCP
- d) SCTP

Answer:a

49. SMTP connections secured by SSL are known as

- a) SMTPS
- b) SSMTP
- c) SNMP
- d) None of the mentioned

Answer:a

50. Multiple object can be sent over a TCP connection between client and server in

- a) persistent HTTP
- b) nonpersistent HTTP
- c) both persistent HTTP and nonpersistent HTTP
- d) none of the mentioned

Answer: a

Explanation: None.

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UNIT I
K2 Level Questions

1. **What Is The Major Disadvantage Of Star Topology In Case Of Tcp/ip?**
One major disadvantage of star topology is that once the central hub or switch get damaged, the entire network becomes unusable.
2. **What Are Gateways In Case Of Tcp/ip?**
Gateways provide connectivity between two or more network segments. It is usually a computer that runs the gateway software and provides translation services. This translation is a key in allowing different systems to communicate on the network.
3. **What Is A Link In Case Of Tcp/ip?**
A link refers to the connectivity between two devices. It includes the type of cables and protocols used in order for one device to be able to communicate with the other.
4. **What Is Tcp/ip?**
TCP/IP is a name given to the collection (or suite) of networking protocols that have been used to construct the global Internet. The protocols are also referred to as the DoD (dee-oh-dee) or Arpanet protocol suite because their early development was funded by the Advanced Research Projects Agency (ARPA) of the US Department of Defense (DoD).
5. **What Is Tcp/ip Model?**
TCP/IP model is an implementation of OSI reference model. It has five layers.
They are: Network layer, Internet layer, Transport layer and Application layer.
6. **What Is Tracert In Case Of Tcp/ip?**
Tracert is a Windows utility program that can used to trace the route taken by data from the router to the destination network. It also shows the number of hops taken during the entire transmission route.
7. **How Is Tcp/ip Defined?**
All of the protocols in the TCP/IP suite are defined by documents called Requests For Comments (RFC's). An important difference between TCP/IP RFC's and other (say, IEEE or ITU) networking standards is that RFC's are freely available online.
8. **What Is Nos (network Operating System) In Case Of Tcp/ip?**
NOS, or Network Operating System, are specialized software whose main task is to provide network connectivity to a computer in order for it to be able to communicate with other computers and connected devices.
9. **What Do Mean By Tunnel Model?**

This is a mode of data exchange wherein two communicating computers do not use IPSec themselves. Instead, the gateway that is connecting their LANs to the transit network creates a virtual tunnel that uses the IPSec protocol to secure all communication that passes through it.

10. What Is Subnet Mask?

A subnet mask is combined with an IP address in order to identify two parts: the extended network address and the host address. Like an IP address, a subnet mask is made up of 32 bits.

UNIT-II

11. Define Network protocol?

A network protocol is a set of established rules that dictates how to format, transmit and receive data so computer network devices -- from servers and routers to endpoints -- can communicate regardless of the differences in their underlying infrastructures, designs or standards.

12. Define source quench format?

Using the Internet Control Message Protocol (ICMP), a source quench is a message from one host computer to another telling it to reduce the pace at which it is sending packet to that host. The source quench is one of several ways to manage the flow of packets on the Internet.

13. What is ping command?

Ping is a basic Internet program that allows a user to verify that a particular IP address exists and can accept requests.

14. What Is a Virtual Network?

The main purpose of a virtual network is to enable a data center or service provider network to provision the most suitable and efficient networking structure for the applications it hosts – and to alter that structure as conditions warrant, using software rather than requiring physical changes in connections to hardware.

15. What is the use of time stamp option?

A **timestamp** is the current time of an event that is recorded by a computer. Through mechanisms such as the Network Time Protocol (NTP), a computer maintains accurate current time, calibrated to minute fractions of a second.

16. Define IPv4

IPv4, also known as the fourth version of Internet Protocol, is the core protocol that routes most of the internet traffic. This is a connectionless protocol, which means that the state of the

connection is not preserved and the data is transmitted to the receiver without ensuring that the recipient is available or not.

17. What is an IP Datagram?

An IP datagram is a basic unit of information used by the IP layer to exchange data between two hosts. IP datagram consists of an IP header and data.

18. What is ICMP?

The Internet Control Message Protocol (ICMP) is a supporting protocol in the Internet protocol suite. It is used by network devices, including routers, to send error messages and operational information indicating.

19. What is the use of time to live field in IP header?

Time to live field is counter used to limit packet lifetimes counts in second and default value is 255 sec.

20. Identify the class and default subnet mask of the IP address 217.65.10.7?

IP address 217.65.10.7 belongs to class C address and default subnet mask is 255.255.255.0.

UNIT-III

21. List benefits of subnetting a network?

1. Reduced network traffic
2. Optimized network performance
3. Simplified network management
4. Facilities spanning large geographical distance.

