

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 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 is analyzing the features that are supported by different first-hop router redundancy protocols. Which statement describes a feature that is associated with Hot Standby Router Protocol (HSRP)?

- (a) HSRP uses active and standby routers.
- (b) It uses ICMP messages in order to assign the default gateway to hosts.
- (c) It allows load balancing between a group of redundant routers.
- (d) HSRP is nonproprietary.

**Ερώτηση 2.**

Which first hop redundancy protocol (FHRP) implementation is a nonproprietary protocol which relies on ICMP to provide IPv4 redundancy?

- (a) IRDP
- (b) HSRP for IPv6
- (c) VRRPv2
- (d) VRRPv3

**Ερώτηση 3.**

Which authentication method stores usernames and passwords in the router and is ideal for small networks?

- (a) local AAA
- (b) local AAA over RADIUS
- (c) server-based AAA over RADIUS
- (d) server-based AAA over TACACS+

**Ερώτηση 4.**

What is the result of a DHCP starvation attack?

- (a) Legitimate clients are unable to lease IP addresses.
- (b) Clients receive IP address assignments from a rogue DHCP server.
- (c) The attacker provides incorrect DNS and default gateway information to clients.
- (d) The IP addresses assigned to legitimate clients are hijacked.

**Ερώτηση 5.**

A network administrator is configuring port security on a Cisco switch. The company security policy specifies that when a violation occurs, packets with unknown source addresses should be dropped and no notification should be sent. Which violation mode should be configured on the interfaces?

- (a) off
- (b) restrict
- (c) protect
- (d) shutdown

**Ερώτηση 6.**

What happens to a static route entry in a routing table when the outgoing interface associated with that route goes into the down state?

- (a) The static route is removed from the routing table.
- (b) The router polls neighbors for a replacement route.
- (c) The static route remains in the table because it was defined as static.
- (d) The router automatically redirects the static route to use another interface.

**Ερώτηση 7.**

What is a characteristic of a floating static route?

- (a) It is used to provide load balancing between static routes.
- (b) When it is configured, it creates a gateway of last resort.
- (c) It is configured with a higher administrative distance than the original dynamic routing protocol has.
- (d) It is simply a static route with 0.0.0.0/0 as the destination IPv4 address.

**Ερώτηση 8.**

Which version of OSPF is used for IPv4?

- (a) Version 0
- (b) Version 1
- (c) Version 2
- (d) Version 3

**Ερώτηση 9.**

What does an OSPF area contain?

- (a) Routers that share the same router ID
- (b) Routers whose SPF trees are identical
- (c) Routers that have the same link-state information in their LSDBs
- (d) Routers that share the same process ID

**Ερώτηση 10.**

What OSPF stands for?

- (a) Open Shortest Path First
- (b) Open Shortest Path Firm
- (c) Open Shortest Path Finder
- (d) Open Shortest Path Facilitate

**Ερώτηση 11.**

What represents a best practice concerning discovery protocol such LLDP on network devices?

- (a) Use the open standard LLDP rather than CDP.
- (b) Disable LLDP protocol on all interfaces where they are not required.
- (c) Use the default router settings for CDP and LLDP.
- (d) Enable CDP on edge devices, and enable LLDP on interior devices.

**Ερώτηση 12.**

Which protocol should be used to mitigate the vulnerability of using Telnet to remotely manage network devices?

- (a) SCP
- (b) SSH
- (c) TFTP
- (d) SNMP

**Ερώτηση 13.**

An IT security specialist enables port security on a switch port of a Cisco switch. What is the default violation mode in use until the switch port is configured to use a different violation mode?

- (a) restrict
- (b) disabled
- (c) protect
- (d) shutdown

**Ερώτηση 14.**

As part of the new security policy, all switches on the network are configured to automatically learn MAC addresses for each port. All running configurations are saved at the start and close of every business day. A severe thunderstorm causes an extended power outage several hours after the close of business. When the switches are brought back online, the dynamically learned MAC addresses are retained. Which port security configuration enabled this?

