1.What protocol is responsible for controlling the size of segments and the rate at which segments are exchanged between a web client and a web server?

a)TCP

b)IP

c)HTTP

d)Ethernet

2. Which of the pieces of hardware presented below you would not install to prevent broadcasts?

a)Switch

b) Repeater

c) Bridge

d) Router

3. Which OSI layer is known to offer best effort end to end packet delivery?

a) Data-Link

b) Network

c) Transport

d) Physical

4.What do TCP and UDP share in common?

a) Both use port numbers to identify upper level applications

b) Operate at the Network layer

c) Both are Transport protocols

d) Both are reliable communications

5. What addresses are mapped by ARP?

a) destination MAC address to a destination IPv4 address

b) destination IPv4 address to the source MAC address

c)destination IPv4 address to the destination host name

d)destination MAC address to the source IPv4 address

6. How many valid host addresses are available on an IPv4 subnet that is configured with a /26 mask?

a) 254

b) 190

c) 64

d) 62

7. Which domain name would be an example of a top-level domain?

a) www.google.com

b) wiki.org

c) .com

d) http://www.facebook.com

8. What unique address is embedded in an Ethernet NIC and used for communication on an Ethernet network?

a) host address

b) IP address

c) MAC address

d) network address

9. What network service resolves the URL entered on a PC to the IP address of the destination server?

a)DNS

b) DHCP

c) FTP

d) SNMP

10. An employee at a branch office needs information from internal servers at the Head Office. What type of network would the employee access?

a) an intranet

b) the Internet

c) an extranet

d) a local area network

1. One of the disadvantages of Star Topology is failure of one node affects the rest of the network. F

2. Computers in a LAN are usually close to each other, unlike WAN, which can have larger distances between computers and networks within the network. T

3. Unlike TCP/IP, UDP does not divide each transmission into packets, which allows for a faster transmission. T

4. NAT is used to hide Internet network addresses by using the single NAT address. T

5. If a device on a private network needs to communicate with other networks, a gateway is not needed. F

6. The File Transfer Protocol (FTP) is an Internet standard for the sending of e-mail messages over port 25. F

7. Short for Hypertext Transfer Protocol Secure, HTTPS is a protocol which uses HTTP on a connection encrypted by transport-layer security. T

8. The Transport Layer ensure that packets arrive correctly to the other end. T

9. The Transmission Control Protocol (TCP) is one of the main protocols of the the internet layer. F

10. UDP provides error checking. F

Multiple answer questions

1. The following system calls are/is optional at the level of a TCP client:
   a) socket()
   b) listen()
   c) **bind()**
   d) connect()

2. 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

3. 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

4. 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**

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

6. 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

7. 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

Compter Networks : True-False questions

1. UDP guarantees datagram delivery :
   a) True
   b) False

2. The socket type used by TCP is SOCK_STREAM
   a) True
   b) False

3. With UDP, one party can overflow the other => lost packets
   a) True
   b) False

4. The connect system call is normally called by the client process in order to connect to a server process.
   a) True
   b) False

5. The listen system call indicates to the protocol that the client process is ready to accept new incoming connections on the socket
   a) True
   b) False

6. At the level of a TCP client, the bind system call is mandatory

a) True
b) False

7. The high order bits of an IP Address represent the host part.
a) True
b) False

8. All the hosts from the same network can physically reach each other without an intervening router.
a) True
b) False

9. A network address can be determined based on a IP Address from the network and the netmask
a) True
b) False

10. Always, in a class of addresses, the first and last IP addresses are reserved.
a) True
b) False

11. For connecting a host with a private address to the Internet, it has to be translated to a public address, process named ARP.
a) True
b) False

12. 172.16.0.0/12 refers to a private address space.
a) True
b) False

13. A DNS server is responsible with translating numerical IP addresses to domain names.
a) True
b) False

14. The network address can be obtained from an IP address and the netmask using the logical operation "OR"
a) True
b) False

15. When NAT is involved, the local network uses just one IP address as far as outside world is concerned
    a) True
    b) False

16. The number of IP addreses allocated for each subnet block has to be a power of 4.
    a) True
    b) False

17. 209.220.186.8/255.255.255.248 is a invalid IP/Netmask combination
    a) True
    b) False

18. 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.
    a) True
    b) False

19. A 255.255.255.240 netmask is capable of supporting 16 hosts.

    a) True
    b) False

19. A computer uses HTTP to look up domain names and get the associated IP address.
    a) True
    b) False

20. There is no routing based on MAC addresses
    a) True
    b) False

21. A proxy server acts as an intermediary for requests from clients seeking resources from other servers
    a) True

b) False

22. The combination DNS server = Default Gateway is not possible
    a) True
    b) False

Multiple choice questions:

1. 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

2. UDP packets are encapsulated in:

    a) en Ethernet frame

    b) a TCP segment

    c)an IP diagram

    d)none of the above

3. 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.

4.Which of the following is not an application layer protocol?

a)HTTP

b)IMAP

c)SMTP

d)TCP

5. 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

6. The data link layer takes packets from ………….. and encapsulated them into frames for transmission

a) network layer

b)physical layer

c) transport layer

d) application layer

7. FTP uses the following channels:

a) the delta channel

b) the control channel

c) the bearer channel

d) the data channel

8. Which IP address class can have 64 000 subnets with 64 000 hosts/subnet?

   a)class A

   b) class B

   c) class C

   d) class D

9. 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

10. The underlying transport layer protocol used by SMTP:

   a)TCP

   b)UDP

   c)both TCP and UDP

   d)none of the above

11. In HTTP Protocol, a client can directly connect to a server using:

   a)Web

   b)Domain

   c)TELNET

   d)HTTP

TRUE/FALSE:

- 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. (<u>T</u>/F)

- UDP is used together with IP when small amounts of information are involved but it uses more system resources than TCP (T/<u>F</u>)

    Correct:
   UDP is used together with IP when small amounts of information are involved but it uses fewer system resources than TCP.

- When configuring email clients, an Internet address for an SMTP server must be entered. <u> (T/F)</u>

- File Transfer Protocol (FTP)_provides the transmission in encrypted form to provide security for sensitive data. (T/<u>F</u>)

     Correct: File Transfer Protocol (FTP) provides a method for copying files over a network from one computer _to another.