22. What are the services offered by network layer?

- a. Logical addressing
- b. Routing

23. What is protocol layering?

Protocol layering is a common technique to simplify networking designs by dividing them into functional layers, and assigning protocols to perform each layer's task.

24. What are 7 layers of OSI model?

Layer 7 - Application
Layer 6 - Presentation
Layer 5 - Session
Layer 4 - Transport
Layer 3 - Network
Layer 2 - Data Link
Layer 1 - Physical

25. What are the two boundaries in the TCP/IP model?

- High level protocol address boundary
- Operating system boundary

26. What is subnet addressing?

Single network address to span multiple physical network bitwise AND,OR operations is used to identify subnet addressing.

27. What is proxy ARP?

Proxy ARP allows two physical network to share a single IP prefix
Arrange special system to answer ARP request and forward datagram.

28. What is UDP?

UDP (User Datagram Protocol) is an alternative communications protocol to Transmission Control Protocol (TCP) used primarily for establishing low-latency and loss-tolerating connections between applications on the internet

29. What is the purpose of Multiplexing?

The input signals can be either analog or digital. The purpose of multiplexing is to enable signals to be transmitted more efficiently over a given communication channel, thereby decreasing transmission costs.

30. What is meant by Demultiplexing?

Demultiplex (DEMUX) is the reverse of the multiplex (MUX) process – combining multiple unrelated analog or digital signal streams into one signal over a single shared medium, such as a single conductor of copper wire or fiber optic cable.

UNIT-IV

31. Define BGP.

BGP (Border Gateway Protocol) is protocol that manages how packets are routed across the internet through the exchange of routing and reach ability information between edge routers.

32. Define BGP UPDATE Message.

Peers use UPDATE message to advertise new destination that are reachable or to withdraw previously advertised destination, which have become unreachable.

33. What is UDP?

User Datagram Protocol (UDP) is part of the Internet Protocol suite used by programs running on different computers on a network. UDP is used to send short messages called datagrams but overall, it is an unreliable, connectionless protocol.

34. What are the BGP Attributes?

- Well known mandatory attribute
- Well known discretionary attributes
- Optional transitive attributes
- Optional non-transitive attributes

35. How IP Address Works?

IP is designed to work over a dynamic network. This means that IP must work without a central directory or monitor, and that it cannot rely upon specific links or nodes existing. IP is a connectionless protocol that is datagram-oriented., so each packet must contain the source IP address, destination IP address, and other data in the header to be successfully delivered.

36. What is Mobile IP (or MIP)?

Mobile IP is an Internet Engineering Task Force (IETF) standard communications protocol that is designed to allow mobile device users to move from one network to another while maintaining a permanent IP address. Mobile IP for IPv4 is described in IETF RFC 5944, and extensions are defined in IETF RFC 4721.

37. Define DHCP (Dynamic Host Configuration Protocol)

DHCP (Dynamic Host Configuration Protocol) is a network management protocol used to dynamically assign an Internet Protocol (IP) address to any device, or node, on a network so they can communicate using IP. DHCP automates and centrally manages these configurations rather than requiring network administrators to manually assign IP addresses to all network devices. DHCP can be implemented on small local networks as well as large enterprise networks.

38. What is echo server?

An **echo server** is usually an application which is used to test if the connection between a client and a **server** is successful. It consists of a **server** which sends back whatever text the client sent.

39. Define Internet Routing Architecture

The hierarchical **structure**, in which **routing** information about all of the networks on the **Internet** was passed into the core gateways. The core gateways processed the information and then exchanged it among themselves using the Gateway to Gateway Protocol (GGP).

40. What are the BGP operational algorithms?

- ✓ **Neighbor table** – a list of all BGP neighbors
- ✓ **BGP Table** (forwarding database, topology database):
 - List of networks received from each neighbor
 - Might contain multiple paths to a destination network
 - Contains BGP attributes for each path
- ✓ **Routing table** – the list of the best routes to destination networks

UNIT-V

41. Define anonymous FTP

Anonymous FTP access means a client does not need an account or password. Instead the user specifies login name anonymous and password equal to user's e-mail address or password guest.

42. Define NFS.

The Network File System (NFS) is a client/server application that lets a computer user view and optionally store and update files on a remote computer as though they were on the user's own computer.

43. What is POP?

The protocol used to transfer e-mail messages from a permanent mailbox to a local computer is known as version 3 of post office protocol.

44. What is FTAM?

File Transfer Access Method (FTAM), also known as File Transfer Access and Management or Electronic File Transfer Access Method (EFTAM).

45. What is Telnet?

Telnet is a user command and an underlying TCP/IP protocol for accessing remote computers.

46. How does Telnet works?

Telnet provides users with a bidirectional interactive text-oriented communication system utilizing a virtual terminal connection over 8 byte.

47. What are common uses for Telnet?

Telnet can be used to test or troubleshoot remote web or mail servers, as well as for remote access to MUDs (multi-user dungeon games) and trusted internal networks.

