ΥΠΟΥΡΓΕΙΟ ΠΑΙΔΕΙΑΣ, ΠΟΛΙΤΙΣΜΟΥ, ΑΘΛΗΤΙΣΜΟΥ ΚΑΙ ΝΕΟΛΑΙΑΣ
ΔΙΕΥΘΥΝΣΗ ΜΕΣΗΣ ΓΕΝΙΚΗΣ ΕΚΠΑΙΔΕΥΣΗΣ
ΛΕΥΚΩΣΙΑ

ΓΡΑΠΤΗ ΑΞΙΟΛΟΓΗΣΗ Β ΤΕΤΡΑΜΗΝΟΥ
ΔΕΙΓΜΑΤΙΚΟ ΔΟΚΙΜΙΟ

Α΄ ΣΕΙΡΑ ΕΞΕΤΑΣΕΩΝ

ΜΑΘΗΜΑ	**: ΔΙΚΤΥΑ – CISCO**
ΧΡΟΝΟΣ	**: 1 ώρα και 30 λεπτά**
ΗΜΕΡΟΜΗΝΙΑ	**: ΜΑΙΟΥ 2022**
ΩΡΑ ΕΝΑΡΞΗΣ	**: 7.45 π.μ.**

ΤΟ ΕΞΕΤΑΣΤΙΚΟ ΔΟΚΙΜΙΟ ΑΠΟΤΕΛΕΙΤΑΙ ΑΠΟ ΕΝΤΕΚΑ (11) ΣΕΛΙΔΕΣ

Οδηγίες:

- **Να απαντήσετε σε όλες τις ερωτήσεις**
- **Όλες οι απαντήσεις να γραφούν στο τετράδιο απαντήσεων**
- **Επιτρέπεται η χρήση μη προγραμματιζόμενης υπολογιστικής μηχανής**

ΜΕΡΟΣ Α. (30 μονάδες)
Να απαντήσετε και στις είκοσι (20) ερωτήσεις πολλαπλής επιλογής. Η κάθε ερώτηση βαθμολογείται με 1½ μονάδα.

Ερώτηση 1.

What is the purpose of the subnet mask in conjunction with an IP address?

(a) To identify whether the address is public or private
(b) To mask the IP address to outsiders
(c) To uniquely identify a host on a network
(d) To determine the subnet to which the host belongs

Ερώτηση 2.

What is the prefix length notation for the subnet mask 255.255.255.224?

(a) /25
(b) /26
(c) /27
(d) /28

Ερώτηση 3.

A new network administrator has been asked to enter a banner message on a Cisco device. What is the **fastest** way a network administrator could test whether the banner is properly configured?

(a) Enter **CTRL-Z** at the privileged mode prompt.
(b) Exit global configuration mode.
(c) Power cycle the device.
(d) Exit privileged EXEC mode and press Enter.

Ερώτηση 4.

A router boots and enters initial setup mode. What is the reason for this?

(a) The IOS image is corrupt.
(b) Cisco IOS is missing from flash memory.
(c) The configuration file is missing from NVRAM.
(d) The POST process has detected hardware failure.

Ερώτηση 5.

An administrator wants to create four subnetworks from the network address 192.168.1.0/24. What is the network address and subnet mask of the second useable subnet?

(a) subnetwork 192.168.1.64
subnet mask 255.255.255.192
(b) subnetwork 192.168.1.32
subnet mask 255.255.255.240
(c) subnetwork 192.168.1.64
subnet mask 255.255.255.240
(d) subnetwork 192.168.1.128
subnet mask 255.255.255.192

Ερώτηση 6.

How many minimum bits must be borrowed from the host portion of an address to accommodate a router with five connected networks?

(a) Two
(b) Three
(c) Four
(d) Five

Ερώτηση 7.

Which address is a valid IPv6 link-local unicast address?

(a) FEC8:1::FFFF
(b) FD80::1:1234
(c) FE80::1:4545:6578:ABC1
(d) FC90:5678:4251:FFFF

Ερώτηση 8.

Which of these addresses is the shortest abbreviation for the IP address:
3FFE:1044:0000:0000:00AB:0000:0000:0057?

(a) 3FFE:1044::AB::57
(b) 3FFE:1044::00AB::0057
(c) 3FFE:1044:0:0:AB::57
(d) 3FFE:1044:0:0:00AB::0057

Ερώτηση 9.

A technician uses the **ping 127.0.0.1** command. What is the technician testing?

(a) the TCP/IP stack on a network host.
(b) connectivity between two adjacent Cisco devices
(c) connectivity between a PC and the default gateway
(d) connectivity between two PCs on the same network

Ερώτηση 10.

Which protocol is used by the traceroute command to send and receive echo-requests and echo-replies?

(a) SNMP
(b) ICMP
(c) Telnet
(d) TCP

Ερώτηση 11.

A PC is downloading a large file from a server. The TCP window is 1000 bytes. The server is sending the file using 100-byte segments. How many segments will the server send before it requires an acknowledgment from the PC?