- The Open System Interconnection (OSI) model defines a networking framework to implement protocols in layers, with control passed from one layer to the next.<u> (T/F)</u>

- <u>The Transport Layer </u>manages the mapping between these logical addresses and physical addresses. In IP networking, this mapping is accomplished through the<u> Address Resolution Protocol (ARP)</u>. (T/<u>F</u>)

        Correct: The Network Layer_manages the mapping between these logical addresses and physical addresses. In IP networking, this mapping is accomplished through the<u> Resolution Protocol (ARP)</u>.

- 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. (T/<u>F</u>)

     Correct: 255.255.255.224 is a class A/27 and its last 5 bits are zero=> provides 8 subnets, each with 30 hosts.

- The subnetwork address of a host with an IP address of 172.16.66.0/21 is 172.16.64.0.(<u>T</u>/F)

- To test the IP stack on your local host, you would ping the IP address 127.0.0.0 (T/<u>F</u>)

Correct: 127.0.0.1

- A switch does not keep a record of the MAC addresses of the devices connected to it.(T/<u>F</u>)

    Correct: A switch keeps a record of the MAC addresses of all the devices connected to it

Complete with the correct word/s:

1. The UDP .... identifies the destination port and a reply port.   (header)

2. TCP/IP allows a packet to be sent without waiting for the ....of the previous packet. (acknowledgement)

3. A 10/100Mbps hub must share its .... with each and every one of its ports. (bandwidth)

4. 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))

5. .... is a Computer Network diagnostic tool for displaying the route (path) and measuring transit delays of packets across an (IP) network. (traceroute)

6. A .... defines the format and the order of messages exchanged between two or more communicating entities. (protocol)

7. The TCP/IP...........is used to detect corruption of data over a TCP or IPv4 connection. (checksum)

8. ....in a network may occur when the load on the network is greater than the capacity of the network. (congestion)

9. HTTP Protocol allows exchange of .... and ....   (HTML, Web data)

10. Address Resolution Protocol (ARP) is a protocol for mapping an ....to a ....that is recognized in the local network.   (Internet Protocol address (IP address) , physical machine address)

Questions Computer Networks

1. Which of the following does not describe a socket?

a. an internal endpoint for sending or receiving data at a single node ina 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

2. 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

3. 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

4. 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

5. What is the length of the TCP header?

a. 16

b. 64

c. 32

6. 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

7. What is Throughtput?

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

8. What does traceroute?

a. shows all IPs of the routers parsed until the current IP

b. shows all IPs parsed until the current router IP

c. shows the IP route of the last 5 parsed

9. 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

10. Which of these addresses is not private?

a. 10.255.189.255

b. 172.168.0.1

c. 192.168.255.255

11. 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

12. 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

13. Which is the third level in the OSI Refference Model Layer?

a. Network

b. Session

c. Transport

14. 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

15. The natural mask for a class B address is:

a. 255.0.0.0

b.255.255.0.0

c.255.255.255.0

16. The last network address is reserved for the .... (**broadcast**)

17. The size of a class A IP Adresses is .... Hosts. (**256**)

18. DHCP stands for .... Protocol. (**Dynamic Host Configuration**)

19. 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 ....

(**192.168.0.48**)

20. The networks can be classified on the types of transmission as .... switching and .... switching (**circuit, packet**).

1. Choose which protocols are at the application layer:

      a)FTP

      b)DHCP

      c)HTTP

      d)RIP

Answear:

      toate

2. Choose which protocols are at the transport layer:

      a)IP

      b)UDP

      c)Ethernet

d)HTTP

Answear: b) UDP

3. Does OSI stand for Open Systems Interconnection?

Answear: True.

4. A host can implement both sides of a client-server service.

Meaning both client and server.

Answear: True.

5.Do usually switches use IP addresses?

Answear: False (No) , switches use MAC addresses.

6. We use send() and recv() when using datagrams (UDP)

Answear: False . We use sentdo() and recvfrom()

7. When a router receives a packet, it looks at the MAC addresses

to determine the path the packet should take. A standard switch looks

at the Network layer source and destination addresses to determint the path.

Answear: False. Quite the opposite. Switch -> Mac Addresses. Router -> NetworkLayer source and dest

8. In both UDP and TCP you must use listen().

Answear: False, just in TCP.

9. Ping uses ICMP from the Network Layer.

Answear: True.

10. A host can only implement one side of the client-server service.

Meaming the client or the server.

Answear: False. It can implement both sides.

11. An IPv4 address is 32 bytes long, represented in as 4 bytes

in decimal separated by ".".

Answear: False, 32 bits.

12. A switch always sends all incoming packets to all MAC addresses

it is connected to.

Answear: False, un hub face asta, switch-urile asociaza adrese MAC

la interfete astfel incat nu trebuie de fiecare data sa faca broadcast.

13. When client closes a socket the client end system sends TCP FIN control segment

to server. After that the server receives FIN and replies with ACK.

Does the server send anything else?

Answear: Yes, he also sends a FIN when closing the connection.

14. Only one of the client or the server has to bind to the socket.

Answear: False. Both have to.

15. A UDP header contains:

(source IP address, source Port number, destination Port number, Destination IP address)

Answear: False it contains only the source port and destination port.

16. A UDP source port number is represented on 32 bits.

Answear: False, it is represented on 16 bits.

17. UDP provides the following services:

        a) Process-to-process delivery

        b) Reliable data transfer

        c) Error-checking

        d) Congestion Control

Answear: a) and c)

18. Multiplexing is when the incoming data to a host is directed

to the host's appropiate socket.

Answear: False. Demultiplexing not Multiplexing

19. A TCP socket is identified by (source IP address, source Port number, destination Port number, Destination IP address)

Answear: True.

20. An UDP socket is identified by IP address + Port number.

21. A socket is an interface between the Application Layer and

the Transport Layer.

Answear: True

22. IP(Internet Protocol) is a best-effort delivery service which means it

is reliable.

Answear: False It is unreliable.