- (a) auto secure MAC addresses
- (b) dynamic secure MAC addresses
- (c) static secure MAC addresses
- (d) sticky secure MAC addresses

**Ερώτηση 15.**

What is an advantage of static routing over dynamic routing?

- (a) Static routing is more secure because it does not advertise over the network.
- (b) Static routing scales well with expanding networks.
- (c) Static routing requires very little knowledge of the network for correct implementation.
- (d) Static routing is relatively easy to configure for large networks.

**Ερώτηση 16.**

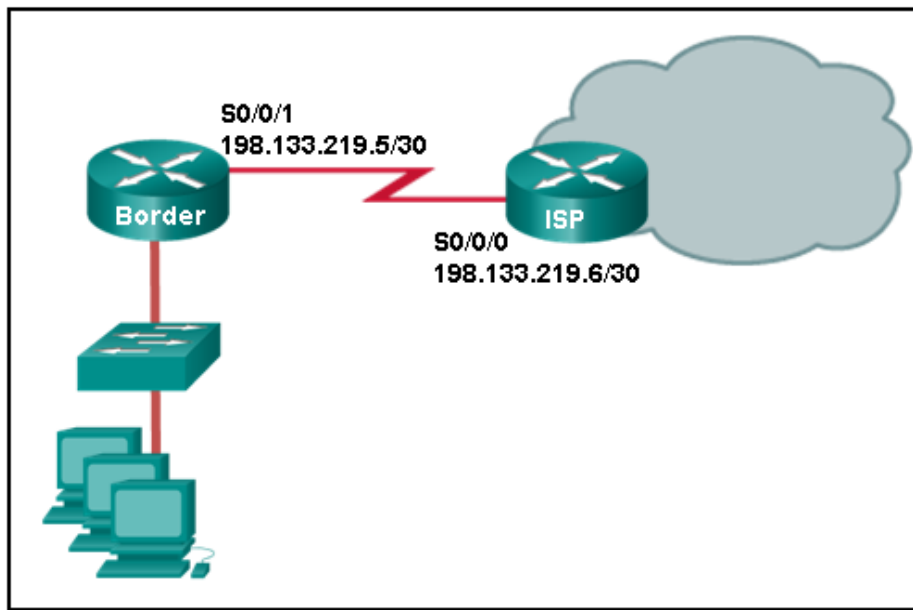
A static route has been configured on a router. However, the destination network no longer exists. What should an administrator do to remove the static route from the routing table?

- (a) Remove the route using the no ip route command.
- (b) Nothing. The static route will go away on its own.
- (c) Change the routing metric for that route.
- (d) Change the administrative distance for that route.

**Ερώτηση 17.**

On which router would a default static route be configured?

- (a) any router where a backup route to dynamic routing is needed for reliability
- (b) any router running an IOS prior to 12.0
- (c) the router that serves as the gateway of last resort
- (d) stub router connection to the rest of the corporate or campus network

**Ερώτηση 18.**

Refer to the exhibit. The network administrator needs to configure a default route on the Border router. Which command would the administrator use to configure a default route?

- (a) Border(config)# ip route 0.0.0.0 0.0.0.0 s0/0/1
- (b) Border(config)# ip route 0.0.0.0 0.0.0.0 198.133.219.5
- (c) Border(config)# ip route 0.0.0.0 0.0.0.0 198.133.219.30
- (d) Border(config)# ip route 0.0.0.0 0.0.0.0 s0/0/0

**Ερώτηση 19.**

What is a disadvantage of using dynamic routing protocols?

- (a) They are only suitable for simple topologies
- (b) Their configuration complexity increases as the size of the network grows
- (c) They send messages about network status insecurely across networks by default
- (d) They require administrator intervention when the pathway of traffic changes

**Ερώτηση 20.**

Which of the following is an Interior link-state routing protocol?

