ΥΠΟΥΡΓΕΙΟ ΠΑΙΔΕΙΑΣ ΚΑΙ ΠΟΛΙΤΙΣΜΟΥ

ΔΙΕΥΘΥΝΣΗ ΜΕΣΗΣ ΓΕΝΙΚΗΣ ΕΚΠΑΙΔΕΥΣΗΣ

ΛΕΥΚΩΣΙΑ

ΠΑΓΚΥΠΡΙΕΣ

ΓΡΑΠΤΕΣ ΕΞΕΤΑΣΕΙΣ

2019

(ΓΙΑ ΑΠΟΛΥΣΗ)

ΔΕΙΓΜΑ

Α΄ ΣΕΙΡΑ ΕΞΕΤΑΣΕΩΝ

ΜΑΘΗΜΑ   : ΔΙΚΤΥΑ - CISCO

ΧΡΟΝΟΣ   : 2 ώρες και 30 λεπτά

ΗΜΕΡΟΜΗΝΙΑ :

ΩΡΑ ΕΝΑΡΞΗΣ : 7.45 π.μ.

ΤΟ ΕΞΕΤΑΣΤΙΚΟ ΔΟΚΙΜΙΟ ΑΠΟΤΕΛΕΙΤΑΙ ΑΠΟ ΔΩΔΕΚΑ (12) 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.

A network administrator enters the command **copy running-config startup-config**. Which type of memory will the startup configuration be placed into?

    (a) flash
    (b) RAM
    (c) NVRAM
    (d) ROM

Ερώτηση 2.

What route would have the lowest administrative distance?

    (a) route to directly connected networks
    (b) a static route
    (c) a route received through the EIGRP routing protocol
    (d) a route received through the OSPF routing protocol

Ερώτηση 3.

What is the correct syntax of a floating (backup) static route?

    (a) ip route 209.165.200.228 255.255.255.248 serial 0/0/0
    (b) ip route 209.165.200.228 255.255.255.248 10.0.0.1 120
    (c) ip route 0.0.0.0 0.0.0.0 serial 0/0/0
    (d) ip route 172.16.0.0 255.248.0.0 10.0.0.1

Ερώτηση 4.

What type of route allows a router to forward packets even though its routing table contains no specific route to the destination network?

    (a) dynamic route
    (b) default route
    (c) destination route
    (d) generic route

Ερώτηση 5.

Which routing protocol is limited to smaller network implementations, because it does not accommodate growth for larger networks?

    (a) RIP
    (b) OSPF
    (c) EIGRP
    (d) IS-IS

Ερώτηση 6.

When would it be more beneficial to use a dynamic routing protocol instead of static routing?

    (a) in an organization with a smaller network that is not expected to grow in size
    (b) on a stub network that has a single exit point
    (c) in an organization where routers suffer from performance issues
    (d) on a network where there is a lot of topology changes

Ερώτηση 7.

What is one function of a Layer 2 switch?

    (a) forwards data based on logical addressing
    (b) duplicates the electrical signal of each frame to every port
    (c) learns the port assigned to a host by examining the destination MAC address
    (d) determines which port is used to forward a frame based on the destination MAC address

Ερώτηση 8.

A small publishing company has a network design such that when a device sends a broadcast on the LAN, 200 devices receive the transmitted broadcast. How can the network administrator reduce the number of devices that receive broadcast traffic?

    (a) Add more switches so that fewer devices are on a particular switch.
    (b) Replace the switches with switches that have more ports per switch. This will allow more devices on a particular switch.
    (c) Segment the LAN into smaller LANs and route between them.
    (d) Replace at least half of the switches with hubs to reduce the size of the broadcast domain.

Ερώτηση 9.

Which interface is the default location that would contain the IP address used to manage an Ethernet switch?

    (a) VLAN 1
    (b) Fa0/0
    (c) Fa0/1
    (d) interface connected to the default gateway

Ερώτηση 10.

Where are dynamically learned MAC addresses stored when **sticky learning** is enabled with the **switchport port-security mac-address sticky** command?

    (a) ROM
    (b) RAM
    (c) NVRAM
    (d) flash

Ερώτηση 11.

Port Fa0/11 on a switch is assigned to VLAN 30. If the command **no switchport access vlan 30** is entered on the Fa0/11 interface, what will happen?

    (a) Port Fa0/11 will be shutdown.
    (b) An error message will be displayed.
    (c) Port Fa0/11 will be returned to VLAN 1.
    (d) VLAN 30 will be deleted.

Ερώτηση 12.

What is a characteristic of legacy inter-VLAN routing?

