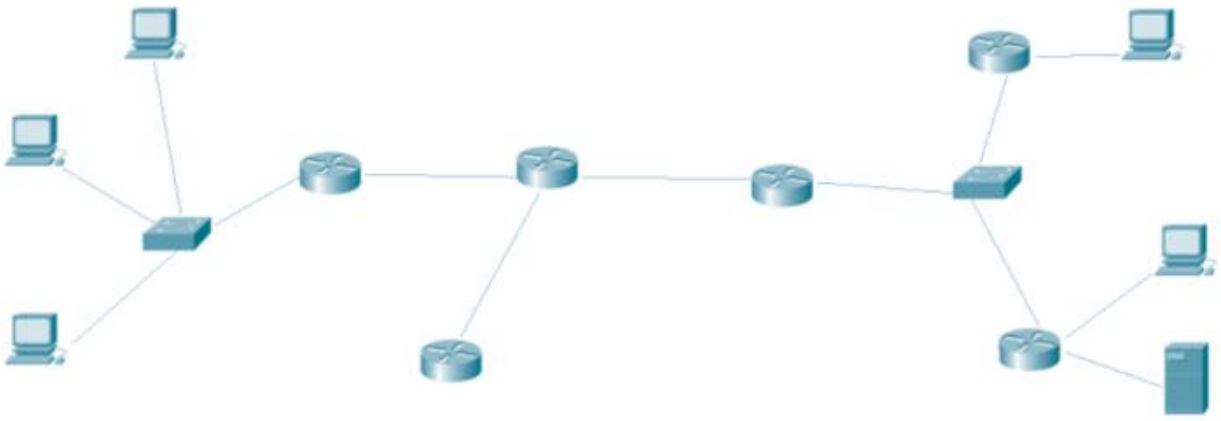
1) When can a DHCP server relay IP addresses to clients on a network segment separated from the server's location?
   a) DHCP server can only relay IP addresses to the clients found on the same network segment
   b) When the router separating them acts as a relay agent
   c) When the DHCP server uses the same IP address as the router that supports the network segment where the clients are located
   d) When there are more logical routes between the DHCP server and the subnetwork clients

2) Choose the correct use of the Straight through and the Cross over cables:
   a) Cross cable to connect a PC to a PC and straight through to connect a switch to a hub
   b) Cross cable to connect a router to a PC and straight through to connect a switch to a server
   c) Cross cable to connect a switch to a hub and straight through to connect a router to a switch
   d) Cross cable to connect a switch to a switch and straight through to connect a hub to a switch

3) Choose the correct use of the following cables:
   a) Straight through to connect a hub to a switch or a hub to a PC
   b) Cross cable to connect a PC to a server or a PC to a router
   c) Straight through to connect a PC to a PC or a switch to a router
   d) Cross cable to connect a router to a router or a hub to a switch

4) In what situation is a PC unable to ping another PC?
   a) PCs are on two different network segments on the same network
   b) Firewall is disabled on both of the PC's
   c) One of the PC's is connected to the router by cross over cable
   d) Firewall is enabled on both computers

5)



Determine how many subnets are found in the above given network:

a) 7
b) 9
c) 5
d) 11

6) Which of the following is not a characteristic of the IP protocol?
   a) It affects packet routing
   b) It is considered an unreliable protocol
   c) It is a connection-oriented protocol
   d) It defines the Internet addressing system

7) Having more than one DHCP server on the same subnet of a network is:
   a) Possible, if all servers besides one are offline, so that the client requests for IP addresses only reach that server
   b) Possible, as long as they share the same address pool to give to the clients
   c) Possible only if each of them has a different pool of addresses, without sharing any address
   d) Not possible

8) What is the main function of DNS?
   a) Maps a known IP address to a MAC layer address
   b) Provides host names to TCP/IP address resolution
   c) Automatically assigns IP addresses to the devices across the network
   d) Provides network connectivity to a computer

9) Gateways are used for:
   a) Providing connectivity between two or more network segments
   b) Providing network connectivity to a computer
   c) Tracing the route taken by data from the router to the destination network
   d) Transfer files between different platforms

10) What is the maximum number of hosts for a class C network?
   a) 65.534
   b) 65.535
   c) 128
   d) 254

11) What is the maximum number of networks in a class A network?
    a) 126
    b) 128
    c) 16.384
    d) 254

12) Which one of the following addresses is a public address?
    a) 10.0.0.0/8
    b) 207.46.130.0/24
    c) 172.16.0.0/12
    d) 1.0.0.0/8

13) NAT is:
    a) A connection between computers and other network devices that are located within a small physical location
    b) A protocol providing a way for multiple computers on a common network to share a single connection to the Internet
    c) A protocol used by routers to send data from one network to another
    d) A set of protocol layers designed to make data exchange possible on different types of computer networks

14) Which one is not true about classless routing protocols:
    a) RIPv1 supports classless routing protocols
    b) RIPv2 supports classless routing protocols
    c) It is allowed to use a variable length mask
    d) It is allowed to use discontinuous network

15) Which one of these is a RIPv2 characteristic?
    a) Maintains a routing table as in RIPv1 without the mask information
    b) It is a classful routing protocol
    c) Supports maximum metric (hop count) value up to 15. Any router further than 15 hops is considered unreachable
    d) Does not support triggered updates or authentication of RIPv2 update messages

16) Which one is true about RIPv1?
    a) It is easier to configure than RIPv2
    b) It maintains a routing table as in RIPv2, including mask information
    c) It has a lower administrative distance than RIPv2
    d) It has the same timers as RIPv2

17) An IP address has:
    a) 64 bits
    b) 32 bytes
    c) 128 bytes
    d) 32 bits

18) Which of the following are valid IP addresses to mark a sub network?
    a) 177.91.107.144/29
    b) 177.91.107.0/32
    c) 177.91.107.1/25
    d) 177.91.154/30

19) What is the range of network IPs in which the following given IP resides: 194.168.19.65/28?
    a) 194.168.19.64 – 194.168.19.87
    b) 194.168.19.64 – 194.168.19.79
    c) 194.167.19.62 – 194.167.19.87
    d) 194.168.19.0 – 194.168.19.64

20) Which of the following is the correct host range for the subnet in which we can find the IP address 192.168.168.188 255.255.255.192?
    a) 192.168.168.129 – 191
    b) 192.168.168.128 – 190
    c) 192.168.168.128 – 192
    d) 192.168.168.129 – 190

21) Which protocol does DHCP use at the Transport Layer?
    a) IP
    b) UDP
    c) TCP
    d) ARP

22) Which class of IP address has the most host addresses available by default?
    a) A
    b) B
    c) C
    d) A and C

23) Which protocol does Ping use?
    a) TCP
    b) ARP
    c) ICMP
    d) IP

24) Which of the following does not use TCP?
    a) HTTP
    b) DHCP
    c) FTP
    d) SMTP

25) Which of the following is a private IP address?
    a) 12.0.0.2
    b) 168.172.19.40
    c) 172.15.14.36
    d) 192.168.24.43

26) Which class of IP address provides a maximum of only 254 host addresses per network ID?
    a) Class A
    b) Class B
    c) Class C
    d) Class B and C

27) Which one is true about ICMP packets?
    a) They are encapsulated within IP datagrams
    b) ICMP is encapsulated within UDP datagrams
    c) They do not provide hosts with information about network problems
    d) They guarantee datagram delivery

28) Which of the following is considered to be the destination host before translation?
    a) Inside local host
    b) Outside local host
    c) Inside global host
    d) Outside global host

29) Which of the following is considered to be the address after translation?
    a) Inside local host
    b) Outside local host
    c) Inside global host
    d) Outside global host

30) Which of the following is not a way to configure NAT?
    a) IP NAT pool
    b) Static
    c) Dynamic
    d) NAT overload

31) Which one of the following is not an advantage of using NAT?
    a) Conserves legally registered addresses
    b) Translation introduces switching path delays
    c) Increases flexibility when connecting to the Internet
    d) Reduces address overlap occurrence

32) Which one is true about NAT?
    a) Causes loss of end-to-end IP traceability
    b) Does not conserve legally registered addresses
    c) Decreases flexibility when connecting to the Internet and certain applications will not function with NAT enabled
    d) Increases address overlap occurrence

33) Which of the following is true about the IP address 10.16.3.65/23?
    a) The subnet address is 10.16.3.0 255.255.254.0
    b) The last valid host address in the subnet is 10.16.2.254 255.255.254.0
    c) The broadcast address of the subnet is 10.16.3.0 255.255.254.0
    d) The lowest host address in the subnet is 10.16.2.1 255.255.254.0