- (a) BGP
- (b) RIPng
- (c) EIGRP
- (d) OSPF

**Μέρος Β (30 μονάδες)**

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

**Ερώτηση 1.**

A network administrator has issued the command **show ip route** on a router. Based on the following output fill in the blanks:

```
Gateway of last resort is not set.
 10.0.0.0/16 is subnetted, 1 subnets
S   10.4.0.0 is directly connected, Serial 0/0/0
 172.16.0.0/24 is subnetted, 3 subnets
C   172.16.1.0 is directly connected, FastEthernet 0/0
C   172.16.2.0 is directly connected, Serial 0/0/0
D   172.16.3.0 [90/2172416] via 172.16.30.10, 00:00:18, Serial 0/0/0
C   192.168.1.0/24 is directly connected, Serial 0/0/1
O   192.168.100.0/24 [110/65] via 172.16.4.1, 00:00:03, Serial 0/0/0
O   192.168.110.0/24 [110/65] via 172.16.2.11, 00:00:03, Serial 0/0/0
R   192.168.120.0/24 [120/1] via 172.16.3.1, 00:00:18, Serial 0/0/0
```

- (a) The 10.4.0.0 is a \_\_\_\_\_ route.
- (b) The value of administrative distance (AD) for 172.16.2.0 route source is \_\_\_\_\_.
- (c) The next hop IP address for network 172.16.3.0 is \_\_\_\_\_.
- (d) The 192.168.110.0/24 has been learned dynamically from another router using the protocol \_\_\_\_\_.
- (e) The 192.168.120.0/24 has been learned dynamically from another router using the protocol \_\_\_\_\_.
- (f) The next hop address for packets going to 192.168.100.0/24 is \_\_\_\_\_.

**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
192.168.100.0 /24		
192.168.200.128 /25		
192.168.14.64 /26		

**Ερώτηση 3.**

Fill in the blanks in the following statements:

(1 pt for each statement)

- (a) A \_\_\_\_\_-enabled router provides a secure connection to remote users across a public network and into the enterprise network.
- (b) A \_\_\_\_\_ provides stateful packet inspection, application visibility and control, a next-generation intrusion prevention system (NGIPS), advanced malware protection (AMP), and URL filtering.
- (c) A \_\_\_\_\_ device includes authentication, authorization, and accounting (AAA) services. In larger enterprises, these services might be incorporated into an appliance that can manage access policies across a wide variety of users and device types.
- (d) A simple method that many administrators use to help secure the network from unauthorized access is to disable all unused ports on a switch. Navigate to each unused port and issue the Cisco IOS \_\_\_\_\_ command.
- (e) The simplest and most effective method to prevent MAC address table overflow attacks is to enable \_\_\_\_\_.
- (f) To set the maximum number of MAC allowed on a port, we use the command  
`Switch(config-if)# switchport port-security maximum value.`  
 The default port security value is \_\_\_\_\_.

**Ερώτηση 4.**

Complete the following table with YES or NO:

**Security Violation Mode Comparison**

<b>Violation Mode</b>	<b>Increase Violation Counter</b>	<b>Shuts Down Port</b>
Protect		
Restrict		
Shutdown		

**Ερώτηση 5.** Mark the following statements as True or False

	<b>Statement</b>	<b>True / False</b>
<b>1</b>	The administrative distance of a static route is 1	
<b>2</b>	The administrative distance of a directly connected network is 0	
<b>3</b>	OSPF use Dijkstra's algorithm to calculate the shortest path	
<b>4</b>	To force a new HSRP election process to take place when a higher priority router comes online, preemption must be enabled	
<b>5</b>	In HSRP if the priorities are equal, the router with the numerically lowest IP address is elected as the active router.	
<b>6</b>	An interface configured as passive sends OSPF messages	