Alexa Elena Sabina – grupa 922

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

correct :b)

2.Choose the correct use of the Straight through and the Cross over cable

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

correct :c)

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

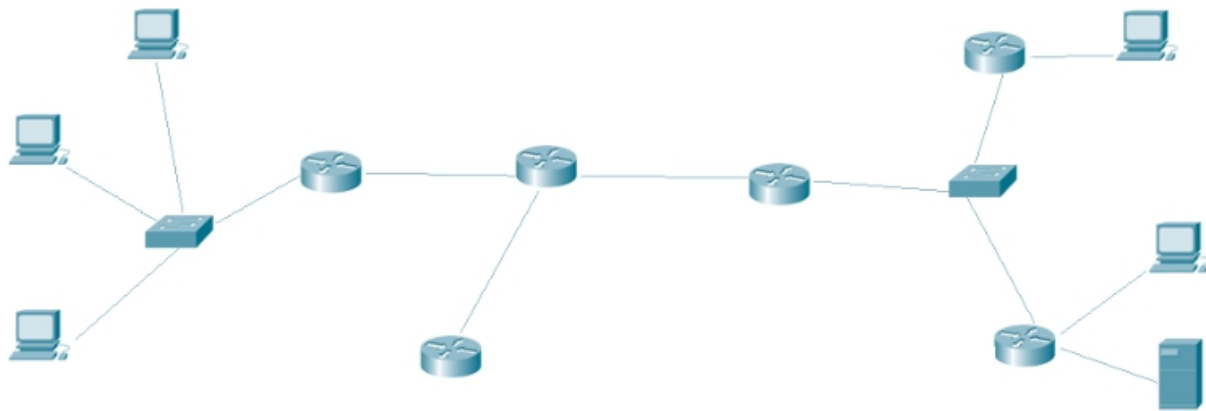d)cross cable to connect a router to a router or a hub to a switch

correct: d)

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 PCs

c)one of the PCs is connected to the router by cross over cable

d)firewall is enabled on both computers

correct: d)

5.

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

a)7

b)9

c)5

d)11

Correct: a)

6. Which of the following is not a characteristic of the IP protocol?

a) It affects packet routing

b)Is considered an unreliable protocol

c)Is a connection-oriented protocol

d)It defines the Internet addressing system

Correct: c)

7. Having more than one DHCP server on the same subnet of a network is :

a)possible , if all server 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

Correct :c)

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

Correct: b)

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

Correct :a)

10. What is the maximum number of hosts for a class C network ?

a)65.534

b)65.535

c)128

d)254

Correct: d)

11.What is the maximum number of networks in a class A network ?

a)126

b)128

c)16,384

d)254

Correct: a)

12.Which one of the following addresses is a public IP 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

Correct: d)

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 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

Correct: b)

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 a use a variable length mask

d)It is allowed to use discontiguous network

Correct: a)

15.Which one of these is a RIPv2 characteristic ?

a)maintains a routing table as in RIPv1 without the mask information

b)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

Correct: c)

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 ad RIPv2

Correct: d)

17.An IP address is :

a)64 bits

b)32 bytes

c)128 bytes

d)32 bits

Correct: d)

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

Correct : a)

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

Correct : b)

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

Correct: d)

21.Which protocol does DHCP use at the Transport Layer ?

a)IP

b)UDP

c)TCP

d)ARP

Correct :b)

22. Which class of IP address has the most host addresses available by default?

a)A

b)B

c)C

d)A and C

Correct: a)

23. Which protocol does Ping use?

a) TCP

b) ARP

c) ICMP

d) IP

Correct: c)

24.Which of the following does not use TCP?

a) HTTP

b)DHCP

c)FTP

d)SMTP

Correct :b)

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

Correct: d)

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

Correct : 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.

Correct: a)

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

Correct: b)

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

Correct: c)

30.Which of the following is not a way to configure NAT ?

a)IP NAT pool

b)Static

c)Dynamic

d)NAT overload

Correct: a)

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

Correct :b)

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

Correct :a)

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

Correct : d)

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

Correct :d)

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 tu

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

Correct :b)

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

Correct :d)

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

Correct : b)

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

Correct: a)

40. The network address of 172.16.0.0/19 provides how many subnets and hosts?
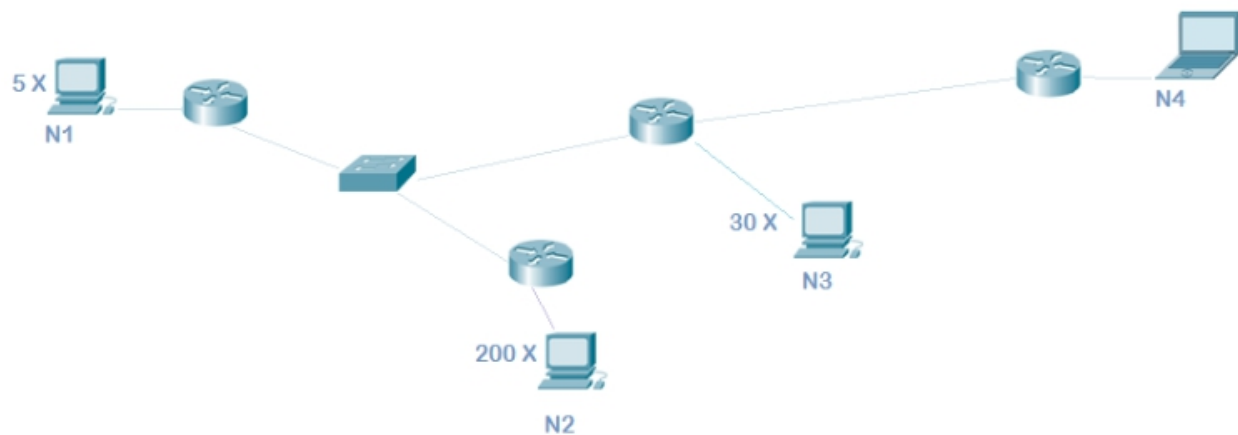
a) 7 subnets, 30 hosts each

b) 8 subnets, 8,190 hosts each

c) 8 subnets, 2,046 hosts each

d) 7 subnets, 2,046 hosts each

Correct : b)

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 ->1.168.18.144/26 , N4 ->1.168.19.80/30

Correct :b)

C – mark the correct answer

1) How many binary numbers are in an IP addresses?

    a. 4

    b. 12

    c. 32 - C

    d. 56

2) Which are the two parts of an IP addresses?

    a. Network and subnet

    b. Physical and logical

    c. Network and host - C

    d. Physical and port address

3) Having an IP and a netmask, how do you found the last IP of class to which it belongs?

a. Logical 'and' between IP and netmask

b. Logical 'or' between IP and netmask

c. Logical 'and' between IP and netmask negated

d. Logical 'or' between IP and netmask negated - C

4) What is the purpose of an IP address?

a. A unique location identifier

b. A unique identifier for a computer

c. A network location identifier - C

d. None of this

5) What does /28 represents in the IP address 152.16.168.196/28?