34) Which of the following are valid subnet addresses?
    a) 177.91.107.0, 177.92.107.97, 177.92.107.144
    b) 177.91.107.0, 1.0.0.0, 0.0.0.0
    c) 191.91.168.1, 177.91.107.152, 177.91.168.127
    d) 177.91.107.0, 177.91.107.144, 1.0.0.112

35) What is the maximum number of IP addresses that can be assigned to hosts on a local subnet that uses the 255.255.255.224 subnet mask?
   a) 14
   b) 15
   c) 16
   d) 30

36) What does a mask /28 mean?
   a) The maximum number of IP addresses that can be assigned to hosts is 16
   b) The maximum number of IP addresses that can be assigned to hosts is 14
   c) The maximum number of IP addresses that can be assigned to hosts is 8
   d) The maximum number of IP addresses that can be assigned to hosts is 30

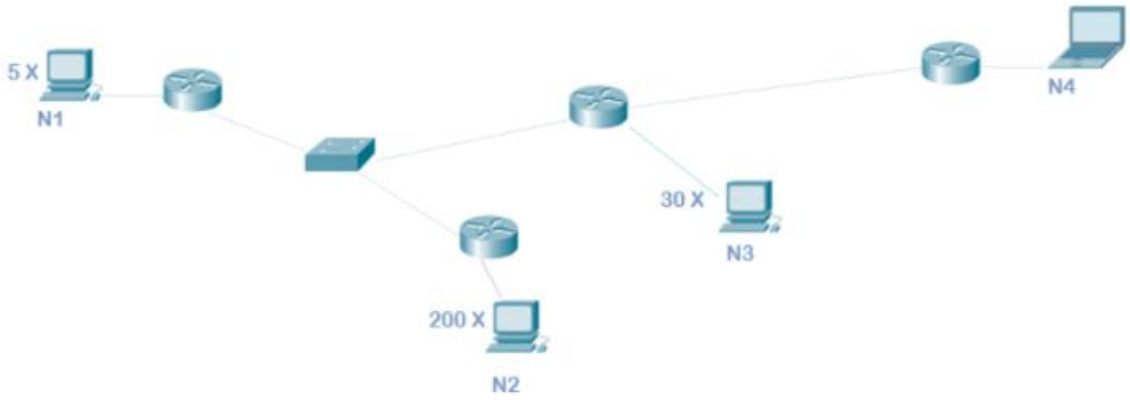
37) A submask /30 can be given to:
   a) A subnet with 3 PC's, connected to a router by a switch
   b) A subnet with 2 PC's and a server, connected to a router by a switch
   c) A subnet with 2 PC's connected directly to the router
   d) A subnet with 2 routers connected

38) You need to subnet a network that has 7 subnets, each with at least 16 hosts. Which classful subnet mask would you use?
   a) 255.255.255.192
   b) 255.255.255.224
   c) 255.255.255.240
   d) 255.255.255.252

39) You have an interface on a router with the IP address of 192.168.192.10/29. Including the router interface, how many hosts can have IP addresses on the LAN attached to the router interface?
   a) 6
   b) 7
   c) 8
   d) 14

40) The network address if 172.16.0.0/19 provides how many subnets and hosts?
   a) 7 subnets, 30 hosts each
   b) 8 subnets, 8190 hosts each
   c) 8 subnets, 2046 hosts each
   d) 7 subnets, 2046 hosts each

41)



Given the network above, choose which of the next are correct IP addresses for each subnet in the picture (N1, N2, N3, N4):

a) N1 -> 1.168.19.72/30, N2 -> 1.168.19.0/24, N3 -> 1.168.19.84/26, N4 -> 1.168.19.80/30
b) N1 -> 1.168.19.72/29, N2 -> 1.168.18.0/24, N3 -> 1.168.19.0/26, N4 -> 1.168.19.80/30
c) N1 -> 1.168.19.72/29, N2 -> 1.168.18.0/26, N3 -> 1.168.19.0/26, N4 -> 1.168.19.80/30
d) N1 -> 1.168.19.72/29, N2 -> 1.168.18.0/24, N3 -> 1.168.19.144/26, N4 -> 1.168.19.80/30

42) Which of the following affirmations about UDP is not true?

a) Writes packets of bytes
b) No read bytes from a packet are lost
c) Neither party can overflow the other. Traffic is controlled by the OS
d) Not read bytes from a packet are lost

43) Which one is not a principle to the OSI model?

a) A layer should be created where a different abstraction is needed
b) Each layer should perform a well-defined function
c) The layer boundaries should be chosen to maximize the information flow across the interfaces
d) The function of each layer should be chosen with an eye toward defining internationally standardized protocols

44) Which of the following layers controls the operation of a subnet and handles how packets are routed from source to destination?

a) The Network Layer
b) The Transport Layer
c) The Session Layer
d) The Presentation Layer

45) Which protocol handles mail exchange?
    a) FTP
    b) TELNET
    c) SSH
    d) SMTP

46) Which one of the following is a Natural Mask?
    a) 255.255.255.255
    b) 255.255.255.0
    c) 255.255.255.128
    d) 255.255.255.64

47) IP – best effort protocol – does its best effort to transport datagram from one machine to another with no guarantee of a:
    a) Successful delivery
    b) Duplication / unicity
    c) Data integrity
    d) All of the above

48) Which affirmation is not true about The Network Address Translation?
    a) No need to be allocated range of addresses from ISP; just one IP address is used for all devices
    b) Can change addresses of devices in local network without notifying outside world
    c) Can change ISP only by changing addresses of devices in local network
    d) Devices inside local net not explicitly addressable, visible by outside world

49) Which of the following affirmations about TCP is not true?
    a) Client process must first be running
    b) Server must have created socket that welcomes client's contact
    c) Allows server to talk with multiple clients
    d) Source port numbers are used to distinguish clients

50) IP Routing is based on the:
    a) Source IP
    b) Destination IP
    c) Network address
    d) Broadcast address

51) Which is not a Service of a Data Link Layer?
    a) Framing and link access
    b) Flow control
    c) Error correction
    d) Traffic isolation

52) Consider a network 60.20.30.0/24. Computers within the network have the default gateway 60.20.30.1, which is the IP of the router. The DNS server has the IP 60.20.30.2 and has the following entries in the DNS table:
    Google.ro 120.30.4.5
    Mywebsite.ro 60.20.30.3
    A computer having the IP 60.20.30.4 opens the web browser and visits the website mywebiste.ro. What is the packet route through the network?
    a) 60.20.30.4 -> 60.20.30.1 -> 60.20.30.3 -> 60.20.30.1 -> 60.20.30.3 -> 60.20.30.2 -> 60.20.30.4
    b) 60.20.30.4 -> 60.20.30.2 -> 60.20.30.1 -> 60.20.30.3 -> 60.20.30.4 -> 60.20.30.2 -> 60.20.30.4
    c) 60.20.30.4 -> 60.20.30.1 -> 60.20.30.2 -> 60.20.30.3 -> 60.20.30.1 -> 60.20.30.4
    d) 60.20.30.4 -> 60.20.30.1 -> 60.20.30.2 -> 60.20.30.1 -> 60.20.30.4 -> 60.20.30.1 -> 60.20.30.3 -> 60.20.30.1 -> 60.20.30.4

53) What are the protocols involved in sending an email?
    a) FTP
    b) SMTP
    c) TCP
    d) POP3
    e) HTTP

54) TCP stands for…
    a) Transfer Control Protocol
    b) Transmission Connection Protocol
    c) Transformation Central Protocol
    d) Transmission Control Protocol

55) What is a datagram?
    a) A structure used to get data from the user in order to synchronize the server
    b) A basic transfer unit used in packet-switched networks, providing a connectionless communication service
    c) Information that can harm your computer if you're not careful with it
    d) Millions of bytes configure in a big cluster which can be easily transferred

56) ARP can be used for…
   a) Mapping network addresses to physical (MAC) addresses
   b) Mapping public virtual addresses to private IP addresses
   c) Publishing websites to the Internet
   d) Sending emails very fast

57) TCP, UDP and SCTP are part of:
   a) Application Layer
   b) Internet Layer
   c) Transport Layer
   d) Link Layer

58) TCP header contains the following entries:
   a) Source Port, Destination Port, Sequence Number, Acknowledgement Number, Flags, Data Offset, Checksum, Urgent Pointer
   b) Source IP, Destination IP, Pointer to MAC Address, Connection unique identifier, Router IP, NAT tables
   c) Source Port, Destination Port, Length, Checksum
   d) Source MAC, Destination MAC, Connection Object, Checksum, Data hash