    (a) Only one VLAN can be used in the topology.
    (b) The router requires one Ethernet link for each VLAN.
    (c) The user VLAN must be the same ID number as the management VLAN.
    (d) Inter-VLAN routing must be performed on a switch instead of a router.

Ερώτηση 13.

Which address is required in the command syntax of a standard ACL?

    (a) source MAC address
    (b) destination MAC address
    (c) source IP address
    (d) destination IP address

Ερώτηση 14.

If a router has three interfaces and is routing only IPv4 traffic, how many ACLs could be created and applied to it?

    (a) 2
    (b) 3
    (c) 6
    (d) 12

Ερώτηση 15.

What is the result of a network technician issuing the command
 ip dhcp excluded-address 10.0.15.1 10.0.15.15 on a Cisco router?

    (a) The Cisco router will allow only the specified IP addresses to be leased to clients.
    (b) The Cisco router will exclude 15 IP addresses from being leased to DHCP clients.
    (c) The Cisco router will exclude only the 10.0.15.1 and 10.0.15.15 IP addresses from being leased to DHCP clients.
    (d) The Cisco router will automatically create a DHCP pool using a /28 mask.

Ερώτηση 16.

A company uses DHCP servers to dynamically assign IPv4 addresses to employee workstations.

The address lease duration is set as 5 days. An employee returns to the office after an absence of one week. When the employee boots the workstation, it sends a message to obtain an IP address.

Which Layer 2 and Layer 3 destination addresses will the message contain?

    (a) FF-FF-FF-FF-FF-FF and 255.255.255.255
    (b) both MAC and IPv4 addresses of the DHCP server
    (c) MAC address of the DHCP server and 255.255.255.255
    (d) FF-FF-FF-FF-FF-FF and IPv4 address of the DHCP server

Ερώτηση 17.

What is the primary purpose of PAT?

    (a) increase network security
    (b) allow peer-to-peer file sharing
    (c) enhance network performance
    (d) conserve IPv4 public addresses

Ερώτηση 18.

What is the major benefit of using NAT with Port Address Translation?

 (a) It allows external hosts access to internal servers.
 (b) It improves network performance for real-time protocols.
 (c) It provides a pool of private addresses that can be assigned to internal hosts.
 (d) It allows many internal hosts to share the same public IPv4 address.

Ερώτηση 19.

Why would a network administrator issue the **show cdp neigbors** command on a router?

 (a) to display device ID and other information about directly connected Cisco devices.
 (b) to display router ID and other information about OSPF neighbors.
 (c) to display line status and other information about directly connected Cisco devices.
 (d) to display routing table and other information about directly connected Cisco devices.

Ερώτηση 20.

The command **ntp server 10.1.1.1** is issued on a router. What impact does this command have?

 (a) determines which server to send system log files to
 (b) identifies the server on which to store backup configurations
 (c) ensures that all logging will have a time stamp associated with it
 (d) synchronizes the system clock with the time source with IP address 10.1.1.1

Μέρος Β (30 μονάδες)

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

Ερώτηση 1.

For each of the following components specify where it is stored (**Flash**, **RAM**, **NVRAM** or **ROM**) on the router.   (1 pt for each answer)

	Component	Location where the component is stored
(a)	Routing Table	
(b)	Normal IOS image	
(c)	POST diagnostic software	
(d)	Running Configuration file	
(e)	Basic/Minimum IOS	
(f)	Startup Configuration file	

Ερώτηση 2.

Determine the Subnet Mask and the Wildcard Mask for the following networks:
(1 pt for each statement)

	Network	Decimal Subnet Mask	Wildcard Mask
(a)	192.168.1.0 /25		
(b)	192.168.2.0 /26		
(c)	192.168.3.0 /27		

Ερώτηση 3.

In the following table write the show command that will display what is explained in the "Description" column.   (1 pt for each answer)

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

Ερώτηση 4.

Correspond each of the descriptions listed in the following table on the right to the appropriate mode prompt of the table on the left. Write in your answer book the letter (a)-(f) of each description, together with the number (1)-(8) of the prompt corresponding to the correct description. Note: Two of the mode prompts have no corresponding description and should not be used.

(1 pt for each answer)

Mode prompt
(1)   Router(config)#
(2)   Router>
(3)   Router#
(4)   Router(config-if)#
(5)   Router(config-router)#
(6)   Router(config-mode)#
(7)   Router(privileged)>
(8)   Router(config-line)#

A/A	Description	Answer
(a)	User EXEC mode.	
(b)	Privileged EXEC mode.	
(c)	Configuration mode.	
(d)	Interface level within configuration mode.	
(e)	Line level (vty, tty, async) within configuration mode.	
(f)	Routing engine level within configuration mode.	