a. The number of bits in the host portion of the IP address

b. The number of bits in the network portion of the IP address - C

c. The number of hosts in a network

d. None of this

6) What is the net ID for the network in which 172.16.66.0/21 is located?

a. 172.16.0.0

b. 172.16.36.0

c. 172.16.48.0

d. 172.16.64.0 - C

7) Given the network mask id of 255.255.240.0, how many hosts can you have?

a. 1024

b. 1022

c. 4094 - C

d. 4096

8) What is the maximum number of IP that you can use on a local subnet that uses the 255.255.255.224 subnet mask?

    a. 16

    b. 21

    c. 30 - C

    d. 32

9) What is the net ID for the network in which 172.16.66.38/24 is located?

    a. 172.17.66.0

    b. 172.16.64.0

    c. 172.16.66.1

    d. 172.16.66.0 - C

10) What is the net ID for the network in which 192.168.242.5/20 is located?

    a. 192.168.241.1

    b. 192.168.243.0

    c. 192.168.240.0 - C

    d. 192.168.242.1

11) Which of the following commands can be used to find the IP address on UNIX?

    a. Ipconfig

    b. Ifconfig - C

c. Iplookup

d. Islookup

12) A FTP(File Transfer Protocol) can be.

    a. Active

    b. Passive

    c. Both - C

13) Which of the following are needed for Web browsers to find Web servers?

    a. DHCP servers

    b. DNS servers - C

    c. WINS servers

    d. All of them

14) The DHCP server

    a. maintains the information about client configuration parameters

    b. grants a IP address when receives a request from a client

    c. maintains a database of available IP addresses

    d. All of them - C

15) What does DHCP provides for a host?

    a. IP address - C

    b. MAC address

    c. URL

    d. Nothing

16) Which of this is a difference between static and dynamic routing?

 a. Dynamic routing is used by a DNS server

 b. Static routing is used in large networks

 c. Dynamic routes are added automatically - C

 d. Static routes are added automatically

17) The communication between DHCP client and servers on the same subnet it is made using.

 a. UDP broadcast - C

 b. UDP unicast

 c. TCP broadcast

 d. TCP unicast

18) What Address Resolution Protocol (ARP) does?

 a. List all configured interfaces on a system

 b. Physical address is found for a given logical address - C

 c. To convert ethernet addresses to IP addresses

 d. None of this

19) What protocol is used to automatically assign IP addresses to hosts?

 a. DHCP - C

 b. NAT

 c. ARP

 d. DNS

20) TCP sliding windows are oriented to.

 a. Packet

b. Segment

c. Byte - C

d. None of this

21) For flow control, TCP uses a ……. window protocol.

a. limited-size

b. fixed-size

c. sliding - C

d. None of this

22) Where should you use a crossover cable?

a. To connect two PCs together directly - C

b. To connect a PC to a switch

c. To connect a router to a hub

d. To connect a PC to a hub

23) Where should you use a straight through cable?

a. To connect a PC to a router

b. To connect a switch to a hub

c. To connect a router to a hub - C

d. To connect two hubs together

24) A dynamic routing table.

a. Is updated automatically

b. Make decisions on the best path

c. Is created by a routing protocol

d. All of them - C

25) A static routing table.

a. It can't be changed

b. Is update manually - C

c. Always has the best path

d. All of them

26) Which of this is something that the default gateway does?

a. Passes traffic from the local subnet to devices on other subnets - C

b. It identifies the local subnet and formulates a routing table

c. Keeps all the IDs of others subnets

d. All of this

1. What is a Computer Network?

a) Two or more computers.

b) A router and a server.

c) A collection of interconnected devices.

c) <- correct answer

2. Is it better to use TCP or UDP for a messaging application?

a) TCP.

b) UDP.

c) Both are just as good.

a) <- correct answer

3. Broadcasts like online radio or video streaming are transimitted over:

a) TCP.

b) UDP.

c) A combination of both.

b) <- correct answer

4. Which of these protocols is used for file exchange/storage?

a) SSH

b) TELNET

c) FTP

c) <- correct answer

5. What does FTP stand for?

a) File Transfer Program.

b) File Transfer Protocol.

c) File Transmission Program.

b) <- correct answer

6. What IEEE standard do Wi-Fi networks use?

a) 802.1

b) 802.11

c) 802.13

b) <- correct answer

7. IP addresses that do not use subnets consist of:

a) a network, server and host portion

b) two network portions.

c) a network portion and a host portion.

c) <- correct answer

8. Can you have a network that supports a maximum of 54 IPs?

a) Depends on the router

b) Yes.

c) No.

c) <- correct answer

9. Can you have a client with the IP 193.178.4.0 in a network?

a) Yes, if the network is large enough(i.e. the first IP is 193.178.2.0)

b) No.

c) Depends on the subnet class.

a) <- correct answer

10. Is the IEEE standard 802.13 used?

a) No.

b) Yes.

c) It was deprecated.

a) <- correct answer

11. Is 802.11 ac the fastest Wi-Fi standard?

a) No, it's the slowest.

b) Yes.

c) Only if it is setup correctly.

b) <- correct answer

12. Does a device that only supports 802.11b/g/n benefit from a router with 802.11 ac capabilities?

a) Yes.

b) Only if the router is backwards compatible.

c) No, it will run at 802.11b/g/n speeds.

c) <- correct answer

13. Is the MAC address specific to a device or given by the network?

a) Specific to a device.

b) Give by the network.

c) The first half is device specific.

a) <- correct answer

14. Can a device have a different IP address each time it connects to a network?

a) No.

b) Yes, if the IP is dynamically allocated and the IP from the previous session is in use.

c) Only when the IP is statically allocated.

b) <- correct answer

15. How do you connect a switch to a router?

a) Copper straight-through wire.

b) Copper crossover wire.

c) Wirelessly.

a) <- correct answer.

16. Can you connect a computer to a server using a straight-through cable?

a) Only if the server is older than the computer.

b) Yes.

c) No.

c) <- correct answer

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.

ANSWER: A

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.

ANSWER: A

What is the in-memory representation of 56E2 in little endian?

A. 56E2

B. E256

C. 2E65

D. 652E

ANSWER: B

What is the in-memory representation of 56E2 in big endian?

A. 56E2

B. E256

C. 2E65

D. 652E

ANSWER: A

How many bytes does 'double' use?

A. 1 byte

B. 4 bytes

C. 8 bytes

D. 16 bytes

ANSWER: C

How many bytes does 'float' use?

