Section 1

1. Which of these refers to the connectivity between different external networks?

(A) VPN
(B) Intranet
(C) Internet
(D) DMZ

2. Which of these does not allow us to identify a device on the network?

(A) Virtual port number
(B) IP address
(C) MAC address
(D) Hostname

3. Replace the underlined word in the following statement with the correct word(s). If you believe the statement is already correct, then select *No change is required*:
A DMZ allows or denies network traffic based on a set of rules.

(A) VPN
(B) Internet
(C) Firewall
(D) No change is required

4. Which of these technologies allows you to securely connect to a private network over an insecure network?

(A) Extranet
(B) DMZ
(C) Firewall
(D) VPN

5. Which of the following devices would you most likely position within a DMZ?

(A) Domain controller
(B) DHCP server
(C) Print server
(D) Web server

6. What is the default security level for Restricted sites?

(A) Low
(B) Medium-Low
(C) Medium-High
(D) High

7. What network protocol is used by the ping utility?

(A) DHCP
(B) ICMP
(C) ARP
(D) PPTP

8. When would you use a VPN concentrator at both ends of the VPN tunnel?

(A) When home-based users are connecting to the head office
(B) When field-based engineers are connecting to the head office
(C) When a branch office is connecting to the head office
(D) None of the above

9. Which of the following would you implement to allow trusted third parties to gain limited access to your internal network?

(A) Extranet
(B) DMZ
(C) Firewall
(D) Internet

Section 2

1. What protocol is used to map an IP address to a MAC address?

(A) DHCP
(B) ICMP
(C)HTTP
(D) ARP

2. Which of the following is a valid MAC address format?

(A) AA:AA:12:34::AA:AA
(B) AB:F1:1B:FE:12:D1:65:91
(C) AB:12:12:CA:1F
(D) AG:CA:1F:AA:11:DA

3. What type of data transmission allows traffic to flow in both directions at the same time?

(A) Unidirectional
(B) Simplex
(C) Half-duplex
(D) Full-duplex

4. Which of the following describes a network that spans a city?

(A) CAN
(B) LAN
(C) MAN
(D) WAN

5. An IP address that can be used locally within your network and is not routable across the internet is known as what?

(A) An alternate private IP address
(B) Private IP address
(C) Public IP address
(D) ARP

6. Which of these commands will display the MAC addresses of your interfaces?

(A) ipconfig /all
(B) show mac
(C) display mac
(D) ifconfig /all

7. What identifier does a switch use when making a forwarding decision?

(A) Destination IP address
(B) Source IP address
(C) Destination MAC address
(D) Source MAC address

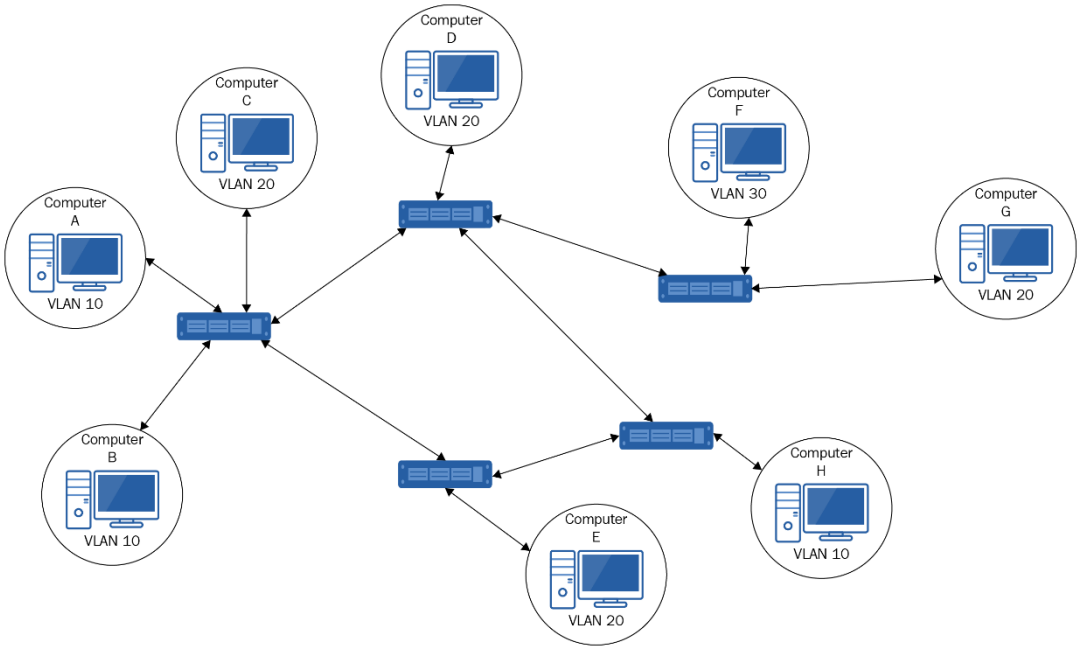
8. A network that covers a small geographical area is known as a _____. Fill in the blank:

(A) CAN
(B) LAN
(C) MAN
(D) WAN

9. Which of the following is the broadcast MAC address?

(A) aa:aa:aa:aa:aa:aa
(B) ff:ff:ff:ff:ff:ff
(C) 11:11:11:11:11:11
(D) 99:99:99:99:99:99

10. Looking at the following diagram, if Computer A sent a broadcast transmission, which devices would receive the data? Do not include Computer A in the count.



(A) 2
(B) 3
(C) 7
(D) 8

Section 3

1. What type of network medium is used by SONET?

(A) UTP
(B) Coaxial
(C) Wireless
(D) Optical

2. What is the speed of an E3 connection?

(A) 1.544 Mb/s
(B) 2.048 Mb/s
(C) 34.368 Mb/s
(D) 44.736 Mb/s

3. Which devices convert digital signals to analog signals for transmission over the telephone network?

(A) Modem
(B) Switch
(C) Router
(D) Telnet

4. Which device in a packet-switching network is most likely to function as a PAD?

(A) Modem
(B) Switch
(C) Router
(D) Telnet

5. How many B channels does an ISDN Basic Rate Interface have?

(A) 1
(B) 2
(C) 3
(D) 4

6. Which WAN technology used fixed-size cells to transfer data?

(A) Frame relay
(B) Packet switching
(C) ATM
(D) 3G

7. Which of the following is used for error checking in X.25 networks?

(A) CRC
(B) ATM
(C) ECC
(D) PSE

8. If you had a committed information rate (CIR) of 128 Kb/s, what would the burst excess be?

(A) 128 Kb/s
(B) 192 Kb/s
(C) 224 Kb/s
(D) 320 Kb/s

9. What device routes traffic around a packet-switched network?

(A) PSE
(B) PAD
(C) CSU/DSU
(D) DTE

Section 4

Wi-Fi networks use which access method?

(A) Token ring
(B) CSMA/CD
(C) CSMA/CW
(D) CSMA/CA

2. A junior network technician needs to set up an access point using 802.11g. What frequency will it use?

(A) 2.4 Hz
(B) 2.4 KHz
(C) 2.4 GHz
(D) 2.5 THz

3. Which 802.11 standard has the furthest indoor range?

(A) 802.11g
(B) 802.11a
(C) 802.11n
(D) 802.11ac

4. What type of wireless topology would be used when you want to connect two devices directly together in a peer-to-peer relationship?

(A) WDS
(B) Ad-hoc mode
(C) Infrastructure mode
(D) Wireless bridge

5. Which of these Wi-Fi security standards takes advantage of EAP?

(A) WEP-PSK
(B) WEP-Enterprise
(C) WPA-PSK
(D) WPA2-Enterprise

6. Which of these Wi-Fi standards does not use a 5 GHz frequency?

(A) 802.11b
(B) 802.11a
(C) 802.11n
(D) 802.11ac

7. You have a wireless network that supports 802.11g, but you have noticed that the network seems to be running at 11 Mbps. What is the most likely cause of this?

