

**ΓΡΑΠΤΕΣ ΠΡΟΑΓΩΓΙΚΕΣ ΕΞΕΤΑΣΕΙΣ ΜΑΪΟΥ - ΙΟΥΝΙΟΥ****Α΄ ΣΕΙΡΑ ΕΞΕΤΑΣΕΩΝ****ΜΑΘΗΜΑ: Δίκτυα Cisco****ΗΜΕΡΟΜΗΝΙΑ: 06/06/2014****ΤΑΞΗ: Β΄ Λυκείου****ΧΡΟΝΟΣ: 2 Ώρες****ΤΟ ΕΞΕΤΑΣΤΙΚΟ ΔΟΚΙΜΙΟ ΑΠΟΤΕΛΕΙΤΑΙ ΑΠΟ ΔΕΚΑ (10) ΣΕΛΙΔΕΣ****Οδηγίες:**

- Να απαντήσετε σε όλες τις ερωτήσεις.
- Όλες οι απαντήσεις να γραφούν πάνω στο εξεταστικό δοκίμιο.
- Απαγορεύεται η χρήση υπολογιστικής μηχανής.

**Όνοματεπώνυμο: .....****Τμήμα: .....****Όνομα Καθηγητή: Νίκος Αντωνίου**

<b>ΒΑΘΜΟΣ</b>	
<b>Μέρος Α</b>	
<b>Μέρος Β</b>	
<b>Μέρος Γ</b>	
<b>Σύνολο /100</b>	
<b>Σύνολο /20</b>	

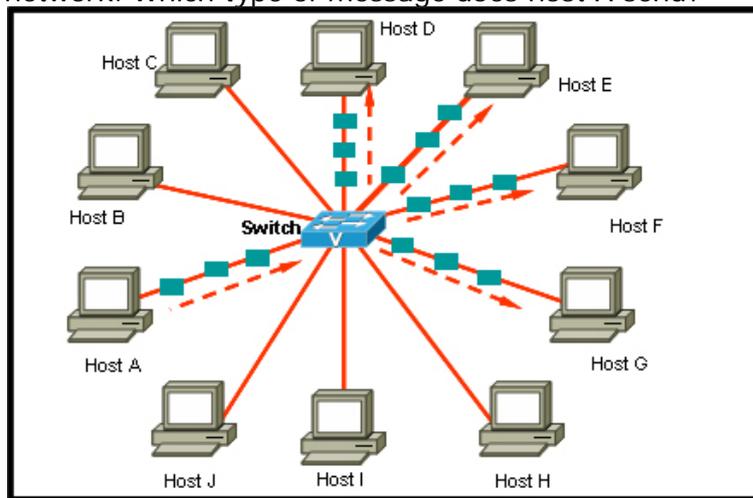
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## Part A

Answer all questions by circling each correct answer. Each question earns 2 points. There are questions with more than one correct answer. **(Total Points 30)**

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1. A new student wants to interact with the operating system of a computer. Which two methods can be used for this? (**Choose two**)
  - a) CLI
  - b) GUI
  - c) kernel
  - d) third party software
  - e) shell
2. Refer to the exhibit. Host A sends a message to a group of four computers out of the ten computers on this network. Which type of message does host A send?



- a) broadcast
  - b) multicast
  - c) simulcast
  - d) unicast
3. Which two statements are true about network applications? (**Choose two**)
    - a) Microsoft Word is an example of a network application.
    - b) Network applications are accessible from a remote computer.
    - c) Network applications are installed on a special type of computer that supports only network applications.
    - d) Network applications are installed on a network server.
    - e) Network applications are accessible by one computer at a time.
  4. What are two characteristics of a MAC address? (**Choose two**)
    - a) It can be dynamically assigned.
    - b) It indicates the position of the host within the network.
    - c) It is 6 bytes long.
    - d) It is a physical address.
    - e) It is cable-based.
  5. What is the purpose of a router?
    - a) to forward broadcasts to all interfaces so that all hosts receive them
    - b) to maintain a table of individual host addresses
    - c) to select the best path to reach remote networks
    - d) to physically connect multiple hosts that belong to the same network