59) A company has three departments: offices, public and managers. The offices have 123 computers, public relationship has 30 computers and managers have 6 computers. The company wants to make a network such that: every computer has access to internet, have minimum costs, it must be certainly known from which department some webpages are accessed from the HQ in another city. Provide a good configuration for these requirements:
   a) 3 subnetworks, 192.168.0.0/24, 192.168.1.0/24, 192.168.2.0/24 for every department and connect every subnet directly to the internet, using NAT, through a different provider
   b) 3 subnetworks, 192.168.0.0/25, 192.168.0.128/27, 192.168.0.160/29 and connect them to a central router which translates all the IPs on 192.168.0.0/24 with the IP 30.0.0.5
   c) 1 subnetwork for all the company, 192.168.0.0/24, connect computers to internet through a router which translates every address IP to a public IP address with different class depending on department
   d) 3 subnetworks, 192.168.0.0/25, 192.168.0.128/27, 192.168.0.160/29, one router which translates first network to 30.0.0.1, second to 30.0.0.2, and third to 30.0.0.3

60) What would be a network security recommendation?
   a) Forwarding all traffic from the router ports to computer ports
   b) Activate firewall and use good firewall rules
   c) Use the default router password, everybody will expect that you change it, so not changing it is a good strategy
   d) Allow RDP connections on your computers

61) What is DSL and what it is used for?
   a) Digital Subscriber Line; used to give access to internet through telephone lines
   b) Digital Supplier Limit; verifies if the maximum connected users in a wi-fi network have been reached
   c) Describer Serial Link; used for serial cables to assure their connectivity in a network
   d) Destination Source Limit; limits the number of packets sent and received; used for security reasons

62) What is the difference between a switch and a hub?
   a) The hub sends a packet specifically to an end point or more, the switch broadcasts the message to all the network
   b) The switch sends a packet specifically to an end point or more, the hub broadcasts the message to all the network
   c) The hub can send packets on large distances, but the switch is generally for home usage
   d) There is no difference

63) The last address of IP address represents?
   a) Broadcast
   b) Network
   c) Unicast address
   d) Multicast

64) Which of the following IP addresses class is multicast?
   a) Class A
   b) Class B
   c) Class C
   d) Class D

65) Which of the following is correct regarding Class B address of IP address?
   a) Network 18, Host 16
   b) Network 14, Host 16
   c) Network 16, Host 14
   d) Network 12, Host 14

66) How many layers are in TCP/IP?
   a) 7 layers
   b) 4 layers
   c) 6 layers
   d) 5 layers

67) IPv4 Address is:
   a) 64 bits
   b) 16 bits
   c) 48 bits
   d) 32 bits

68) DNS is the abbreviation for:
   a) Dynamic Network System
   b) Domain Name System
   c) Domain Network Server
   d) Dynamic Name System

69) What is the size of a MAC address?
   a) 16 bits
   b) 32 bits
   c) 48 bits
   d) 64 bits

70) MAC address is the example of?
   a) Transport layer
   b) Data link layer
   c) Application layer
   d) Physical layer

71) For error detection in TCP/IP we use?
    a) Bit sum
    b) Check sum
    c) Error flag
    d) Error bit

72) The amount of data that can be carried in a given time is called?
    a) Capacity
    b) Scope
    c) Bandwidth
    d) Limitation

73) What is the size of the Host in Class B of an IP address?
    a) 4
    b) 8
    c) 16
    d) 32

74) What is the use of the ping command?
    a) To test if your connection is wired or wireless
    b) To test if a device on the network is reachable
    c) To get your MAC address
    d) To get your IP address

75) What is a normal mask for a Class C network?
    a) 255.255.255.1
    b) 255.255.255.128
    c) 255.255.0.0
    d) 255.255.255.0

76) What does a protocol define?
    a) What data is communicated
    b) How data is communicated
    c) When data is communicated
    d) None of the above

77) What is the use of Subnetting?
   a) It divides one network into several smaller networks
   b) It divides a network into network classes
   c) It speeds up the network
   d) All of the above

78) … provides a connection oriented reliable service for sending data. (R: TCP)

79) What is TTL?
   a) Time To Leave
   b) Total Time Limit
   c) Time To Live
   d) Time Tracking Limit

80) The following system calls are/is optional at the level of a TCP client:
   a) Socket()
   b) Listen()
   c) Bind()
   d) Connect()

81) Which one/ones of the following addresses have to be identical for all computers located in the same local network (from a physical and logic point of view)?
   a) Network address
   b) Broadcast address
   c) IP address
   d) MAC address

82) The ARP protocol helps with:
   a) Determining the IP address when the MAC address is known
   b) Determining the MAC address when the IP address is known
   c) Determining the IP address when the DNS server is known

83) DHCP is a client/server protocol that automatically provides an Internet Protocol host with its:
   a) IP address
   b) Subnet Mask
   c) MAC address
   d) Default gateway

84) The maximum number of hosts a network with the mask 255.255.255.224 is capable of supporting is:
   a) 2^(number of zeros in netmask)
   b) 32
   c) 30
   d) 16

85) The natural mask for a class A address is:
   a) 255.255.255.0
   b) 255.226.255.0
   c) 255.0.0.0
   d) 255.255.0.0

86) Consider the following netmask: 255.255.0.0, the network part (network length) is formed by a number of bits equal to:
   a) 24
   b) 16
   c) 8
   d) Impossible to determine

87) Which of the following describes 'big endian'?
   a) Most significant byte first
   b) Most significant byte last
   c) Least significant byte in the middle
   d) Most significant byte in the middle
   e) None of the above

88) Which of the following describes 'little endian'?
   a) Least significant byte first
   b) Least significant byte last
   c) Least significant byte in the middle
   d) Most significant byte in the middle
   e) None of the above

89) What is the in-memory representation of 56E2 in little endian?
   a) 56E2
   b) E256
   c) 2E65
   d) 652E

90) What is the in-memory representation of 56E2 in big endian?
   a) 56E2
   b) E256
   c) 2E65
   d) 652E

91) How many bytes does ‘double’ use?
   a) 1 byte
   b) 4 bytes
   c) 8 bytes
   d) 16 bytes

92) How many bytes does ‘float’ use?
   a) 1 byte
   b) 4 bytes
   c) 8 bytes
   d) 16 bytes

93) What does TCP/IP stand for?
   a) Transport Control Protocol/Internet Protocol
   b) Transmission Check Protocol/Internet Protocol
   c) Transmission Control Protocol/Inverse Protocol
   d) Transmission Control Protocol/Internet Protocol

94) What type of connection does SOCK_STREAM indicate?
   a) TCP connection
   b) UDP connection
   c) Closed connection
   d) Open connection

95) What type of connection does SOCK_DGRAM indicate?
   a) TCP connection
   b) UDP connection
   c) Closed connection
   d) Open connection

96) What does UDP stand for?
   a) User Defined Protocol
   b) User Datalink Protocol
   c) User Datagram Protocol
   d) Utility Datagram Protocol

97) What does DNS stand for?
   a) Dynamic Name Server
   b) Dynamic Name System
   c) Domain Name Server
   d) Domain Name System

98) How many different network layers are there (according to the OSI Reference Model) ?
   a) 7 layers
   b) 4 layers
   c) 5 layers
   d) 9 layers
   e) The number of layers can vary

99) The 4 bottom network layer (according to the OSI Reference Model), in order, are the following:
   a) Physical, data link, network, transport
   b) Physical, network, data link, transport
   c) Physical, data link, transport, network
   d) Data link, physical, network, transport

100) What does FTP stand for?
   a) File Transmission Protocol
   b) File Transfer Protocol
   c) File Translocation Protocol
   d) Folder Transmission Protocol

101) What is FTP used for?
   a) It is a protocol used to check if the datalink layer is working properly
   b) Transferring files over a network
   c) It is a protocol used by mail servers
   d) Accessing the WEB, sending HTML pages

102) What does SSH stand for?

a) Secure Shell Hook
b) Structured Shell Hook
c) Secure Shell
d) Structured Shell

103) What is SSH used for?

a) Remote connection to the terminal/command line of another computer (remote command)
b) Transferring files over a network
c) It is a protocol used by mail servers
d) Accessing the WEB, sending HTML pages

104) What is SMTP used for?

a) Remote connection to the terminal/command line of another computer (remote command)
b) Transferring files over a network
c) It is a protocol used by mail servers (mail exchange)
d) Accessing the WEB, sending HTML pages

105) What does P2P stand for?

a) Peer to peer
b) Point to point
c) Point to peer
d) Peer to point

106) What is the maximum bandwidth, the maximum amount of data that the optical fiber can carry?