(a) 1 segment
(b) 10 segments
(c) 100 segments
(d) 1000 segments

Ερώτηση 12.

What does a client do when it has UDP datagrams to send?

(a) It just sends the datagrams.
(b) It queries the server to see if it is ready to receive data.
(c) It sends a simplified three-way handshake to the server.
(d) It sends to the server a segment with the SYN flag set to synchronize the conversation

Ερώτηση 13.

Which OSI layer provides the interface between the applications used to communicate?

(a) Application
(b) Presentation
(c) Session
(d) Transport

Ερώτηση 14.

Which networking model is being used when an author uploads a document to a file server of a book publisher?

(a) peer-to-peer
(b) master-slave
(c) client/server
(d) point-to-point

Ερώτηση 15.

Which example of malicious code would be classified as a Trojan horse?

(a) malware that was written to look like a video game
(b) malware that requires manual user intervention to spread between systems
(c) malware that attaches itself to a legitimate program and spreads to other programs when launched
(d) malware that can automatically spread from one system to another by exploiting a vulnerability in the target

Ερώτηση 16.

What is the difference between a virus and a worm?

(a) Viruses self-replicate but worms do not.
(b) Worms self-replicate but viruses do not.
(c) Worms require a host file but viruses do not.
(d) Viruses hide in legitimate programs but worms do not.

Ερώτηση 17.

What is an accurate description of redundancy?

(a) configuring a router with a complete MAC address database to ensure that all frames can be forwarded to the correct destination
(b) configuring a switch with proper security to ensure that all traffic forwarded through an interface is filtered
(c) designing a network to use multiple virtual devices to ensure that all traffic uses the best path through the internetwork
(d) designing a network to use multiple paths between switches to ensure there is no single point of failure

Ερώτηση 18.

A network administrator is upgrading a small business network to give high priority to real-time applications traffic. What type of network service is the network administrator trying to accommodate?

(a) Video
(b) Instant Messaging
(c) FTP
(d) SNMP

Ερώτηση 19.

Which factor determines TCP window size?

(a) the amount of data to be transmitted
(b) the number of services included in the TCP segment
(c) the amount of data the destination can process at one time
(d) the amount of data the source is capable of sending at one time

Ερώτηση 20.

What do the client/server and peer-to-peer network models have in common?

(a) Both models have dedicated servers.
(b) Both models support devices in server and client roles.
(c) Both models require the use of TCP/IP-based protocols.
(d) Both models are used only in the wired network environment.

Μέρος Β (30 μονάδες)

Να απαντήσετε σε όλες τις ερωτήσεις. Η κάθε ερώτηση βαθμολογείται με έξι (6) μονάδες.

Ερώτηση 1. (1 pt for each answer)

In the following table write the show command that will display what is explained in the "Description" column.

A/A	Description	Show command
(a)	Provides a brief status of the interfaces on the router	
(b)	Displays detailed status and statistics for all interfaces on the router	
(c)	Displays version information for the hardware and firmware	
(d)	Shows the configuration stored in RAM	
(e)	Shows the configuration stored in NVRAM	
(f)	Displays the ip v4 routing table	

Ερώτηση 2.

Fill in the blanks in the following statements:

(a) The sequence of routers that a packet passes through to reach a destination can be obtained from a Windows PC with the _____ command.

(b) The ipv4 routing table of a router can be obtained with the _____ command.

(c) The internal loopback of a router is tested with the command_____.

(d) Routers make forwarding decisions based on the _____IP address of a packet.

(e) The single-letter code that appears as the first field in each entry of the _____ _____ identifies how the route was learned.

(f) A _____ IP address must be unique across the Internet.

Ερώτηση 3.

Complete the following table:

IP Address	Class A/B/C	Default Subnet Mask	Private / Public	Network Address for default subnet mask	Broadcast Address for default subnet mask
(a) 191.168.190.189					
(b) 200.12.14.16					
(c) 10.11.12.13					

Ερώτηση 4.

A) Write three blocks of IP addresses that are defined by RFC 1918 for private network use.

_____

_____

_____

B) Write three IP addresses that can be used for public addresses.

_____

_____

_____

C) Convert the IPv6 addresses into short (omit the leading zeroes) and compressed forms.

IP v6 Address	0123:EF12:0011:0000:0000:0000:A100:0000
(a) Omit leading zeroes	
(b) Compressed format	

IP v6 Address	0000: 0000: 0000: 0000: 0000:2300:BF11:0111
(c) Omit leading zeroes	
(d) Compressed format	

IP v6 Address	0000:0000:0007:0000:0000:0000:0000:0001
(e) Omit leading zeroes	
(f) Compressed format	

Ερώτηση 5.