6. How does a crossover cable connect two routers?
- It connects the pins that are used for receiving on one router to the pins that are used for receiving on the other router.
  - It connects the pins that are used for transmitting on one router to the pins that are used for receiving on the other router.
  - It disconnects the transmit pins and uses only the receive pins.
  - It uses the same pins for transmitting and receiving.
7. Which address ranges can be used to depict private IP addresses? (**Choose two**)
- 10.0.0.0 to 10.0.0.255
  - 127.16.0.0 to 127.16.255.255
  - 150.150.0.0 to 150.150.255.255
  - 172.16.1.0 to 172.16.1.255
  - 200.100.50.0 to 200.100.50.255
8. Which two statements are characteristics of DHCP services? (**Choose two**)
- A DHCP client has a static IP address, subnet mask, or default gateway at the time of configuration.
  - An integrated router acts as the DHCP server to provide the IP address to the ISP.
  - DHCP clients send a DHCP Discover message to the destination IP address of 255.255.255.255.
  - The DHCP server maps the IP addresses to host names.
  - The integrated router acts as a DHCP server for internal hosts on local networks.
9. Which two transport layer protocols enable hosts to communicate and transfer data? (**Choose two**)
- DHCP
  - ICMP
  - IP
  - TCP
  - UDP
10. What is the function of the DNS server?
- It maps the IP address to the MAC address.
  - It translates a computer or domain name to the associated IP address.
  - It manages the domain that clients are assigned to.
  - It accepts HTTP requests from clients.
11. Which part of the electromagnetic spectrum is commonly used by wireless LANs?
- Bluetooth
  - infrared
  - Industrial Scientific and Medical (ISM)
  - radio frequency (RF)
12. A small company owns one older AP that provides a maximum data rate of 11 Mb/s. The company wants to add a newer AP that will provide a faster data rate but be compatible with the existing AP. What two wireless standards are referenced in this scenario? (**Choose two**)
- 802.11
  - 802.11a
  - 802.11b
  - 802.11d
  - 802.11g
13. What is the purpose of spam filter software?
- It detects and removes spyware.
  - It detects and removes viruses.
  - It prevents the display of advertisement windows.
  - It examines incoming e-mail messages to identify the unsolicited ones.

14. Which two causes of networking problems are related to the physical layer? (**Choose two**)
- a) disconnected cables
  - b) improper operation of cooling fans
  - c) incorrect MAC address
  - d) incorrect default gateway
  - e) incorrect subnet mask
15. Which types of information are obtained by default from an integrated router that is acting as a DHCP client? (**Choose two**)
- a) host ID
  - b) MAC address
  - c) default gateway
  - d) IP addresses of DNS servers
  - e) physical address

**Part B**

Answer all questions.

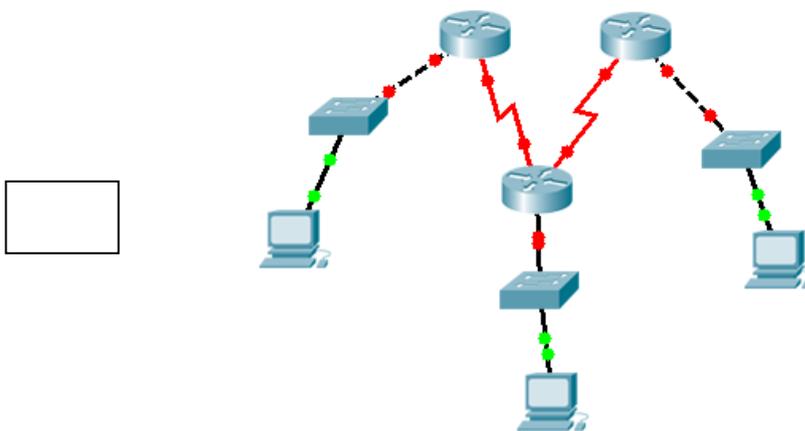
**(Total Points 30)**

1. Complete the following table.

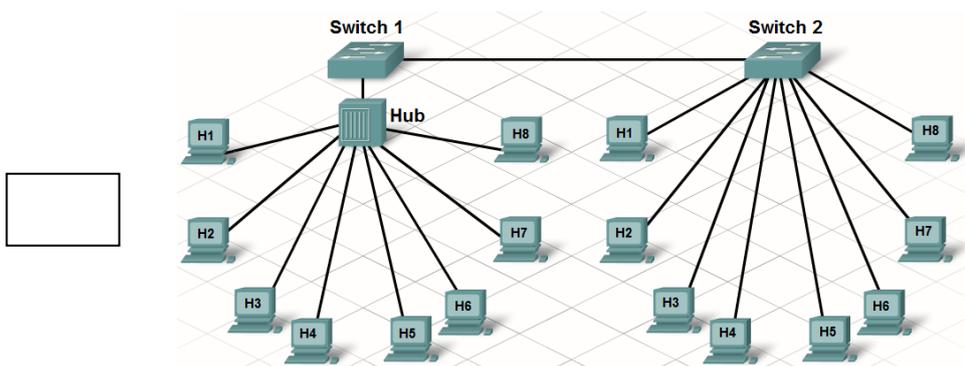
**(7 Points)**

Layer	Name in OSI Model	Data Encapsulation (PDU)
Layer 7		
Layer 6		
Layer 5		
Layer 4		
Layer 3		
Layer 2		
Layer 1		

2. Find the number of broadcast domains for the diagram below. Write your answer in the box provided. **(2 Points)**



3. Find the number of collision domains for the diagram below. Write your answer in the box provided. **(2 Points)**



4. What type of cable is needed in order to connect the following devices? Write your answer in the box provided next to the two devices. **(4 Points)**

Connected devices		Type of cable to use
		
		
		