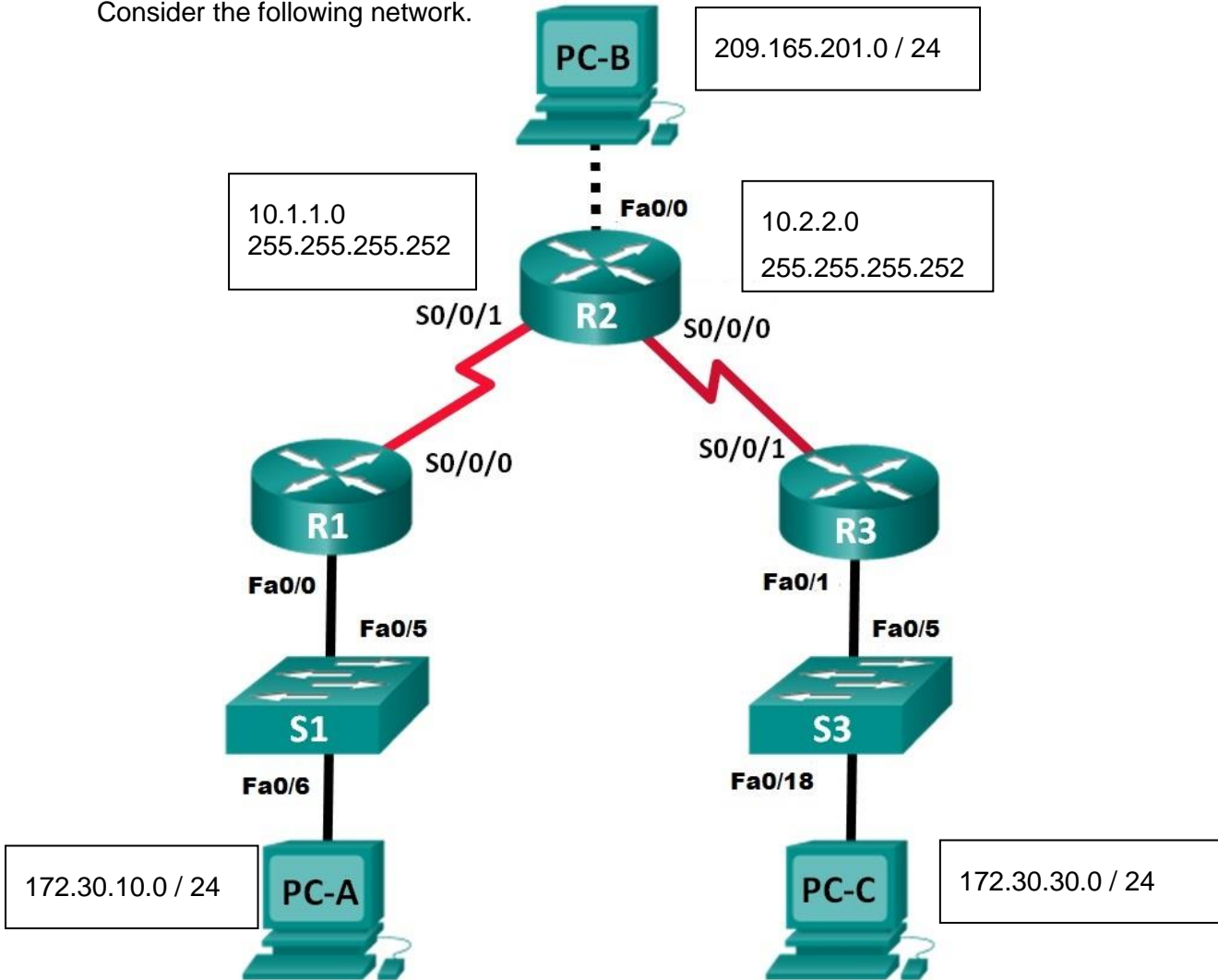


**ΜΕΡΟΣ Γ (40 Μονάδες)**

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

**Ερώτηση 1. 2021A**

Consider the following network.