Ερώτηση 5.

For each access list entry, determine the action that will be taken (permit or deny) when applied to the comparison address provided.   (6 points)

	Access List Entry (ACE)	Comparison Address	Permit or Deny
(a)	Access-list 10 permit 192.168.122.100 0.0.0.255	192.168.122.99	
(b)	Access-list 20 permit 192.168.122.64 0.0.0.63	192.168.122.126	
(c)	Access-list 30 permit 192.168.122.128 0.0.255.255	192.168.121.128	
(d)	Access-list 40 permit 192.168.122.64 0.255.255.255	192.1.1.1	
(e)	Access-list 50 permit 192.168.122.128 0.0.255.255	192.169.122.129	
(f)	Access-list 60 permit 192.168.122.64 0.255.255.255	193.168.122.65	

ΜΕΡΟΣ Γ (40 Μονάδες)

Να απαντήσετε σε όλες τις ερωτήσεις. Η κάθε ερώτηση βαθμολογείται με δέκα (10) μονάδες.

Ερώτηση 1.

Answer the following questions based on the network below:
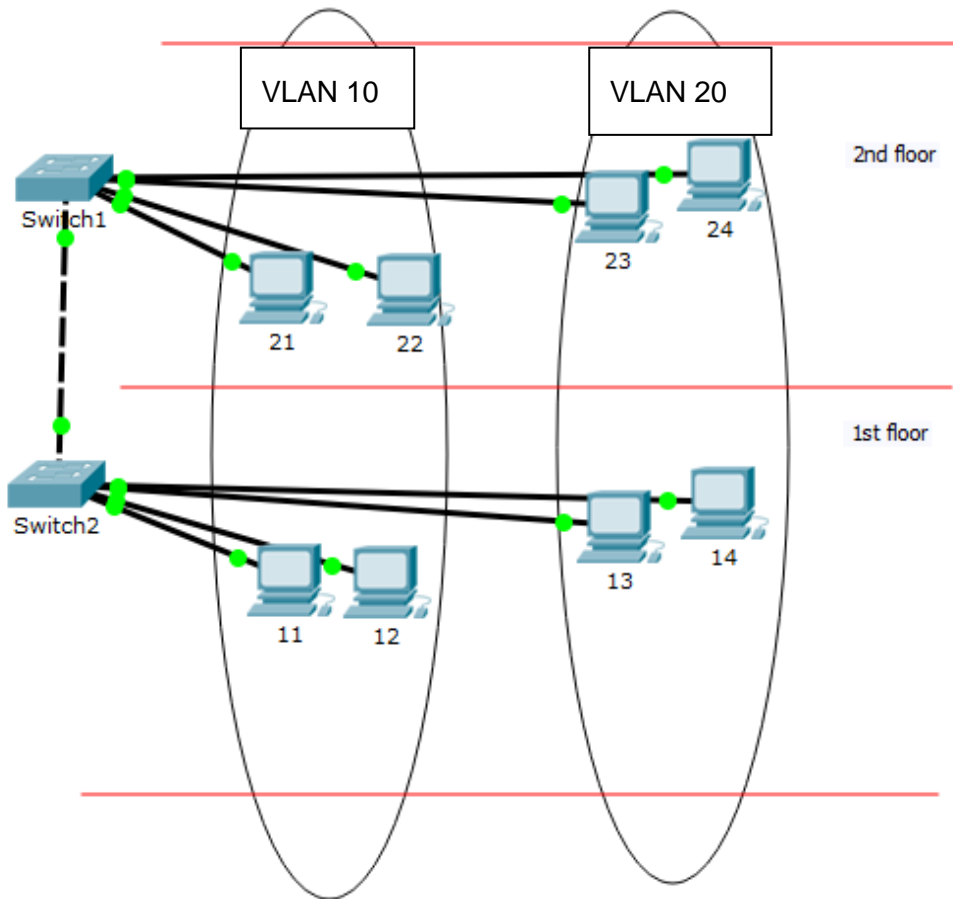
Write the appropriate commands to **Switch1** in order to complete the following tasks.