a) 100 mb/s
b) 1000 mb/s
c) 100 000 mb/s
d) There is no maximum

107) Since optical fiber has no limit in bandwidth, what is a plausible reason for your lower internet speed?

a) There is a limit to how much end devices can send and receive
b) Your router/model is limited
c) You don't use fiber
d) The contract with your ISP limits your bandwidth
e) All answers are correct

108) If I have a zip of size 1024 bytes and a connection of 32 bits/second to the computer I want to send the zip to, how long would it take for the zip to be sent?

a) 256 seconds
b) 1 second
c) 10 seconds
d) 1024 seconds

109) What kind of signal flows through the optical fiber cable have?

a) Electro-magnetic waves
b) Light waves
c) Both are of the above
d) Electric current

110) What type of physical signal does the wireless transmission use?

a) Electro-magnetic waves
b) Light waves
c) Both are of the above
d) Electric current

111) How long is an IPv4 address?

a) 4 bytes
b) 32 bytes
c) 16 bytes
d) 8 bytes

112) What does TLD stand for?

a) Total Level Domain
b) Total Level Distribution
c) Top Level Domain
d) Top Level Distribution

113) What does ISP stand for?

a) Internet Server Protocol
b) Internet Service Protocol
c) Internet Service Provider
d) Internet Server Provider

114) Which of the following is a valid domain name?

a) Nontendo.com
b) Nds.nontendo.com
c) Nds.nontendo.ro
d) All answers are correct

115) What does ROTLD stand for?

a) Romanian Top Level Domain
b) Russian Overview Top Level Domain
c) Romanian Total Level Domain
d) Romanian Top Level Distribution

116) What is the 'Whois Query' used for?

a) Checking if a domain name is already bought or not
b) Checking if a domain name has a server active and running
c) Checking if an IP is present on a network
d) Getting the IP of a domain name

117) Which of the following represents a FTP (File Transfer Protocol)?

a) The TCP/IP
b) The SMB or SAMBA Protocol
c) The SSH Protocol
d) The SMTP

118) What is HTML?

a) HTML is a language that is used to describe web pages
b) HTML is a language used for server programming
c) HTML is a language used for browser programming
d) All of the above are true

119) Which of the following is a correct MAC address?

a) 12-34-56-78-90-AB-CD
b) G2-H3-24-13-12-3E
c) G2-H3-24-13-12-3E-CD
d) 12-34-56-78-90-AB

120) What command would you use to find your network adapter's MAC address if you are on windows?

a) Ipconfig
b) Arp/d
c) Ipconfig/all
d) All of the above would work

121) What does ARP stand for?

a) Address Resolution Protocol
b) Address Refresh Protocol
c) Address Reconstruction Protocol
d) Address Read Protocol

122) What does LAN stand for?

a) Local Address Network
b) Local Address Name
c) Local Area Network
d) Local Area Name

123) What command would you use to test the Datalink Layer to see if it works (on Windows)?

a) Arp/a
b) Ipconfig/all
c) Ipconfig
d) Arp/d
e) All answers are correct

124) Which of the following IP sets belong to 209.220.186.12/255.255.255.252 IP class?

a) 209.220.186.12, 209.220.186.13, 209.220.186.14, 209.220.186.15
b) 209.220.186.13, 209.220.186.14, 209.220.186.15, 209.220.186.16
c) 209.220.186.12, 209.220.186.13, 209.220.186.14, 209.220.186.15, 209.220.186.16, 209.220.186.17, 209.220.186.14, 209.220.186.18
d) 209.220.186.10, 209.220.186.11, 209.220.186.12, 209.220.186.13, 209.220.186.14, 209.220.186.15, 209.220.186.16, 209.220.186.17

125) Which of the following is a valid IP/Netmask combination?

a) 209.220.186.8/255.255.255.240
b) 209.220.186.8/255.255.255.0
c) 209.220.186.8/255.255.255.248
d) 209.220.186.8/255.255.255.252
e) C and D are both correct

126) How many bits of zero does the following netmask have: 255.255.255.248?

a) 2 bits
b) 3 bits
c) 4 bits
d) 8 bits

127) Which is the correct binary representation of the following netmask: 255.255.255.128?

a) 111111111 11111111 11111111 10000000
b) 111111111 11111111 11111111 11110000
c) 111111111 11111111 11111111 11000000
d) 111111111 11111111 11111111 00000000

128) What is the netmask for the following IP class: 192.168.0.0/24?

a) 255.255.255.128
b) 255.255.255.0
c) 255.255.0.0
d) 255.0.0.0
e) All netmasks are correct

129) What is the netmask for the following IP class: 10.10.0.0/17?

a) 255.255.255.128
b) 255.255.255.0
c) 255.255.128.0
d) 255.255.0.0
e) All netmasks are correct

130) How do you find the network address if you have the network mask and one random IP address in the network?

a) You 'and' the netmask and the random IP
b) You 'or' the netmask and the random IP
c) You add the netmask and the random IP
d) You 'xor' the netmask and the random IP

131) What will you get if you 'or' together the netmasks of a network and one random IP in the network?

a) The IP class
b) The first IP in the class of the random IP
c) The last IP in the class of the random IP
d) Nothing significant

132) What does NAT stand for?

a) Network Address Translation
b) Name Address Translocation
c) Network Area Translation
d) Network Area Translocation
e) Name Area Translocation

133) Which of the following involve NAT?

a) Port forwarding
b) Accessing the web from an internal network. Your PC's network will be translated to your public IP (i.e., home network)
c) Both answers involve NAT

134) Are MAC addresses guaranteed to be unique?

a) No, buying the same type of a network adapter twice (from an online store) means you get the same MAC address
b) No, the MAC address is software related
c) Depends on the network adapter you have
d) Yes, because MAC addresses are burned into the ROM of the network adapter

135) What is a private IP address?

a) It's an IP address that does not have a netmask
b) It's an IP address that is reserved for internal use behind a router or NAT device, apart from the public
c) It's an IP address that your device receives when connecting to public networks
d) It's an IP address that has the following form: 127.0.x.x

136) Which is the range for an IP address of class B?

a) 191 – 220
b) 127 – 190
c) 128 – 191
d) 128 – 192

137) What is the broadcast address of the following IP address 221.17.123.9 that has in its network 42 computers?

a) 221.17.123.255
b) 255.255.255.255
c) 221.17.123.63
d) 221.17.123.65

138) What is the use of the ARP protocol?

a) To determine the IP address when we know the MAC address
b) To determine the MAC address when we know the IP address
c) To determine the IP address when we knew the IP address of the DNS server
d) To determine the MAC address when we know the default gateway

139) What does UDP stand for?

a) User Datagram Protocol
b) Universal Datagram Packets
c) Unique Destination Protocol
d) Undefined Destination Packets

140) What is the subdomain for the top level domain for the following DNS server: "linux.scs.ubbcluj.ro"?

a) "linux"
b) "scs"
c) "ubbcluj"
d) "ro"

141) What is the difference between bandwidth and throughput?

a) The bandwidth is the physical property of the transmission medium, while throughput represents the amount of data which we transmit
b) There is no difference between them
c) The bandwidth represents the amount of data which we transmit, while throughput is the physical property of the transmission medium

142) What is a broadcast MAC address?

a) It's a logical address which identifies only one recipient
b) It's a logical address which is used to identify all the computers within a network
c) It's a logical identifier for a group of hosts in a computer network that are available to process datagrams

143) In how many subclasses with the netmask 255.192.0.0 can be the class of minimal dimension containing both IP addresses: 78.79.80.81 and 79.80.81.82 be divided?

a) 7
b) 10
c) 8
d) 9

144) Which are the layers of the TCP/IP model?

a) Application layer, transport layer, session layer, network access layer
b) Application layer, transport layer, internet layer, network access layer
c) Application layer, presentation layer, session layer, transport layer, network layer, data-link layer, physical layer
d) Application layer, internet layer

145) Which of the following does not describe a socket?

a) An internal endpoint for sending or receiving data at a single node in a computer
b) A door between the application process and end-to-end transport protocol
c) A process that sends and receives data at a single node in a computer

146) How do we obtain the starting address of a network from a given IP?

a) OR logic between IP given and NOT netmask
b) AND logic between IP given and NOT netmask
c) AND logic between IP given and netmask

147) Which is the order of the five-layer Internet protocol stack?

a) Application, transport, network, link, physical
b) Network, transport, application, link, physical
c) Application, transport, link, network, physical

148) UDP vs. TCP flow control: which statement is false?

a) UDP: one part can overflow, which results in lost packets
b) TCP: Traffic is controlled by the OS
c) TCP: one part can overflow but there are no lost packets