**Addressing Table**

Device	Interface	IP Address	Subnet Mask	Default Gateway
R1	Fa0/0	172.30.10.1	255.255.255.0	N/A
	S0/0/0	10.1.1.1	255.255.255.252	N/A
R2	Fa0/0	209.165.201.1	255.255.255.0	N/A
	S0/0/1	10.1.1.2	255.255.255.252	N/A
	S0/0/0	10.2.2.2	255.255.255.252	N/A
R3	Fa0/1	172.30.30.1	255.255.255.0	N/A
	S0/0/1	10.2.2.1	255.255.255.252	N/A
PC-A	NIC	172.30.10.3	255.255.255.0	172.30.10.1
PC-B	NIC	209.165.201.2	255.255.255.0	209.165.201.1
PC-C	NIC	172.30.30.3	255.255.255.0	172.30.30.1

(a) Configure all three routers using **Fully Specified Static Routes**, so that they can forward packets between all networks shown in the diagram. Assume that the routers are initially in global configuration mode. **Do not use default static routes.** (8 pts)

R1(config)#

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R2(config)#

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R3(config)#

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(b) Configure R1 and R3 using a **Default Static Route**. Assume that the routers are initially in global configuration mode. (2 pts)

R1(config)#

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R3(config)#

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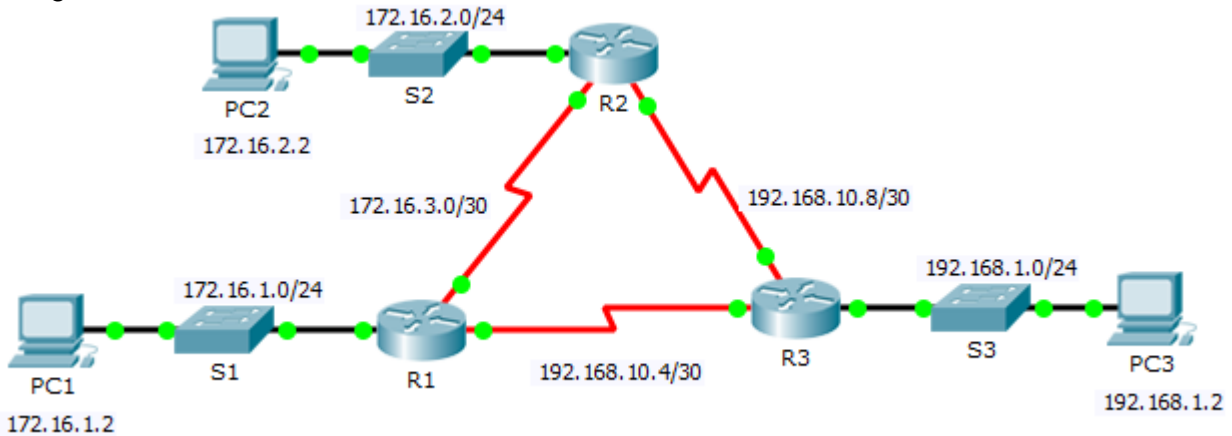
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**Ερώτηση 2. 2021A**

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



Device	Interface	IP Address	Subnet Mask	Default Gateway
R1	G0/0	172.16.1.1	255.255.255.0	N/A
	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
R2	G0/0	172.16.2.1	255.255.255.0	N/A
	S0/0/0	172.16.3.2	255.255.255.252	N/A
	S0/0/1	192.168.10.9	255.255.255.252	N/A

A) Use the following requirements to configure OSPF routing on router R1:

- Process ID 11
- Router ID for R1 = 1.1.1.1
- Network address for each interface
- LAN interface set to passive

(8pts)

R1>

B) Use the following requirements to configure OSPF routing on router R2:

- Process ID 11
- Router ID for R2 = 2.2.2.2
- Network address for each interface
- LAN interface set to passive

(8pts)

R2>

**ΤΕΛΟΣ ΕΞΕΤΑΣΗΣ**