    (a) Create Vlan 10 with name Accounting.   (1.5 pts)

Switch1#

    (b) Create Vlan 20 with name Marketing.   (1 pt)

Switch1(config)#

Η ΕΡΩΤΗΣΗ ΣΥΝΕΧΙΖΕΤΑΙ ΣΤΗΝ ΕΠΟΜΕΝΗ ΣΕΛΙΔΑ

(c) Assign ports fa0/1 and fa0/2 to Vlan 10 (Fa0/1 connects PC21 and fa0/2 connects PC22).
(1.5 pts)

Switch1(config)#

(d) Configure port fa0/24 as trunk port. (2 pts)

Switch1(config)#

(e) Assign the native VLAN 99 to the trunk port Fa0/24 (assume that you are already in the interface mode of fast ethernet fa0/24). (1 pt)

Switch1(config-if)#

(f) Restrict the trunk port Fa0/24 to allow VLANs 10, 20 and 99 (assume that you are already in the interface mode of fast ethernet fa0/24). (1 pt)
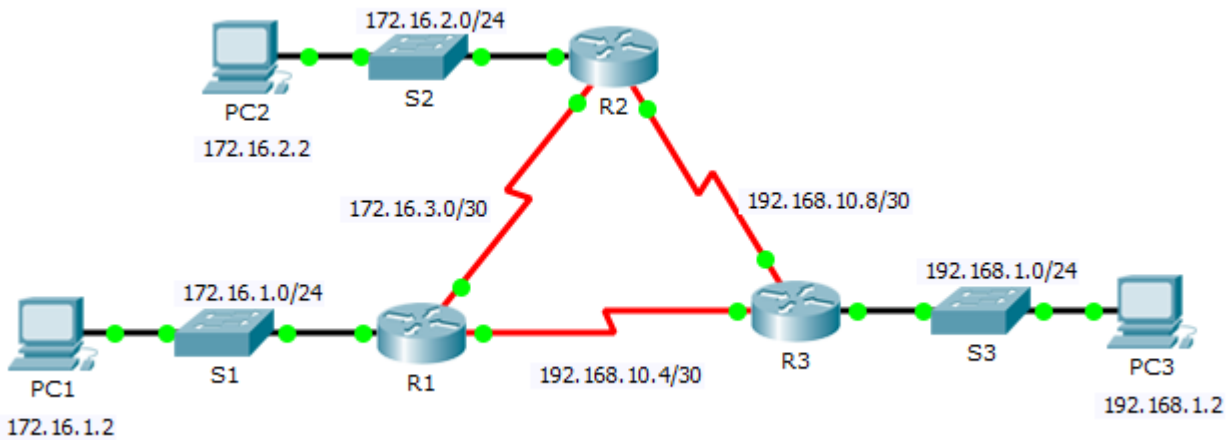
Switch1(config-if)#

(g) Disable unused ports fa0/3-5. (2 pts)

Switch1(config)#

Ερώτηση 2.

The following network must be configured using RIP. Assume that all interfaces are properly configured.

The configuration of Router R1 is shown below:

| Device	Interface	IP Address	Subnet Mask	Default Gateway
	G0/0	172.16.1.1	255.255.255.0	N/A
R1	S0/0/0	172.16.3.1	255.255.255.252	N/A
	S0/0/1	192.168.10.5	255.255.255.252	N/A

Write the necessary commands to configure RIP routing on router R1 using the following requirements:

- Version 2 of the routing protocol should be configured.
- The LAN interface should be set to passive.
- The router is already in global configuration mode.

(10 pts)

Ερώτηση 3.