(A) EMI
(B) Incorrect encryption standard selected
(C) Interference from Bluetooth devices
(D) You have an 802.11b device on the network

8. The EAP falls under which standard?

(A) 802.1a
(B) 802.1x
(C) 802.11b
(D) 802.11x

Section 5

1. In a token ring network, what is the central device known as?

(A) MAU
(B) Switch
(C) Router
(D) Server

2. Which access method is used on a bus topology?

(A) Token
(B) CSMA/CA
(C) Ticket
(D) CSMA/CD

3. All devices in a star topology are unable to communicate with each other. What is most likely at fault?

(A) Operating system
(B) Network card
(C) Switch
(D) Cable

4. FDDI utilizes which form of topology?

(A) Bus
(B) Ring
(C) Star
(D) Mesh

5. In a full mesh network consisting of five devices, how many interfaces are required in total?

(A) 4
(B) 5
(C) 10
(D) 20

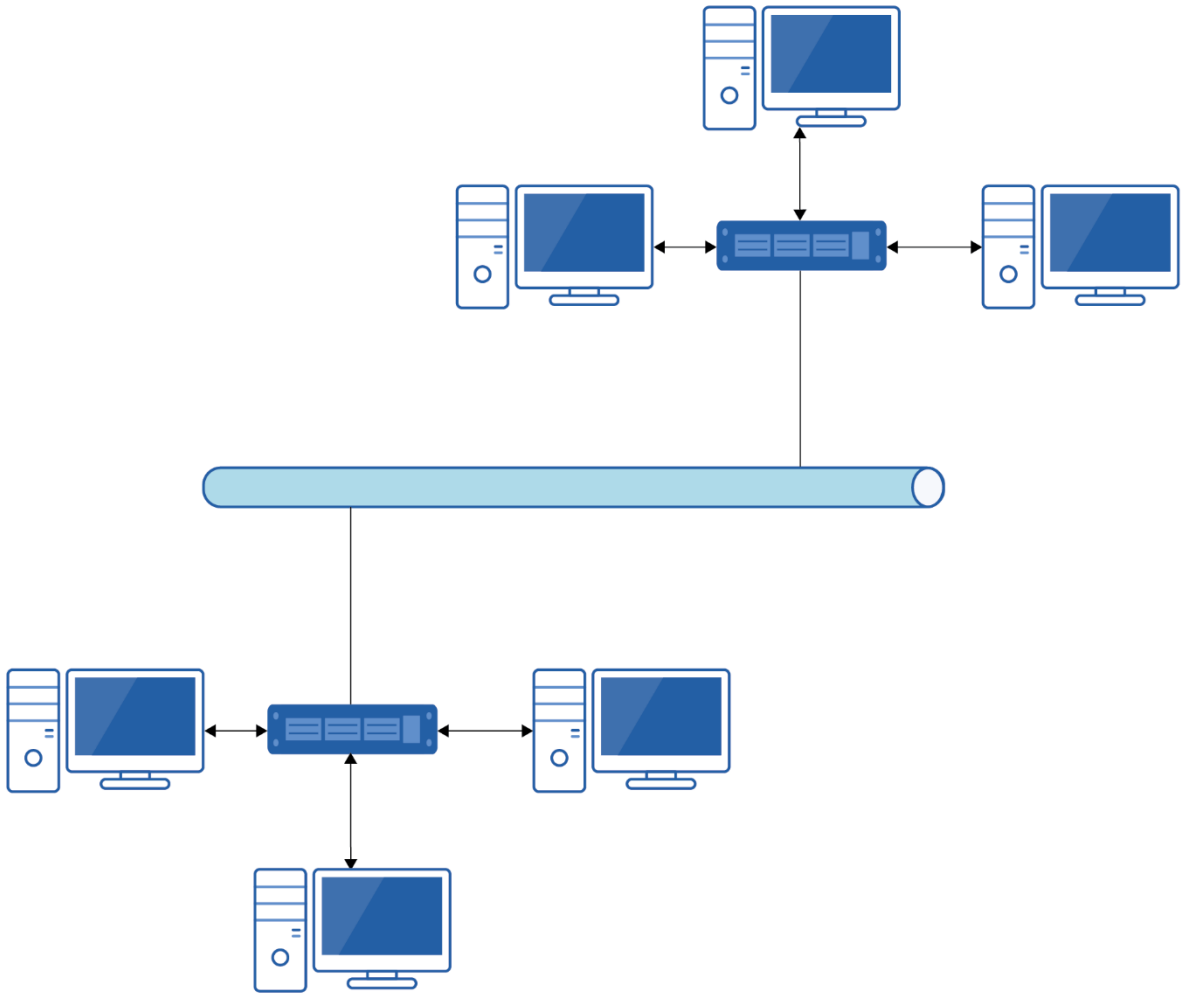
6. Which topology offers the best fault tolerance?