A. 1 byte

B. 4 bytes

C. 8 bytes

D. 16 bytes

ANSWER: B

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

ANSWER: D

What type of connection does SOCK_STREAM indicate?

A. TCP connection

B. UDP connection

C. Closed connection

D. Open connection

ANSWER: A

What type of connection does SOCK_DGRAM indicate?

A. TCP connection

B. UDP connection

C. Closed connection

D. Open connection

ANSWER: B

What does UDP stand for?

A. User Defined Protocol

B. User Datalink Protocol

C. User Datagram Protocol

D. Utility Datagram Protocol

ANSWER: C

What does DNS stand for?

A. Dynamic Name Server

B. Dynamic Name System

C. Domain Name Server

D. Domain Name System

ANSWER: D

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.

ANSWER: A

The 4 bottom network layer (according to the OSI Refererence 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

ANSWER: A

What does FTP stand for?

A. File Transmission Protocol

B. File Transfer Protocol

C. File Translocation Protocol

D. Folder Transmission Protocol

ANSWER: B

What is FTP used for?

A. It is a protocol used to check if the datalink layer is working proberly.

B. Transfering files over a network.

C. It is a protocol used by mail servers.

D. Accessing the WEB, sending HTML pages.

ANSWER: B

What does SSH stand fro?

A. Secure Shell Hook

B. Structured Shell Hook

C. Secure Shell

D. Structured Shell

ANSWER: C

What is SSH used for?

A. Remote connection to the terminal / command line of another computer (remote command).

B. Transfering files over a network.

C. It is a protocol used by mail servers.

D. Accessing the WEB, sending HTML pages.

ANSWER: A

What is SMTP used for?

A. Remote connection to the terminal / command line of another computer (remote command).

B. Transfering files over a network.

C. It is a protocol used by mail servers (mail Excahange).

D. Accessing the WEB, sending HTML pages.

ANSWER: C

What does P2P stand for?

A. Peer to Peer.

B. Point to Point.

C. Point to Peer.

D. Peer to Point.

ANSWER: A

What is the maximum bandwith, 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.

ANSWER: D

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

A. There is a limit to how much end devices can send an receive.

B. Your router/modem is limited.

C. You don't use fiber.

D. The contract with your ISP limits your bandwith.

E. All answers are correct.

ANSWER: E

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. 128 seconds

B. 1 second

C. 10 seconds

D. 1024 seconds

ANSWER: A

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

ANSWER: B

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

ANSWER: A

How long is an IPv4 address?

A. 4 bytes

B. 32 bytes

C. 16 bytes

D. 8 bytes

ANSWER: A

What does TLD stand for?

A. Total Level Domain

B. Total Level Distribution

C. Top Level Domain

D. Top Level Distribution

ANSWER: C

What does ISP stand for?

A. Internet Server Protocol

B. Inverse Service Protocol

C. Internet Service Provider

D. Internet Server Provider

ANSWER: C

Which of the following is a valid domain name?

A. nontendo.com

B. nds.nontendo.com

C. nds.nontendo.ro

D. All anssers are correct

ANSWER: D

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

ANSWER: A

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.

ANSWER: A

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

A. The TCP/IP

B. The SMB or SAMBA Protocol

C. The SSH Protocol

D. The SMTP

ANSWER: B

What is HTML?

A. HTML is a langauge that is used to descirbe 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.

ANSWER: A

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

ANSWER: D

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.

ANSWER: C

What does ARP stand for?

A. Address Resolution Protocol

B. Address Refresh Protocol

C. Address Reconstructuion Protocol

D. Address Read Protocol

ANSWER: A

What dose LAN stand for?

A. Local Address Network

B. Local Address Name

C. Local Area Network

D. Local Area Name

ANSWER: C

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.

ANSWER: A

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

ANSWER: A

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.

ANSWER: E

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

ANSWER: B

Which is the correct binary representation of the following netmask? 255.255.255.128

A. 11111111 11111111 11111111 10000000.

B. 11111111 11111111 11111111 11110000.

C. 11111111 11111111 11111111 11000000.

D. 11111111 11111111 11111111 00000000.

ANSWER: A

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.

ANSWER: B

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.

ANSWER: C

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

ANSWER: A

What will you get if you 'or' together the natmaks 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.

ANSWER: C

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

ANSWER: A

Which of the following involve NAT?

A. Prot 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.

ANSWER: C

Are mac addressed 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.

ANSWER: D

A collection of computers (PCs, Workstations) and other devices interconnected represent a computer network.

A. True

B. False

ANSWER: A

Hosts (computers), links (coaxial cable, twisted pair, optical fiber, radio, satellite), switches/routers (intermediate systems) are all components of a computer system.

A. True

B. False

ANSWER: A

Big Endian means 'most significant byte first' while little endian means 'least significant byte first.

A. True

B. False

ANSWER: A

SOCK_STREAM is used for UDP connections.

A. True

B. False

ANSWER: B

SOCK_DGRAM is used for UDP connections.

A. True

B. False

ANSWER: A

The optical fiber cable theoretically has unlimited bandwith.

A. True

B. False

ANSWER: A

Every domain name that is not already in use is free to claim as your own.

A. True

B. False

ANSWER: B

255.255.255.128 starts with 1 zero and ends with 7 zeroes.

A. True

B. False

ANSWER: B

255.255.255.128 ends with 7 zeroes.

A. True

B. False

ANSWER: A

Port forwarding is a use of NAT.

A. True

B. False

ANSWER: A

Mac addresses are not guaranteed to be unique.

A. True

B. False

ANSWER: B

1. 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

R:c

2. 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.

R:c

3. 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

R: a

4. Which protocol handles mail exchange?

       a.FTP

       b.TELNET

       c.SSH

       d.SMTP

R: d

5. 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

R: b.