		

5. Determine the appropriate operating system installation technique for each one of the following scenarios. Mark your selection in the correct box. **(5 Points)**

	Upgrade	Clean Install	Dual Boot	Virtualization
1) Nephi has purchased a computer from a friend and wants to make sure that all of the old files and application programs are removed from the system.				
2) Caroline has just purchased the newest version of the operating system currently installed on her home computer.				
3) Nigel has decided that he would like to try the Linux operating system. His computer currently has Windows XP installed.				
4) Ingrid has an older laptop that she currently runs Linux on. She now would like to be able to install Windows XP on the laptop but still requires Linux to do her daily work.				
5) Preeti has just been hired by a company to do quality control work on their database application. Both Windows and Linux versions of the application are available and she must test out both versions of the application at the same time. To accomplish this Preeti has purchased a high-end computer system.				

6. For each one of the following scenarios, determine the correct network type they belong to. Mark your selection in the correct box. **(5 Points)**

	IR	RF	Bluetooth
1) Zoe checks her e-mail at the airport.			
2) Sheldon wears his earpiece so he can talk hands-free on his cell phone.			
3) Georges and Cleo sit side by side at the park playing Internet chess on their PDAs.			
4) Suzanne's CD player is upstairs in her bedroom. She wears her cordless headphones so she can listen to music 3 floors down in the basement.			
5) Frederik buys 3 new wireless devices to attach to his desktop computer at home.			

7. For the each one of the following scenarios, identify the type of security threat described by connecting the correct threat with its definition. **(5 Points)**

<b>Identity Theft</b>	<b>Stealing an automotive engine design from a competitor.</b>
<b>Information Theft</b>	<b>Obtaining personal information to impersonate another and obtain credit.</b>
<b>Disruption of Service</b>	<b>Destroying database records on a computer hard drive.</b>
<b>Data Manipulation</b>	<b>Changing the grade received for a university course from a C to an A in the student records database.</b>
<b>Data Loss</b>	<b>Overloading a web server to reduce its performance preventing legitimate users from accessing it.</b>

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**Part C**

Answer all questions.

**(Total Points 40)**

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1. Given the following IP addresses, write down the Default Subnet Mask.**(6 Points)**

IP ADDRESS	DEFAULT SUBNET MASK
128.2.10.50	
192.125.34.9	
223.63.230.250	
127.11.35.105	
95.250.91.99	
181.11.35.105	

2. Given the following IP addresses, write down the Host portion.**(6 Points)**

IP ADDRESS	HOST PORTION
191.250.135.46	
176.201.54.231	
18.155.230.14	
197.34.152.224	
215.45.45.87	
33.123.4.224	

3. Given the following IP addresses, write down the Network portion.**(6 Points)**

IP ADDRESS	NETWORK PORTION
115.45.45.12	
223.123.1.13	
182.1.2.145	
167.34.223.127	
33.134.23.15	
192.143.222.34	

4. Given the following IP addresses, write down the Class in which they belong.**(6 Points)**

IP ADDRESS	CLASS
123.42.1.1	
197.100.18.4	
149.240.80.78	
221.200.15.14	
243.230.45.58	
229.18.45.4	

5. Read the following scenario and answer the questions that follow.

You have been asked to plan and implement a network for a small company. The office consists of a single receptionist and one salesperson. The receptionist's computer is a non-moving device and must have a reliable connection to the Internet to enable the exchange of information with clients. The salesperson uses a wireless-enabled laptop when traveling and wishes to use the same computer wirelessly in the office. Since the salesperson uses the computer to submit sales information that contains personal information, security on the wireless link is extremely important.

After discussions with the receptionist and salesperson, it was decided that the following considerations must be taken into account in the network design:

- The receptionist's computer will connect directly to one of the switch ports on a Linksys multi-function device. It will be assigned a static IP address.
- The salesperson's computer will connect wirelessly to the Linksys multi-function device and obtain its IP address via DHCP.
- For security reasons, wireless security features will be implemented.
  - a. Based on the above information, draw a physical network diagram of the planned network. Show and identify all network devices, PCs and connectivity. **(3 Points)**

b. What type of cable is needed to connect the receptionist's computer to the Linksys multi-function device? **(1 Point)**

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c. If you were responsible to construct the above cable, list three (3) things you would do to test the cable and make sure that the cable has been constructed properly and functions reliably. **(3 Points)**

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d. List five (5) security best practices that you should implement to secure the Linksys multi-function device and wireless network. **(5 Points)**

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e. Fill-in the missing values in the following table.

**(4 Points)**

<b>Device</b>	<b>IP address</b>	<b>Subnet Mask</b>	<b>Default Gateway</b>
Linksys LAN interface	192.168.5.1	255.255.255.0	Not Applicable
DHCP address range	192.168.5.100-192.168.5.149		
Wireless Host			
Wired Host			

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Ο Διευθυντής

Γιώργος Ιωσηφίδης