(A) Full mesh
(B) Star
(C) Partial mesh
(D) Bus

7. Which IEEE standard covers token ring?

(A) 802.1
(B) 802.3
(C) 802.5
(D) 802.15

8. Which type of topology is shown in the following diagram?



(A) Bus
(B) Partial mesh
(C) Star
(D) Hybrid

Revision questions

1. What protocol is used to map an IP address to a MAC address?

a. DHCP
b. b . ICMP
c. HTTP
d. ARP

2. Which of the following is a valid MAC address format?

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c. c.AB:12:12:CA:1F
d. d.AG:CA:1F: AA:11:DA

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An IP address that can be used locally within your network and is not routable across the internet is known as what?

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b. Private IP address

c. Public IP address

d. AR

Which of these commands will display the MAC addresses of your interfaces? I

a. Ipconfig /all

b. show mac

c. display mac

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What identifier does a switch use when making a forwarding decision?

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b. Source IP address

c. Destination MAC address

d. Source MAC address

A network that covers a small geographical area is known as a _____. Fill in the blank:

a. LAN

b. MAN

c. WAN

Which of the following is the broadcast MAC address?

a. aa:aa:aa:aa:aa:aa

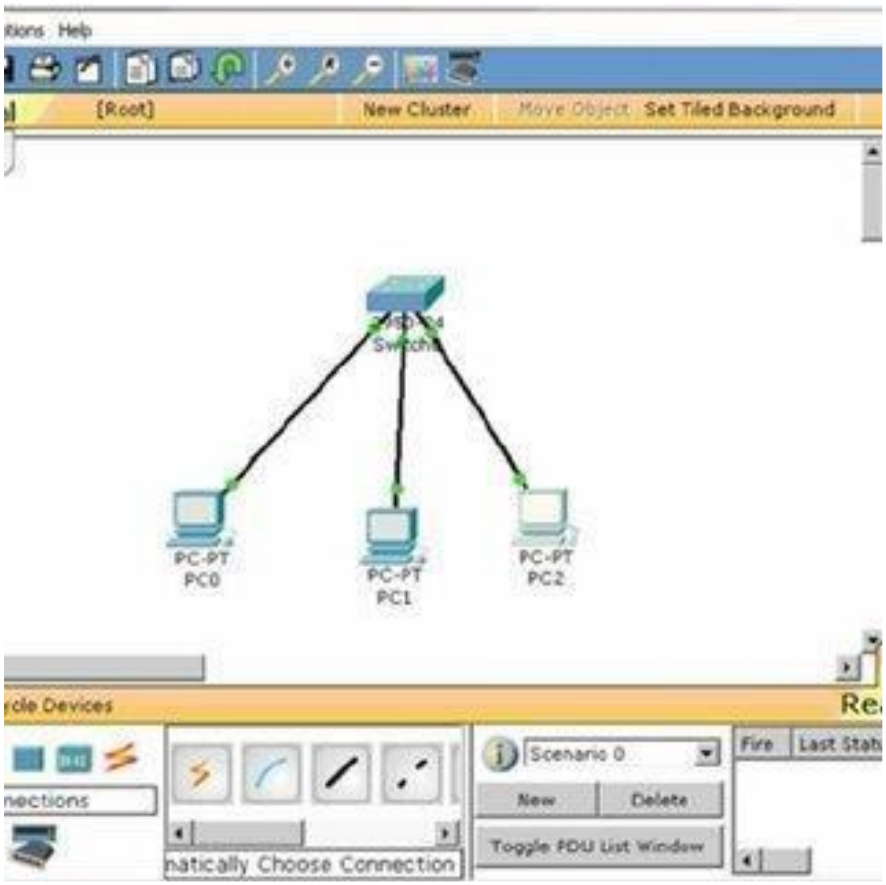
b. ff:ff:ff:ff:ff:ff

c. 11:11:11:11:11:11

d. 99:99:99:99:99:9

Practical:

Install packet tracer and configure and setup a basic LAN, use the following as an example:



Step 1: Install Cisco Packet Tracer

1. Download and install Cisco Packet Tracer from the Cisco Networking Academy website.
2. Launch the Cisco Packet Tracer.

Step 2: Add Devices to the Workspace

1. **Add a Switch**:
    - Click on "Switches" in the device type selection box at the bottom of the Packet Tracer window.
    - Drag a Switch (e.g., 2960) onto the workspace.
2. **Add PCs**:
    - Click on "End Devices" in the device type selection box.