6. IP - best effort protocol - does its best effort to transfort datagram

from one machine to another with no guarantee of an

       a. Successful delivery

       b. Duplication/Unicity

       c. Data integrity

       d. All of the above

R: d

7. 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

R: c

8. 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

R:a

9. IP Routing is based on the:

      a. Source IP

      b. Destination IP

      c. Network Address

      d. Broadcast Address

R: b

10. Which is not a Service of a Data Link Layer?

      a.Framing and link access

      b.Flow Control

c.Error Correction

d.Traffic isolation

R: d

1.How can we refer to a Internet-connected machine?
      (a) by its IP Address
      (b) by its host name
      c) by its domain name

2. The natural mask of the Class B is:
      a) 255.0.0.0
      b) 255.255.255.0
      (c) 255.255.0.0
      d) class B does not have a natural mask

3.The total addresses in class D is:
      (a) 2^{28}
      b) 2^{29}
      c) 2^{30}
      d) is not defined

4. What statement about NAT is false?
      a) can change addresses of devices in local network without notifying outside world
      b) can change ISP without changing addresses of devices in local network
      (c) is not controversial

5. What does HTTP use as its underlying transport protocol?
      (a)TCP
      b) UDP

6. What statement about FTP is false?
      a) it runs exclusively over TCP
      b) it uses a separate connection for control and data.
      (c) FTP sessions work only in passive modes

7. True/False - MAC addresses are 6-byte in length. - True

8. True/False – PPP does not permit multiple network layer protocols to operate on the same communication link. – False

9. True/False – UDP requires three packets to set up a socket connection, before any user data can be sent - False

10. True/False - ICMP is a transport protocol that sends data between systems. - True

1) Each ip must contain (b)

A. Only destination address

B. Source and destination address

C. Only source address

D. None of above

2) Broadcasting is (a)

A. When a transmitted packet is received and processed by every machine on the network

B. When a transmitted packet is received by every machine on the network but processed by

only one of them

C. When a transmitted packet is received by every machine on the network but processed by

none of them

D. A mechanism which is used when the transmission of a packet fails

3) A collection of interconnected networks is called as(d)

A. WAN

B. INTRANET

C. TOPOLOGY

D. INTERNET

4) The hexa number FA23 in little endian is (a)

A. 23FA

B. 32AF

C. FA23

D. 23AF

5) The hexa number FA23 in big endian is (c)

A. 23FA

B. 32AF

C. FA23

D. 23AF

6) Choose the false statement(B)

A. TCP writes stream of bytes

B. TCP reads bytes from a packet

C. UDP reads bytes from a packet

D. Using UDP protocols packets can be lost

7) Chose the false statement(D >> file)

A. UDP stand for User Datagram Protocol

B. NAT stands for Network address translation

C. DHCP stands for Dynamic Host Configuration Protocol

D. [all of the above][FTP stands for Forward transfer protocol]

8) Consider one HUB and 10 PC's connected to it(A)

A. when PC1 sends a message to PC5, the message will be received by all the PC's but only PC5

process it; the answer will be also received by all the PC's but only PC1 will process it

B. when PC1 sends a message to PC5, the message will be received and processed just by PC5

and the answer of PC5 will be received and processed just by PC1

C. when PC1 sends a message to PC5, the message will be received by all the PC's, each of

them sending back an answer

D. when PC1 sends a message to PC5, the message will be received by all the PC's, but only PC5 process it; the answer is sent back and received only by PC1

9) Consider one SWITCH and 10 PC's connected to it(B)

A. when PC1 sends a message to PC5, the message will be received by all the PC's but only PC5 process it; the answer will be also received by all the PC's but only PC1 will process it

B. when PC1 sends a message to PC5, the message will be received and processed just by PC5 and the answer of PC5 will be received and processed just by PC1

C. when PC1 sends a message to PC5, the message will be received by all the PC's, each of them sending back an answer

D. when PC1 sends a message to PC5, the message will be received by all the PC's, but only PC5 process it; the answer is sent back and received only by PC1

10) Consider one ROUTER and 10 PC's connected to it(B)

A. when PC1 sends a message to PC5, the message will be received by all the PC's but only PC5 process it; the answer will be also received by all the PC's but only PC1 will process it

B. when PC1 sends a message to PC5, the message will be received and processed just by PC5 and the answer of PC5 will be received and processed just by PC1

C. when PC1 sends a message to PC5, the message will be received by all the PC's, each of them sending back an answer

D. when PC1 sends a message to PC5, the message will be received by all the PC's, but only PC5 process it; the answer is sent back and received only by PC1

11) The netmask /30 coresponds to (D)

A. 255.252.255.252

B. 252.252.252.252

C. 198.210.4.252

D. 255.255.255.252

12) The netmask /24 coresponds to: ©

A. 255.256.255.0

B. 255.255.0.0

C. 255.255.255.0

D. 252.255.255.0

13) The netmask /10 corresponds to: (A)

A. 255.192.0.0

B. 255.255.224.0

C. 255.224.0.0

D. 255.255.192.0

14) 255.192.0.0 is a valid netmask for the network ©

A. 192.128.0.0

B. 132.128.0.0

C. Both a and b

D. Neither a, nor b

15) 255.192.0.0 is not a valid netmask for the network (D)

A. 255.192.0.0

B. 132.192.10.0

C. 198.173.25.184

D. 255.255.198.0

16) Consider the address 192.132.1.10 and the netmask /28, the broadcast address of it's

network is: (D)

A. 192.132.1.1

B. 191.132.1.31

C. 192.132.1.31

D. 192.132.1.15

17) Consider the address 210.132.0.1 and the netmask /30, the broadcast address of it's

network is (D)

A. 210.132.0.0

B. 210.132.0.1

C. 210.132.0.7

D. 211.132.0.3

18) Consider the address 103.132.10.124 and the netmask /24, the network is (D)

A. 103.132.10.100

B. 103.132.9.100

C. 103.132.9.0

D. 103.132.10.0

19) Having the address 103.132.10.10 and the netmask /26, the network can support (D)

A. 53 PC's

B. 52 PC's

C. 30 PC's

D. 62 PC's

20) A network with the netmask /24 can support (D)

A. 256 PC's

B. 510 PC's

C. 258 PC's

D. 254 PC's

21) Having the network address 192.178.132.0 with the mask /24, the available hosts are (C):

A. 192.178.132.0 ... 192.178.132.255

B. 192.178.132.1 ... 192.178.132.255

C. 192.178.132.1 ... 192.178.132.254

D. 192.178.132.1 ... 192.178.132.127

22) Having the network address 192.178.132.0 with the mask /30, the available hosts are (B):

A. 192.178.132.0 ... 192.178.132.7

B. 192.178.132.1 ... 192.178.132.6

C. 192.178.132.0 ... 192.178.132.3

D. 192.178.132.0 ... 192.178.132.2

23) Consider live football matches and video calls. For this kind of thing the most suitable

protocol for this is (A)

A. UDP

B. TPC

24) Transmission Control Protocal would be more suitable in (A)