149) What is the length of the TCP header?

a) 32
b) 64
c) 20

150) What does a routing table contain?

a) Source address, destination address, gateway, interface
b) Interface, netmask, destination address, gateway
c) Source address, destination address, netmask, gateway

151) What is Throughput?

a) Quantity of data which we send at some point through a transmission channel
b) Quantity of data over quantity of time which we send at a given time through a transmission channel
c) The capacity of data transportation that we send through a transmission channel

152) What does traceroute?

a) Shows all IPs of the routers parsed until the current IP
b) Shows all IP's parsed until the current router IP
c) Shows the IP route of the last 5 parsed

153) What is a congestion window?

a) A sender impose window implemented to avoid overrunning some routers in the middle of the network path
b) A window managed by the receiver that grows when each segment is sent
c) A window that controls flow moving of the sender

154) Which of these addressed is not private?

a) 10.255.189.255
b) 172.168.0.1
c) 192.168.255.255

155) What is checksum?

a) Is a 16-bit field used on the header and data to check for errors
b) Is a 32-bit field used for error checking of data and IP address
c) Is a 16-bit flag used for error checking of the header and data

156) Which of the addresses is a valid private address?
   a) 10.255.256.0/29
   b) 10.255.255.0/28
   c) 193.168.0.0/29

157) Which is the third level in the OSI Reference Model Layer?
   a) Network
   b) Session
   c) Transport

158) Which is the network address of the second subnet of a network having 93 computers, where the first contains 22 computers, and starts from 192.168.0.0?
   a) 192.168.0.33
   b) 192.168.0.32
   c) 192.168.0.24

159) The natural mask for a class B address is:
   a) 255.0.0.0
   b) 255.255.0.0
   c) 255.255.255.0

160) The last network address is reserved for the … . (R: broadcast)
161) The size of a class C IP address per network is … hosts. (R: 256)
162) DHCP stands for … . (R: Dynamic Host Configuration)
163) The network address of the third subnet of a network having 93 computers that starts from 192.168.0.0 where the first contains 22 computers and the second has 10 hosts is … . (R: 192.168.0.48)
164) The networks can be classified on the types of transmission as ... switching and … switching. (R: circuit, packet)

165) What is a property of a computer network?
   a) All components are linked to a router
   b) All components are interconnected
   c) All components are linked using a coaxial cable
   d) It has only PCs and workstations

166) Which of the following is NOT a computer network?

a) The Internet
b) Worldwide telephone system
c) A PC connected to headphones
d) Telephone system

167) If AB12 is represented in big endian as AB12, what is its representation in little endian?

a) 21BA
b) 12BA
c) BA21
d) 12AB

168) If 43ED is represented in big endian as 43ED, what is its representation in little endian?

a) DE34
b) ED43
c) DE43
d) ED34

169) What function call you don't find in an UDP server?

a) Recvfrom
b) Bind
c) Sendto
d) Accept

170) What happens with the bytes that are not read by a TCP server?

a) Are lost forever
b) Are sent back to source
c) Stay available for next read
d) Are transferred to a special location in the network

171) How many bits has an IP address?

a) 64
b) 32
c) 4
d) 16

172) Which of the following is NOT a valid IP netmask combination?

a) 168.220.186.8/255.255.225.252
b) 156.198.186.8/255.255.255.254
c) 209.198.186.8/255.255.255.246
d) 168.220.186.64/255.255.255.240

173) When you have an IP address and the network mask what operation you need to do in order to find out the network address?

a) Or between IP and netmask
b) And between IP and netmask
c) Divide the IP by the mask
d) You can't find the network address

174) Which of the following is NOT a valid IP netmask combination?

a) 168.220.186.8/225.255.225.252
b) 156.198.186.16/255.255.255.254
c) 209.198.186.8/255.255.255.248
d) 168.220.186.8/255.255.255.240

175) Which of the following is a class C IP address?

a) 10.10.14.118
b) 135.23.112.57
c) 191.200.199.199
d) 204.67.118.54

176) UDP packets are encapsulated in:

a) An Ethernet frame
b) A TCP segment
c) An IP datagram
d) None of the above

177) Which of the following functions does UDP perform?

a) Process to process communication
b) Improve the data transfer rate of large files (compared to TCP)
c) Assure that the sent messages arrive in the order that have been sent
d) Protect the data sent against any corruption while transferring it

178) Which of the following is not an application layer protocol?

a) HTTP
b) IMAP
c) SMTP
d) TCP

179) A one-to-all communication between one source and all hosts on a network can be classified as:

a) Unicast communication
b) Broadcast communication
c) Multicast communication
d) Anycast communication

180) The data link layer takes packets from … and encapsulates them into frames for transmission.

a) Network layer
b) Physical layer
c) Transport layer
d) Application layer

181) FTP uses the following channels:

a) The delta channel
b) The control channel
c) The bearer channel
d) The data channel

182) Which IP address class can have 64000 subnets with 64000 hosts/subnet?

a) Class A
b) Class B
c) Class C
d) Class D

183) Which can be an Ethernet physical address?

a) 07:01:02:01:2C:4B
b) 07:01:02:01:2C:4B:2C
c) 07:02:01:2C:4B
d) None of the above

184) The underlying transport layer protocol used by SMTP:
   a) TCP
   b) UDP
   c) Both TCP and UDP
   d) None of the above

185) In HTTP Protocol, a client can directly connect to a server using:
   a) Web
   b) Domain
   c) TELNET
   d) HTTP

TRUE/FALSE:

186) Internet API is a set of rules that the sending program must follow so that the Internet can deliver the data to the destination program. TRUE
187) UDP is used together with IP when small amounts of information are involved, but it uses more system resources than TCP. FALSE
   Correct: UDP is used together with IP when small amounts of information are involved, but it uses fewer system resources than TCP.
188) When configuring email clients, an Internet address for an SMTP server must be entered. TRUE
189) File Transfer Protocol (FTP) provides the transmission in encrypted form to provide security for sensitive data. FALSE
   Correct: File Transfer Protocol (FTP) provides a method for copying files over a network from one computer to another.
190) The Open System Interconnection (OSI) model defines a networking framework to implement protocols in layers, with control passed from one layer to the next. TRUE
191) The Transport Layer manages the mapping between these logical addresses and physical addresses. In IP networking, this mapping is accomplished through the Address Resolution Protocol (ARP). FALSE
   Correct: The Network Layer manages the mapping between these logical addresses and physical addresses. In IP networking, this mapping is accomplished through the Resolution Protocol (ARP).
192) The maximum number of IP addresses that can be assigned to hosts on a local subnet that uses the 255.255.255.224 subnet mask is 40. FALSE
   Correct: 255.255.255.224 is a class A/27 and its last 5 bits are zero => provides 8 subnets, each with 30 hosts.
193) The subnetwork address of a host with an IP address of 172.16.66.0/21 is 172.16.64.0. TRUE
194) To test the IP stack on your local host, you would ping the IP address 127.0.0.0. FALSE
   Correct: 127.0.0.1
195) A switch does not keep a record of the MAC addresses of the devices connected to it. FALSE
   Correct: A switch keeps a record of the MAC addresses of all the devices connected to it.

COMPLETE WITH THE CORRECT WORD/S:

196) The UDP … identifies the destination port and a reply port. HEADER
197) TCP/IP allows a packet to be sent without waiting for the … of the previous packet. ACKNOWLEDGEMENT
198) A 10/100 Mbps hub must share its … with each and every one of its ports. BANDWIDTH
199) A router is typically connected to at least two networks, commonly two … or … or a LAN and its ISP'S network. LOCAL AREA NETWORKS(LANs), WIDE AREA NETWORKS(WANs)
200) … is a Computer Network diagnostic tool for displaying the route (path) and measuring transit delays of packets across an (IP) network. TRACEROUTE
201) A … defines the format and the order of messages exchanged between two or more communicating entities. PROTOCOL
202) The TCP/IP … is used to detect corruption of data over a TCP or IPv4 connection. CHECKSUM
203) … in a network may occur when the load on the network is greater than the capacity of the network. CONGESTION
204) HTTP Protocol allows exchange of … and … . HTML, WEB DATA
205) Address Resolution Protocol (ARP) is a protocol for mapping an … to a … that is recognized in the local network. INTERNET PROTOCOL ADDRESS(IP), PHYSICAL MACHINE ADDRESS