Consider the following network.
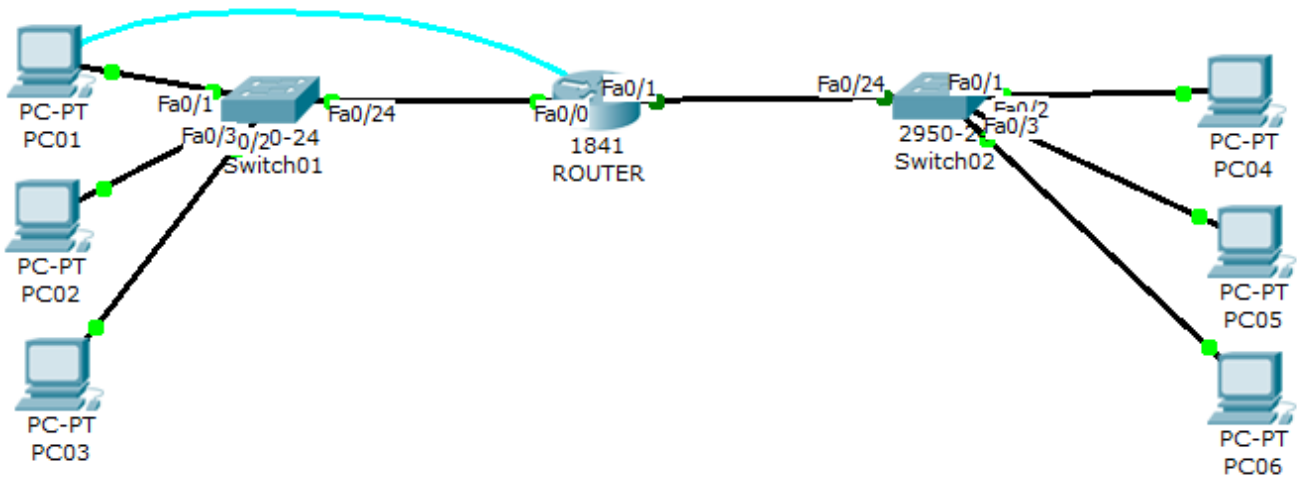
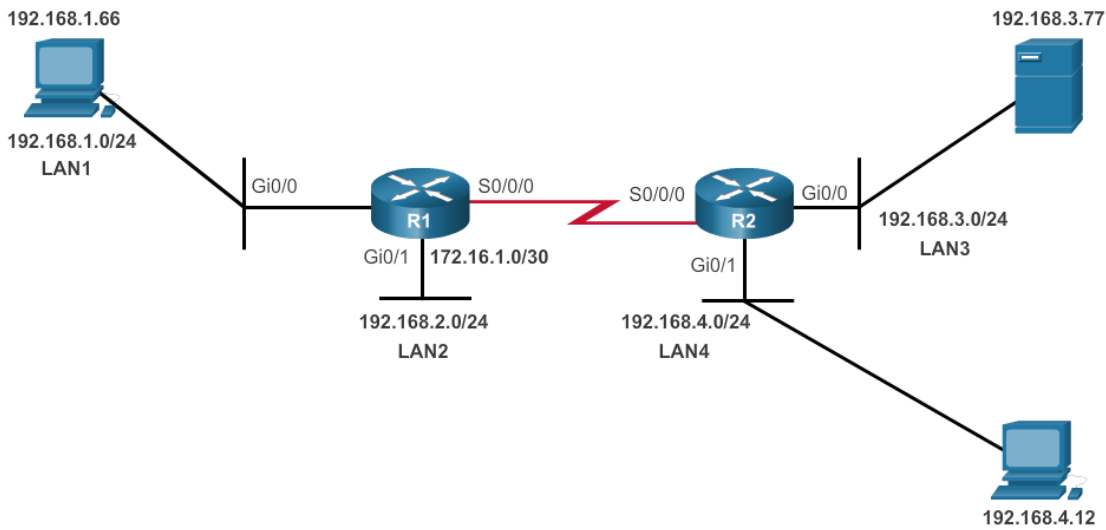ROUTER has been set up with the following IP addresses:

Interface	IP Address
Fa0/0	192.168.100.1
Fa0/1	192.168.200.1

Complete the necessary configuration steps to implement DHCP, so that PC01, PC02, PC03 will receive an automatic IP address from ROUTER. The address pool should be named LAN1. Make sure that the following addresses are excluded: The first 20 valid host IP Addresses, 192.168.100.100 and 192.168.100.200. Configure DHCP to assign to the hosts the default gateway 192.168.100.1 and the DNS server 192.168.100.1. The router should be placed back to user EXEC mode.   (10 pts)

Router>_____

Router#_____

_____

_____

_____

_____

_____

_____

_____

_____

Ερώτηση 4.

Write the necessary commands to perform the following configurations, based on the network shown in the following diagram: (1 pt for each line x 10 = 10pts)

192.168.1.66   192.168.3.77

192.168.1.0/24
LAN1

Gi0/0   S0/0/0   S0/0/0   Gi0/0
R1   R2   192.168.3.0/24
                                    LAN3

Gi0/1   172.16.1.0/30   Gi0/1

192.168.2.0/24   192.168.4.0/24
LAN2   LAN4

192.168.4.12

(a) All hosts in the 192.168.1.0 LAN should be permitted to access networks 192.168.3.0 and 192.168.4.0. The 192.168.2.0 network should not have access to these two networks. Place the access list in R2.   (3 pts)

R2(config)# _____

R2(config)# _____

R2(config-if)# _____

(b) All hosts in the 192.168.2.0 LAN should be permitted access 192.168.4.0 LAN. All other networks should not be able to access the 192.168.4.0 LAN. Place the access list in R2.   (3 pts)

R2(config)# _____

R2(config)# _____

R2(config-if)# _____

(c) The 192.168.3.77 host should not be able to access 192.168.1.0 LAN but all other hosts on the 192.168.3.0 network should be permitted access. Place the access list in R1.   (4 pts)

R1(config)# _____

R1(config)# _____

R1(config)# _____

R1(config-if)# _____

ΤΕΛΟΣ ΕΞΕΤΑΣΗΣ