A. Transaction management applications for banks

B. Applications for video calls

C. Media streaming

D. None of the obove

1. What is TTL?
a) Time To Leave
b) Total Time Limit
c) Time To Live - corect
d) Time Tracking Limit

2. 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 mywebsite.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
-corect

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

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

4. TCP stands for...
a) Transfer Control Protocol
b) Transmission Connection Protocol
c) Transformation Central Protocol
d) Transmission Control Protocol - corect

5. 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 comunnication service - corect
c) Information that can harm your computer if you're not careful with it
d) Millions of bytes configured in a big cluster which can be easily transferred

6. ARP can be used for...
a) Mapping network addresses to physical (MAC) addresses - corect
b) Mapping public virtual addresses to private ip addresses
c) Publishing websites to the internet
d) Sending emails very fast

7. TCP, UDP and SCTP are part of
a) Application Layer
b) Internet Layer
c) Transport Layer - corect
d) Link Layer

8. TCP Header contains the following entries:
a) Source Port, Destination Port, Sequence Number, Acknowledgement Number, Flags, Data Offset, Checksum, Urgent Pointer - corect
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

9. 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 accesed 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 - corect

10. What would be a network security recommandation?
a) Forwarding all traffic from the router ports to computer ports
b) Activate firewall and use good firewall rules - corect
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

11. What is DSL and what it is used for?
a) Digital Subscriber Line; used to give access to internet through telephone lines - corect
b) Digital Supplier Limit; verifies if the maximum connected users in a wi-fi network has 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

12. 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 - corect
c) The hub can send packets on large distances, but the switch is generally for home usage
d) There is no difference

Questions Computer Networks

1. Which of the following does not describe a socket?
a. an internal endpoint for sending or receiving data at a single node ina 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

2. 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

3. 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

4. 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

5. What is the length of the TCP header?
a. 32
b. 64
c. 20

6. 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

7. What is Throughtput?
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

8. What does traceroute?
a. shows all IPs of the routers parsed until the current IP
b. shows all IPs parsed until the current router IP
c. shows the IP route of the last 5 parsed

9. 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

10. Which of these addresses is not private?
a. 10.255.189.255
b. 172.168.0.1
c. 192.168.255.255

11. 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

12. 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

13. Which is the third level in the OSI Refference Model Layer?
a. Network
b. Session
c. Transport

14. 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

15. The natural mask for a class B address is:
a. 255.0.0.0
b.255.255.0.0
c.255.255.255.0

16. The last network address is reserved for the .... (**broadcast**)

17. The size of a class C IP Adresses per network is .... Hosts. (**256**)

18. DHCP stands for .... Protocol. (**Dynamic Host Configuration**)

19. 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 ....
(**192.168.0.48**)

20. The networks can be classified on the types of transmission as .... switching and .... switching (**circuit, packet**).

1. How much bandwidth does a port get on a 10 port switch that provides 10/100 Mbps of total data throughput? A

  a. 10/100 Mbps

  b. Less than 100 Mbps, the ports share the bandwidth

  c. 1 Mbps

  d. 10/100 mbps

  e. Less than 100 mbps, the ports share the bandwidth

2. What cable do you use to connect a host to a client? B

  a. cross-over cable

b. straight-through cable
c. fiber
d. wireless
e. both cross-over cable and straight-throught cable

3. _____ are _____ times lower than: C

a. Mbps/ 1000/mbps

b. mbps/ 8/ Mbps

c. Mbps/ 8/ mbps

d. mbps/1000/Mbps

e. Mbps/ 10/ mbps

4. If a host has the IP addresses: 192.168.1.3, 192.168.1.4, 10.0.1.1 and a server running on the host listens on _____ it will be reachable at all these IPs. B

a. 192.168.1.0

b. 0.0.0.0

c. 10.0.0.255

d. 192.168.1.0 and 10.0.1.0

e. 127.0.0.1

5. We obtain the _____ address by doing an _____ operation to the _____ and the _____ A D

a. network/ and / IP address/ netmask

b. broadcast/ and/ IP address/ netmask

c. network/and/ IP address/ inverse netmask

d. broadcast/ or/ IP address/ inverse netmask

e. gateway/ or/ IP address/ inverse netmask

6. Choose the valid ports: A B C E

a. 65 535

b. 80

c. 110

d. 10.0.2.1

e. 25

f. 255.255.255.255

7. The time-to-live for a packet(TTL) is expressed in: C

a. milliseconds

b. seconds

c. the number of routers the packet is allowed to pass, before it is discarded(decremented by 1)

d. routers/ second

e. the number of routers the packet has already passed through(incremented by 1)

8. The _____ is known as the hardware address, because it is hard-coded into the network interface card(NIC), being unique to every LAN. B

a. IP address

b. MAC address

c. port

d. 127.0.0.1

e. network address

9. The network 172.168.195.0|25 is given. Split it into 3 subnetworks(N1: 12 hosts, N2: 5 hosts, N3: 20 hosts), using 3 routers. Which is the first remaining(free) IP address after splitting the network? B

a. 172.168.195.64|25

b. 172.168.195.64|26

c. 172.168.195.0|25

d. 172.168.195.64|27

e. 172.168.195.128|25

10. Complete the spaces:

a. _____ protocol is connection oriented. TCP

b. _____ protocol is used for voice calls. UDP

c. The network representation uses _____ endian approach, with the _____ significant byte on the left and the _____ significant byte on the right, according to the convention in the Internet Protocol. Big, most, least

d. _____ is the localhost, being used to establish an IP connection to the same machine. It is used for _____ purposes. 127.0.0.1, testing

e. An IP for a 1000 computer LAN is 194.129.128.3. The netmask that fits best is _____ and the broadcast address is _____ 22(255.255.252.0), 194.129.131.255

Muntean Sam

group 925

1. 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.

answer: b.

2. 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.

answer: c.

3. If AB12 is represented in big endian as AB12, what is its representation in little endian?

a. 21BA.

b. 12BA.

c. BA21.

d. 12AB.

answer: d.

4. If 43ED is represented in big endian as AB12, what is its representation in little endian?

a. DE34.

b. ED43.

c. DE43.

d. ED34.

answer: b.

5. What function call you don't find in an UDP server?

a. recvfrom.

b. bind.

c. sendto.

d. accept.

answer: d.

6. 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 avalaible for next read.

d. Are transfered to a special location in the network.

answer: c.