206) UDP guarantees datagram delivery. FALSE
207) The socket type used by TCP is SOCK_STREAM. TRUE
208) With UDP, one party can overflow the other, which results in lost packets. TRUE
209) The connect system call is normally called by the client process in order to connect to a server process. TRUE
210) The listen system call indicates to the protocol that the client process is ready to accept new incoming connections on the socket. FALSE
211) At the level of a TCP client, the bind system call is mandatory. FALSE
212) The high order bits of an IP address represent the host part. FALSE
213) All the hosts from the same network can physically reach each other without an intervening router. TRUE
214) A network address can be determined based on an IP address from the network and the netmask. TRUE
215) Always, in a class of addressed, the first and last IP addresses are reserve. TRUE
216) For connecting a host with a private address to the internet, it has to be translated to a public address, process named ARP. FALSE
217) 172.16.0.0/12 refers to a private address space. TRUE
218) A DNS server is responsible with translating numerical IP addresses to domain names. FALSE
219) The network address can be obtained from an IP address and the netmask using the logical operation "OR". FALSE
220) When NAT is involved, the local network uses just one IP address as far as outside world is concerned. TRUE
221) The number of IP addresses allocated for each subnet block has to be a power of 4. FALSE
222) 209.220.186.8/255.255.255.248 is an invalid IP/netmask combination. FALSE

223) The default gateway serves as an access point or IP router that a networked computer uses to send information to a computer in the same network or the Internet. FALSE
224) A 255.255.255.240 netmask is capable of supporting 16 hosts. TRUE
225) A computer uses HTTP to look up domain names and get the associated IP address. FALSE
226) There is no routing based on MAC addresses. TRUE
227) A proxy server acts as an intermediary for requests from clients seeking resources from other servers. TRUE
228) The combination DNS server = default gateway is not possible. FALSE
229) A collection of computers (PCs, Workstations) and other devices interconnected represent a computer network. TRUE
230) Hosts (computers), links (coaxial cable, twisted pair, optical fiber, radio, satellite), switches/routers (intermediate systems) are all components of a computer system. TRUE
231) Big endian means 'most significant byte first', while little endian means 'least significant byte first'. TRUE
232) SOCK_STREAM is used for UDP connections. FALSE
233) SOCK_DGRAM is used for UDP connections. TRUE
234) The optical fiber cable theoretically has unlimited bandwidth. TRUE
235) Every domain name that is not already in use is free to claim as your own. FALSE
236) 255.255.255.128 starts with 1 zero and ends with 7 zeroes. FALSE
237) 255.255.255.128 ends with 7 zeroes. TRUE
238) Port forwarding is a use of NAT. TRUE
239) MAC addressed are not guaranteed to be unique. FALSE

SWITCH

240) A switch has a lot of ports. TRUE
241) A switch doesn't understand MAC addresses. FALSE
242) A switch understands MAC addresses. TRUE
243) A switch is more performant than a hub. TRUE
244) A switch can transport UDP packets. TRUE
245) A switch can't transport TCP packets. FALSE
246) A switch can transport TCP packets. TRUE
247) A switch can transport IP packets. TRUE
248) A switch can't transport IP packets. FALSE

HUB

249) A hub doesn't understand MAC addresses. TRUE
250) A hub is more performant than a switch. FALSE
251) A hub doesn't have many ports. FALSE
252) A hub understands MAC addresses. FALSE
253) A hub has many ports. TRUE

MAC ADDRESS

254) The recvfrom() call sends data to the UDP server. FALSE
255) The MAC address is represented on 6 hexa digits. FALSE
256) The MAC address is represented on 6 groups of 2 hexa digits. TRUE
257) The MAC address is represented on 6 bytes. TRUE
258) The MAC address can't be changed. FALSE
259) The MAC address can be changed. TRUE
260) FF:FF:FF:FF:FF is the broadcast MAC address. FALSE
261) 172.31.255.255 is not a private IP address. FALSE
262) 00:00:00:00:00:00 is not the broadcast MAC address. TRUE
263) The routers use MAC addresses to send frames to other networks. FALSE
264) 255.255.255.255 is the broadcast MAC address. FALSE
265) The MAC address is represented on 12 hexa digits. TRUE
266) 255.255.255.255 is not the broadcast MAC address. TRUE
267) FF:FF:FF:FF:FF:FF is the broadcast MAC address. TRUE
268) All the network boards have the same MAC address (Media Access Control Address). FALSE
269) FF:FF:FF:FF:FF is not the broadcast MAC address. TRUE
270) The MAC address has 64 bits. FALSE
271) FF:FF:FF:FF:FF:FF is not the broadcast MAC address. FALSE

LEVEL LINK TRANSPORT APPLICATION NETWORK

272) SSH is not on the Link Layer. TRUE
273) SSH is not on the Transport Layer. TRUE
274) SSH is not on the Network Layer. TRUE
275) SSH is on the Transport Layer. FALSE
276) SSH is on the Link Layer. FALSE
277) SSH is on the Network Layer. FALSE
278) SSH is not on the Application Layer. FALSE
279) SSH is on the Application Layer. TRUE
280) IP is on the Transport Layer. FALSE
281) IP is on the Application Layer. FALSE
282) IP is on the Network Layer. TRUE
283) IP is on the Link Layer. FALSE
284) IP is not on the Transport Layer. TRUE
285) IP is not on the Application Layer. TRUE
286) IP is not on the Network Layer. FALSE
287) IP is not on the Link Layer. TRUE
288) HTTP is on the Transport Layer. FALSE
289) HTTP is on the Application Layer. TRUE
290) HTTP is on the Network Layer. FALSE
291) HTTP is on the Link Layer. FALSE
292) HTTP is not on the Transport Layer. TRUE

293) HTTP is not on the Application Layer. FALSE
294) HTTP is not on the Network Layer. TRUE
295) HTTP is not on the Link Layer. TRUE
296) SMTP is on the Transport Layer. FALSE
297) SMTP is on the Application Layer. TRUE
298) SMTP is on the Network Layer. FALSE
299) SMTP is on the Link Layer. FALSE
300) SMTP is not on the Transport Layer. TRUE
301) SMTP is not on the Application Layer. FALSE
302) SMTP is not on the Network Layer. TRUE
303) SMTP is not on the Link Layer. TRUE
304) DNS is on the Transport Layer. FALSE
305) DNS is on the Application Layer. TRUE
306) DNS is on the Network Layer. FALSE
307) DNS is on the Link Layer. FALSE
308) DNS is not on the Transport Layer. TRUE
309) DNS is not on the Application Layer. FALSE
310) DNS is not on the Network Layer. TRUE
311) DNS is not on the Link Layer. TRUE
312) FTP is on the Transport Layer. FALSE
313) FTP is on the Application Layer. TRUE
314) FTP is on the Network Layer. FALSE
315) FTP is on the Link Layer. FALSE
316) FTP is not on the Transport Layer. TRUE
317) FTP is not on the Application Layer. FALSE
318) FTP is not on the Network Layer. TRUE
319) FTP is not on the Link Layer. TRUE
320) TCP is on the Transport Layer. TRUE
321) TCP is on the Application Layer. FALSE
322) TCP is on the Network Layer. FALSE
323) TCP is on the Link Layer. FALSE
324) TCP is not on the Transport Layer. FALSE
325) TCP is not on the Application Layer. TRUE
326) TCP is not on the Network Layer. TRUE
327) TCP is not on the Link Layer. TRUE
328) UDP is on the Transport Layer. TRUE
329) UDP is on the Application Layer. FALSE
330) UDP is on the Network Layer. FALSE
331) UDP is on the Link Layer. FALSE
332) UDP is not on the Transport Layer. FALSE
333) UDP is not on the Application Layer. TRUE
334) UDP is not on the Network Layer. TRUE
335) UDP is not on the Link Layer. TRUE

NETWORK ADDRESS

336) The address 192.168.0.255 can't be a network address. TRUE
337) The address 127.0.0.1 can be a network address. FALSE
338) The address 193.231.20.2 can be a network address. FALSE
339) The address 193.256.20.0 can be a network address. FALSE
340) The address 192.231.20.1 can be a network address. FALSE
341) The address 192.231.20.3 can be a network address. FALSE
342) The address 43.29.45.80/27 can be a network address. FALSE
343) The address 192.168.2.160/24 can be a network address. FALSE
344) The address 43.23.87.68/26 can be a network address. FALSE
345) The address 192.168.2.160/25 can be a network address. FALSE
346) The address 192.168.0.255 can be a network address. FALSE
347) The address 193.255.20.0 can be a network address. TRUE
348) The address 193.231.20.0 can be a network address. TRUE
349) The address 193.231.20.4 can be a network address. TRUE
350) The address 193.255.20.0 can be a network address. TRUE
351) The address 192.168.2.32/27 can be a network address. TRUE
352) The address 43.23.87.64/27 can be a network address. TRUE
353) The address 192.168.2.128/25 can be a network address. TRUE
354) The network address can be computed with the broadcast address and the netmask. TRUE
355) The network address can be computed with the broadcast address and the IP address. FALSE
356) The network address can't be computed with the broadcast address and the netmask. FALSE
357) The network address can't be computed with the IP address and the netmask. FALSE
358) The network address can't be computed with the broadcast address and the IP address. TRUE
359) The network address can be computed with the IP address and the netmask. TRUE
360) There is only one computer with the address 127.0.0.1. FALSE