48. What is the use of E-mail?

E-mail (electronic mail) is the exchange of computer-stored messages by telecommunication.

49. Define SMTP:

Simple Mail Transfer Protocol (SMTP) is the standard protocol for email services on a TCP/IP network. SMTP provides the ability to send and receive email messages.

50. Define WWW:

"The World Wide Web is the universe of network-accessible information, an embodiment of human knowledge."



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K3 Level Questions

UNIT-1

1. List and explain Transport layer protocol of TCP/IP protocol suit in brief.
2. Sketch Internet Architecture Board.
3. Explain ATM header cell format.
4. Compare static and dynamic routing.
5. Explain functionality of ARP and RARP.
6. Write short note on Routing Information Protocol.
7. Explain the ATM reference model and explain what the various services are provided by it.
8. Explain classful IP addressing scheme.
9. Explain ATM adaption layer.
10. Compare Intra domain and Inter Domain routings.

UNIT-II

11. Explain about IPv4-Datagram.
12. Explain the datagram forwarding in IP.
13. Explain about Next-Hop forwarding.
14. Discuss protocols associated with (Internet Control Message protocol) ICMP.
15. With example explain ping command.
16. With a neat sketch of Echo request and Reply message format.
17. Brief about approaches used for TCP congestion control.
18. Show & explain various fields of IP (internet protocol) Datagram.
19. Brief about approaches used for TCP Datagram flow- control
20. Describe working of source quench format.

UNIT-III

21. Explain sub netting? For a network address 192.168.10.0 and subnet
22. With example explain subnet Forwarding Algorithm.
23. How the flow control implemented in X.25? Compare X.25 and TCP/IP protocol suite.
24. With a neat sketch, explain the architecture of an OSI seven layer model.
25. Brief about approaches used for UDP control.
26. Brief about message and checksum computation approaches used for UDP control.

27. Show and explain the ARP packet format for mapping IP addresses into Ethernet addresses.
28. With an example, explain the function of link state routing protocol.
29. Brief about UDP congestion control time and data services.
30. Disadvantages of TCP/IP protocol suite.

UNIT-IV

31. Describe BGP (Border Gateway protocol) in detail.
32. Explain the functions of Wi-Fi and Bluetooth in detail.
33. Write a detailed note on congestion avoidance mechanisms used in TCP.
34. Explain the function of Bootstrap and Auto-configuration(DHCP)
35. List and explain the various HTTP request operations.
36. What is Two-Crossing problem? Explain.
37. List out the characteristics of Mobile IP.
38. Exemplify Internet Routing Architecture.
39. Write a note on IOS (Internetwork Operating System).
40. Describe BGP (Border Gateway protocol)-NOTIFICATION.

UNIT-V

41. Sketch of TELNET protocol.
42. Discuss TELNET protocol options.
43. Explain Secure Shell.
44. Compare File Transfer Access Protocols (FTP and TFTP)
45. Explain Simple Mail Transfer Protocol (SMTP).
46. Write a short note on SNMP (Standard Network Management Protocol).
47. Explain any two protocols used in Electronic Mail.
48. Explain availability, reliability and maintainability of a network in detail for network management.
49. Write a short note on World Wide Web (HTTP Protocol).
50. Compare IPV4 and IPV6 with their header format.

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K4 and K5 Level Questions

UNIT-I

- 1 Justify ATM header cell format.
- 2 Compare and contrast static and dynamic routing.
- 3 Elucidate the functionality of ARP and RARP.
- 4 Exemplify Routing Information Protocol.
- 5 Explain the ATM reference model and explain what the various services are provided by it.

UNIT-II

- 6 Explain classful IP addressing scheme.
- 7 With example explain subnet Forwarding Algorithm.
- 8 Brief about message and checksum computation approaches used for UDP control.
- 9 Program to find the IP address of a given Website
- 10 Program to generate Conversion of lowercase to uppercase

UNIT-III

- 11 Write a Program to generate IP of the machine.
- 12 How to implement UDP packets Send and Receive message?
- 13 Justify the ATM reference model and explain what the various services are provided by it.
- 14 Write the source code to find IP address of the system.
- 15 Explain ATM adaption layer.

UNIT-IV

- 16 Compare Intra domain and Inter Domain routings.
- 17 How to implement Ping Server using raw sockets?
- 18 Explain with an example how to generate Asynchronous Protocol .
- 19 Demonstrate the concept of ECHO command with example.
- 20 How to establish Double side communication using TCP to validate a Client Password.

UNIT-V

- 21 Justify the method to establish Single side communication using UDP
- 22 Explain the Program to establish Chatting between client and server.

- 23 How to implement User Interface in networks
- 24 Explain the function of Bootstrap and Auto-configuration(DHCP)
- 25 Justify the availability, reliability and maintainability of a network in detail for network management.

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