Write the commands for configuring:

a) The Console line of a router with password “GAME”:

Router#

Router(config)#

Router(config-line)#

Router(config-line)#

b) All Telnet lines of a router with password “OF”:

Router(config)#

Router(config-line)#

Router(config-line)#

Router(config-line)#

Router(config)# Router must be returned in this state

c) The Privileged mode with secret password “THRONES”:

Router#

Router(config)#

d) Message of the day “George R.R. Martin”:

Router#

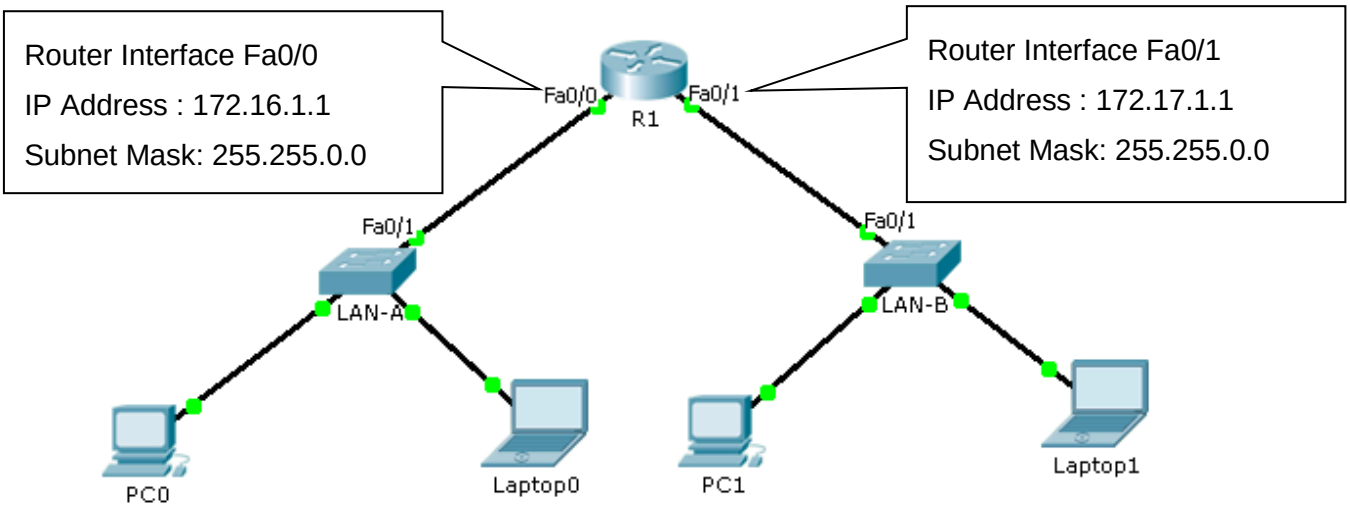
Router(config)#

ΜΕΡΟΣ Γ (40 Μονάδες)

Να απαντήσετε σε όλες τις ερωτήσεις. Η κάθε ερώτηση βαθμολογείται με είκοσι (20) μονάδες.

Ερώτηση 1.

Answer the following questions based on the network below:



a) Enter the necessary commands in order to **change the name** of ROUTER to R1 **configure** each one of the **interfaces Fa0/0** with IP Address 172.16.1.1 and subnet mask 255.255.0.0 and **Fa0/1** with IP Address 172.17.1.1 and subnet ask 255.255.0.0. At the end **return to user exec mode** R1> (0.5 points for each command).

ROUTER>

b) Complete the following information about PC0

IP Address:_____

Subnet Mask: _____

Default Gateway: _____

c) Complete the following information about Laptop0

IP Address:_____

Subnet Mask: _____

Default Gateway: _____

d) Complete the following information about PC1

IP Address:_____

Subnet Mask: _____

Default Gateway: _____

Ερώτηση 2.

a) You are the administrator of the network 192.168.1.0 and you have to divide it to smaller subnets. Each subnet should contain 10 hosts.

i. What is the subnet mask that you should use, so that you would not waste so many IP addresses? Write also the CIDR Notation.

Subnet Mask: _____

CIDR Notation:/_____

ii. How many subnets have you created?

Number of subnets: _____

iii. How many are the valid hosts per subnet?

Valid hosts per subnet: _____

b) Complete the following table (first 3 subnets and last 3 subnets):

Subnet number	Subnet Address	Usable Host Range	Broadcast Address
	192.168.1.	192.168.1. - 192.168.1.	192.168.1.
	192.168.1.	192.168.1. - 192.168.1.	192.168.1.
	192.168.1.	192.168.1. - 192.168.1.	192.168.1.
…	…	…	…
	192.168.1.	192.168.1. - 192.168.1.	192.168.1.
	192.168.1.	192.168.1. - 192.168.1.	192.168.1.
	192.168.1.	192.168.1. - 192.168.1.	192.168.1.

c) Write the necessary commands to configure a Router's FastEthernet0/0 interface with the first usable host IP Address of **subnet 1**.

R1#

d) Write the necessary commands to configure a Switch's vlan 1 interface, with the last usable host IP Address of **subnet 2**.

SW1#

ΤΕΛΟΣ ΕΞΕΤΑΣΗΣ