PRIVATE ADDRESSES

361) All the IP addresses in the class 172.0.0.0/8 are private. FALSE
362) Not all the IP addresses in the class 172.0.0.0/8 are private. TRUE
363) 168.168.168.168 is a private IP address. FALSE
364) 168.168.168.168 is not a private IP address. TRUE
365) 1.1.1.1 is a private IP address. FALSE
366) Not all the IP addresses from the class 10.0.0.0/6 are private. TRUE
367) 127.16.0.1 is not a private address. TRUE
368) All the IP addresses from the class 172.0.0.0/12 are private. FALSE
369) 127.16.0.1 is a private IP address. FALSE
370) 172.32.0.1 is a private IP address. FALSE
371) 1.1.1.1 is not a private IP address. TRUE
372) 172.15.0.1 is not a private IP address. TRUE
373) Not all the IP addresses in the class 192.168.0.0/8 are private. TRUE
374) All the IP addresses from the class 172.16.0.0/12 are private. TRUE

375) 172.16.0.1 is not a private IP address. FALSE
376) 172.31.0.1 is not a private IP address. FALSE
377) Not all the IP addresses in the class 192.168.0.0/16 are private. FALSE
378) All the IP addresses from the class 10.0.0.0/16 are private. TRUE
379) 192.168.168.168 is not a private IP address. FALSE
380) 172.31.255.255 is a private IP address. TRUE
381) 172.31.255.255 is not a private IP address. FALSE
382) Not all the IP addresses from the class 10.0.0.0/8 are private. FALSE
383) 10.10.10.10 is a private IP address. TRUE
384) All the IP addresses from the class 10.0.0.0/8 are private. TRUE
385) 172.16.0.1 is a private IP address. TRUE
386) Not all the IP addresses from the class 172.16.0.0/12 are private. FALSE
387) 192.168.168.168 is a private IP address. TRUE
388) Not all the IP addresses from the class 10.0.0.0/16 are private. FALSE

389) CLI comes from Command Line Interface. TRUE
390) ARP means Address Resolution Protocol. TRUE
391) MAC means Media Access Control. TRUE
392) DNS means Domain Name System. TRUE
393) Two computers from the Internet cand have the same IP address if they have the same MAC address. FALSE
394) LAN is an acronym for Limited Area Network. FALSE
395) HTTP means Hyperspeed Transfer Protocol. FALSE
396) HTTP means Hypertext Transfer Protocol. TRUE
397) MAC means Media Address Control. FALSE
398) CLI comes from Coding Line Interface. FALSE
399) ARP doesn't mean Address Resolution Protocol. FALSE
400) DNS means Domain Name Service. FALSE

TOPOLOGIES

401) There are only two standard network topologies: Bus and Star. FALSE
402) Ring is a network topology, TRUE
403) Ring is not a network topology. FALSE
404) Star is not a network topology. FALSE
405) There are more than two standard network topologies. TRUE
406) Bus is a network topology. TRUE
407) Star is a network topology. TRUE
408) Bus is not a network topology. FALSE

PROTOCOLS

409) HTTP does not use the TCP protocol. FALSE
410) HTTP uses the UDP protocol. FALSE
411) DNS uses the TCP protocol. FALSE
412) DNS uses the UDP protocol. TRUE
413) HTTP uses the TCP protocol. TRUE

CONNECTION-ORIENTATION

414) UDP is connection-oriented. FALSE
415) UDP is not connection-oriented. TRUE
416) TCP is connection-oriented. TRUE
417) TCP is not connection-oriented. FALSE

DEFAULT GATEWAY

418) The dimension of an IP address class doesn't have to be a power of 2. FALSE
419) The dimension of an IP address class has to be a power of 2. TRUE
420) The dimension of a network is 2^n, where n is the number of 0's in the IP. TRUE
421) The dimension of a network is 2^n, where n is the number of 0's in the netmask. TRUE
422) The dimension of a network is 2^n, where n is the number of 1's in the netmask. FALSE

COMPUTER

423) A computer can have more network boards. TRUE
424) A computer can have only one network board. FALSE
425) There can't exist computers with the address 192.168.1.0. FALSE
426) A computer can have more IP addresses. TRUE
427) A computer can't have 2 gateways. TRUE
428) The DNS server configured on a computer has to be in the same network with the computer. FALSE
429) In a LAN there can't be more computers with the address 192.168.1.1. TRUE
430) There can be computers with the address 192.168.1.0. TRUE
431) 2 computers from the Internet can have the same IP address if they have the same MAC address. FALSE
432) A computer can have only one IP address. FALSE
433) A computer is connected to a switch through a Straight-Through cable. TRUE
434) 2 computers from the same network both physically and logically can't have different default gateways. FALSE
435) A router is connected to a computer with a Cross-Over cable. TRUE

SERVER

436) A web server can't run on ports different than 80. FALSE
437) The DNS server configured on a computer can be in the same network with the computer. TRUE
438) A DNS server can be default gateway. TRUE
439) More websites can't be hosted on the same web server. FALSE

NETMASK

440) The netmask can't contain 0 bits embedded with 1 bits. TRUE
441) The netmask can be determined using the IP address and the network address. FALSE
442) The netmask can be determined using the IP address and the broadcast address. FALSE
443) 0.0.0.0 represents a valid netmask. TRUE
444) 255.255.224.0 represents a valid netmask. TRUE
445) The netmask of a network with 1024 IP addresses is /10. FALSE
446) 255.255.0.0 represents a valid netmask. TRUE
447) A network with the netmask 255.255.255.0 can have max. 254 computers. TRUE
448) The netmask of a network with 1024 IP addresses is /12. FALSE
449) The netmask of a network with 512 IP addresses is /23. TRUE
450) 0.0.0.0 is not a valid netmask. FALSE
451) 255.254.0.0 is a valid netmask. TRUE
452) The netmask can't be determined using the IP address and the network address. TRUE
453) The netmask of a network with 1024 IP addresses is /22. TRUE
454) The netmask can't be determined using the IP address and the broadcast address. TRUE
455) A netmask is a binary number on 48 bits. FALSE
456) A network with the netmask 255.255.255.0 has 128 IP's. FALSE
457) 255.255.225.0 is a valid netmask. FALSE
458) The netmask of a network with 512 IP addresses is /24. FALSE
459) The netmask of a network with 1024 IP addresses is /23. FALSE
460) The netmask can be computed using the broadcast address and the network address. TRUE
461) The netmask can contain 0 bits embedded with 1 bits. FALSE
462) 254.255.0.0 represents a valid netmask. FALSE
463) A network with the netmask 255.255.255.0 can have max. 256 computers. FALSE
464) A netmask is a binary number on 32 bits. TRUE

465) There are other types of sockets besides TCP and UDP. TRUE
466) There are only TCP and UDP sockets. FALSE
467) There can't be more computers with the address 127.0.0.1. FALSE
468) There are more computers with the address 127.0.0.1. TRUE
469) The address 127.0.0.1 can be a broadcast address. FALSE
470) 127.0.0.1 can't be configured on a system as default gateway. FALSE
471) 127.0.0.1 can't be configured on a system as a DNS server. TRUE
472) The localhost is not 172.0.0.1. TRUE
473) The localhost is 172.0.0.1. FALSE
474) The address 127.0.0.1 can't be a network address. TRUE