7. How many bits have an IP address?

a. 64.

b. 32.

c. 4.

d. 16.

answer: b.

8. Which of the following is NOT a valid IP netmask combination?

a. 168.220.186.8/225.255.225.252.

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.

answer: c.

9. 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.

answer: b.

10. 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.

answer: d.

The last address of IP address represents?

   A. Broadcast

   B. Network

   C. Unicast address

   D. Multicast

   (R: A)

Which of the following IP addresses class is multicast?

   A. Class A

   B. Class B

   C. Class C

   D. Class D

(R : D)

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

(R : B)

How many layers are in TCP/IP ?

    A. 7 layers

    B. 4 layers

    C. 6 layers

    D. 5 layers

(R : 4)

IPv4 Address is

    A. 64 bit

    B. 16 bit

    C. 48 bit

    D. 32 bit

    (R : D)

DNS is the abreviation for

    A. Dynamic Network System

B. Domain Name System

C. Domain Network Server

D. Dynamic Name System

(R: B)

What is the size of a MAC address?

A. 16 bits

B. 32 bits

C. 48 bits

D. 64 bits

(R:C)

MAC address is the example of?

A. Transport layer

B. Data link layer

C. Application layer

D. Physical layer

(R: B)

For error detection in TCP/IP we use?

A. Bit sum

B. Check sum

C. Error Flag

D. Error bit

(R : B)

The mount of data that can be carried in a given time is called?

A. Capacity

B. Scope

C. Bandwith

D. Limitation

(R :C)

What is the size of Host in Class B of an IP address?

A. 4

B. 8

C. 16

D. 32

(R : C)

What is the use of the ping command?

A. To test if your connection is wired or wireless

B. To test a device on the network is reachable

C. To get your MAC address

D. To get your IP address

(R:B)

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

(R : D)

What does a protocol defines?

    A. What data is communicated

    B. How data is communicated

    C. When data is communicated

    D. None of the above

(R :A,B,C)

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 upthe network

    D. All of the above

(R: A)

The …………. provides a connection oriented reliable service for sending data.

(R : TCP)

OSI Layers:

1. The Physical Layer is the bottom layer of the OSI model. (True)

2. The Physical Layer is the top layer of the OSI model. (False)

3. The Application Layer is the top layer of the OSI model. (True)

4. The Application Layer is the bottom layer of the OSI model. (False)

IP:

5. CIDR (Classless Inter-Domain Routing) introduced 3 classes of private IPs which are: 10.0.0.0/8, 172.16.0.0/12, 192.168.0.0/16. (True)

6. CIDR (Classless Inter-Domain Routing) introduced 3 classes of private IPs which are: 10.0.0.0/8, 172.16.0.0/16, 192.168.0.0/20. (False)

7. The IP adress 12.40.24.6/16 has the following netowrk adress:

a) 12.40.255.255/16

b) 12.40.24.1/16

c) 12.40.24.0/16

d) 12.40.0.0/16

8. The IP adress 12.40.24.6/16 has the following broadcast adress:

a) 12.40.24.255/16

b) 12.40.255.255/16

c) 12.40.0.0/16

d) 12.40.255.0/16

9. The following IP address is assignable to a host 143.66.0.128/25. (False)

10. The following IP address is not assignable to a host 143.66.0.128/25. (True)

11. How many assignable host IPs does the 255.255.240.0 netmask allows in a network?:

a) 1022

b) 4096

c) 4094

d) 2048

12. What is the short version of the 255.255.248.0 netmask?:

a) /20

b) /21

c) /17

d) /23

13. For a network with 6230 computers what would be the best fitting netmask? (a netmask that keeps the nr of wasted IPs to a minimum):

a) 255.255.224.0

b) 255.255.0.0

c) 255.255.252.0

d) 255.128.0.0

14. The IP Datagram header has a total size of 20 bytes (assuming no options). (True)

15. The IP Datagram header has a total size of 24 bytes (assuming no options). (False)

16. The IP Datagram header has a total size of 16 bytes (assuming no options). (False)

17. The IP protocol allows transimissions of packets up to 64KB in size. (True)

18. The IP protocol allows transimissions of packets up to 128KB in size. (False)

19. The IP protocol allows transimissions of packets up to 256KB in size. (False)

20. The mechanism that allows a source computer to find out the MAC address of a destination computer, given that the source knows the IP and has access to the destination, is:

a) DHCP

b) ARP

c) NAT

d) DNS

21. The mechanism that allows a computer to obtain automatically an IP address from a server is:

a) DNS

b) NAT

c) DHCP

d) ARP

22. The mechanism that allows a computer to connect to a website using its name instead of its IP address:

a) NAT

b) DNS

c) ARP

d) DHCP

23. The mechanism that allows a computer from a private network to connect to a public network is:

a) DNS

b) NAT

c) ARP

d) DHCP

24. When the TTL of a packet expires the source is notified by a router through the ICMP protocol. (True)

TCP/UDP

25. The TCP/IP Datagram header has a total size of 20 bytes (assuming no options). (False)

26. The TCP/IP Datagram header has a total size of 40 bytes (assuming no options). (True)

27. The TCP/IP Datagram header has a total size of 64 bytes (assuming no options). (False)

28. The TCP/IP is an error-free data transfer protocol. (True)

29. The UDP/IP is an error-free data transfer protocol. (False)

30. In TCP/IP the sender needs confirmation from the receiver for every packet sent. (True)

31. In UDP/IP the sender needs confirmation from the receiver for every packet sent. (False)

32. The TCP/IP performs checksums only on the header and not on data as well. (False)

33. The UDP/IP performs checksums only on the header and not on data as well. (True)

34. In TCP/IP if we have a sequnce number of 200 and we sent a package with a size of 20 bytes, what should the acknowledgement number be?:

a) 200

b) 220

c) 201

d) 221

35. What flag of the TCP/IP header is only used only when the 3 Way Handshake takes place?

a) ACK

b) FIN

c) RST

d) SYN

36. What flag of the TCP/IP header is only used when the connection is being closed?

a) SYN

b) FIN

c) RST

d) ACK

37. TCP is almost always faster than UDP. (False)

38. What is the IP address of a localhost?:

a) 192.168.0.1

b) 0.0.0.0

c) 127.0.0.1

d) 255.255.255.255

39. What are the system reserved ports?:

a) 0 - 255

b) 0 - 511

c) 0 - 1023

d) 0 - 2047

40. In TCP you can ping all the hosts in a network using the broadcast address. (False)