475) 83.255.255.128.0 = /23 FALSE
476) 255.255.128.0 = /17 FALSE
477) 11111111 10000000 00000000 00000000 = 255.128.0.0 TRUE
478) 193.55.44.170 & 255.255.255.128 = 19355.43.128 TRUE
479) 11111111 10000000 00000000 00000000 = 255.1.0.0 FALSE
480) TCP is always faster than UDP. FALSE
481) UDP is sometimes faster than TCP. TRUE
482) TCP is sometimes faster than UDP. TRUE
483) UDP is always faster than TCP. FALSE
484) TCP is safer than UDP. TRUE
485) The accept() call is mandatory in any TCP server. TRUE
486) The accept() call is mandatory in any UDP client. FALSE
487) The accept() call can be used in any TCP server. TRUE
488) The accept() call is mandatory in any TCP client. FALSE
489) The accept() call is not mandatory in any TCP client. TRUE
490) The recvfrom() call reads data from the UDP server. TRUE
491) The recvfrom() call reads data from the TCP server. FALSE
492) The recvfrom() call sends data to the TCP client. FALSE
493) The recvfrom() call sends data to the UDP client. FALSE
494) The recvfrom() call doesn't send data to the TCP server. TRUE
495) The recvfrom() call doesn't send data to the TCP client. TRUE
496) The recvfrom() call sends data to the UDP server. FALSE
497) The recvfrom() call sends data to the TCP server. FALSE
498) The recvfrom() call doesn't send data to the UDP client. TRUE
499) The recvfrom() call reads data from the UDP client. TRUE
500) The recvfrom() call reads data from the TCP client. FALSE
501) The connect() call is mandatory in any TCP server. FALSE
502) The connect() call is mandatory in any UDP client. FALSE
503) The connect() call can't be used in UDP clients. TRUE
504) The connect() call can't be used in TCP clients. FALSE
505) The connect() call can be used in UDP clients. FALSE
506) The connect() call can be used in TCP clients. TRUE
507) The connect() call is mandatory in any UDP server. FALSE
508) The connect() call is mandatory in any TCP client. TRUE
509) The sento() call sends data to the UDP client. TRUE
510) The sento() call sends data to the UDP server. TRUE
511) The sento() call sends data to the TCP client. FALSE
512) The sento() call sends data to the TCP server. FALSE
513) The listen() call is mandatory in any TCP client. FALSE
514) The listen() call is not mandatory in any TCP client. TRUE
515) The listen() call is mandatory in any UDP server. FALSE
516) The listen() call can be used in any TCP server. TRUE
517) The listen() call is mandatory in any TCP server. FALSE
518) The bind() call can be used in UDP clients. TRUE

519) The bind() call can be used in TCP clients. TRUE
520) The bind() call can't be used in TCP clients. FALSE
521) The bind() call can't be used in UDP clients. FALSE
522) The bind() call is mandatory in any TCP server. TRUE
523) The bind() call is mandatory in any TCP client. FALSE
524) The bind() call is mandatory in any UDP server. TRUE
525) A /24 class can be divided in 2 /25 subclasses. TRUE
526) A class of IP addresses has to start at a multiple of the dimension of the class. TRUE
527) A class of IP addresses doesn't have to start at a multiple of the dimension of the class. FALSE
528) A /24 class can be divided in 2 subclasses of 128 IP's. TRUE
529) A /24 class can be divided in 3 subclasses of 128 IP's. FALSE
530) 192.168.2.155 is part of the 192.168.0.0/23 class. FALSE
531) 192.168.1.2/24 and 192.168.1.6/22 are part of the same network. FALSE
532) A network with the mask 255.255.255.0 has 256 IP's. TRUE
533) A /24 class can be divided in 2 subclasses of 256 IP's. FALSE
534) 192.168.1.155 is part of the class 192.168.1.0/24. TRUE
535) A /24 class can be divided in 2 /25 subclasses. TRUE
536) The class 193.231.20.0/24 can be divided in 2 subclasses of 128 IP's. TRUE
537) 192.168.2.155 is part of the class 192.168.0.0/22. TRUE
538) A class /16 can't be divided in 16 /20 classes. FALSE
539) A /24 class can be divided in 3 /26 classes. TRUE
540) 192.168.1.155 is part of the class 192.168.1.0/25. FALSE
541) 192.168.1.155 is part of the class 192.168.0.0/24. FALSE
542) A /8 class can be divided in 4 /10 classes. TRUE
543) The class 192.231.20.0/24 can be divided in 3 subclasses of 128 IP's. FALSE
544) 192.168.0.2/24 and 192.168.1.6/24 are part of the same network. FALSE
545) A /16 class can be divided in 16 /20 classes. TRUE
546) 192.168.0.2/23 and 192.168.1.6/23 are part of the same network. TRUE
547) A /24 class can be divided in 3 /25 subclasses. FALSE
548) 192.168.1.155 is part of the class 192.168.0.0/23. TRUE
549) A /24 class can be divided in 2 subclasses of 512 IP's. FALSE
550) A /8 class can be divided in 4 /9 classes. FALSE
551) The subnetwork address for the station with the IP address 192.120.0.1/16 is 192.120.0.1. FALSE
552) The subnetwork address for the station with the IP address 192.120.0.1/16 is 192.120.0.0. TRUE
553) There can't exist computers with the address 192.168.1.0. FALSE
554) The network board acts as a physical interface between the computer and the network cable. FALSE
555) LAN is a global network. FALSE
556) LAN is not a global network. TRUE
557) Mobile phones can't connect to the internet without a network board. TRUE
558) The logical AND between the mask and IP address has as result the broadcast address. FALSE
559) The IP address can't be determined using the network address and the netmask. TRUE
560) UDP waits for the confirmation that the packets were received. FALSE
561) UDP is safer than TCP. FALSE

562) The routers use the IP addresses to transfer frames to other networks. TRUE
563) A wireless access point has a limited area coverage. TRUE
564) More websites can be hosted on the same web server. TRUE
565) An IP address is a binary number on 32 bits. TRUE
566) A router connects to a computer with a Straight-through cable. FALSE
567) TCP waits for the confirmation that the packets were received. TRUE
568) An IP address is a unique identifier for every computer in an IP network. TRUE
569) The network board doesn't transfer data to other computers. FALSE
570) A UDP socket is created with the parameters AF_INET and SOCK_DGRAM. TRUE
571) An IP address is a common identifier for more computers in an IP network. FALSE
572) The IP address can be determined with the network address and the netmask. FALSE
573) There can be more computers with the address 192.168.1.1 in a LAN. FALSE
574) A TCP is created with the parameters AF_INET and SOCK_DGRAM. FALSE
575) The DNS service runs on the TCP port 53. FALSE
576) The DNS service runs on the UDP port 53. TRUE
577) A UDP socket is created with the parameters AF_INET and SOCK_STREAM. FALSE
578) A TCP socket is created with the parameters AF_INET and SOCK_STREAM. TRUE
579) HTTPS transfers encrypted data. TRUE
580) HTTP transfers encrypted data. FALSE
581) LAN is a global network. FALSE
582) LAN is not a global network. TRUE
583) A network board can have only one IP address. FALSE
584) A network board can have more IP addresses. TRUE
585) The address 87.35.15.63/26 can be a broadcast address. TRUE
586) The broadcast address can be computed using the network address and the netmask. TRUE
587) The broadcast address can be computed using the IP address and the netmask. TRUE
588) The address 83.35.15.8/28 can be a broadcast address. FALSE
589) The address 127.0.0.1 can't be a broadcast address. TRUE
590) The broadcast address can't be computed using the network address and the netmask. FALSE
591) The address 87.35.15.7/29 can be a broadcast address. TRUE
592) The broadcast address for the station with the IP address 192.120.0.1/16 is 192.120.255.255. TRUE
593) The network board can be external. TRUE
594) The BUS topology consists of a single cable which connects in series all the computers from the network. TRUE
595) Which of the following involve NAT?
    a) Accessing the web from an internal network. Your PC's network will be translated to your IP (i.e. home network).
    b) Address Translation
    c) Port Forwarding
596) Represent /26 in doted decimal format: 255.255.255.192
597) How many hosts can be addressed on 10.0.0.0/16? 65534
598) A computer connects to a switch using a Cross-Over cable. FALSE
599) A web server can run on ports different than 80. TRUE

600) Given the IP address 172.16.1.1 with a mask of 255.255.255.0, how many total subnets could be created? Use the same subnet mask.

601) The time-to-live for a packet(TTL) is expressed in:

a) The number of routers the packet has already passed through(incremented by 1)
b) Seconds
c) The number of routers the packet is allowed to pass
d) Routers/second
e) Milliseconds

602) Choose the true statements:

a) Using UDP protocols packets can be lost
b) UDP reads bytes from a packet
c) TCP writes stream of bytes
d) TCP reads bytes from a packet

603) Two computers from the Internet can have the same IP address if they use private IP addresses.
TRUE

604) Broadcasting is:

a) A mechanism which is used when the transmission of a packet fails
b) When a transmitted packet is received by every machine on the network, but processed by none of them
c) When a transmitted packet is received by every machine on the network, but processed by only one of them
d) When a transmitted packet is received and processed by every machine on the network

605) You have an interface on a router with the IP address of 192.168.192.10/29. Including the router interface, how many hosts can have IP addresses on the LAN attached to the router interface?

a) 5
b) 7
c) 6
d) 8