    - Drag three PCs onto the workspace.

Step 3: Connect Devices

1. **Connect PCs to the Switch**:
    - Click on the "Connections" (lightning bolt icon) in the device type selection box.
    - Choose Copper Straight-Through cable.
    - Click on the first PC, choose Fast-Ethernet0.
    - Click on the Switch, choose any available Fast-Ethernet port (e.g., Fast-Ethernet0/1).
    - Repeat this for the other two PCs, connecting them to different Fast-Ethernet ports on the Switch (e.g., FastEthernet0/2 and FastEthernet0/3).

Step 4: Configure IP Addresses on PCs

- Configure each pcs IP address
- Click on IP Configuration.
- Assign an IP address (e.g., 192.168.1.2) and subnet mask (255.255.255.0).

Step 5: Verify Connectivity

- Go to the command prompt and use the ping command to ping each laptop connected to the network

Using packet tracer setup, the following scenario:

- **a Server**
- **2 switches**
- **2 Student desktops**
- **1 Employee Laptop**
- **2 Employee Desktops**
- **The employee and Student network need to be separate but connect to the same server**

1. Launch Cisco Packet Tracer.

2. Add Devices:

- **Server**: Click on "End Devices" and drag a server to the workspace.
- **Switches**: Click on "Switches" and drag two switches to the workspace.
- **Student Desktops**: Click on "End Devices" and drag two PCs to the workspace.
- **Employee Laptop**: Click on "End Devices" and drag one laptop to the workspace.
- **Employee Desktops**: Click on "End Devices" and drag two PCs to the workspace.

3. Connect Devices:

- Use the "Copper Straight-Through" cable to connect the devices.
- Connect the **Server** to **Switch 1**.
- Connect the **Student Desktops** to **Switch 1**.
- Connect **Switch 1** to **Switch 2**.
- Connect the **Employee Laptop** and **Employee Desktops** to **Switch 2**.

4. Configure VLANs:

- Select **Switch 1** and go to the CLI tab.
- **Enter the following commands to create and assign VLANs:**

```
plaintext
Copy code
enable
configure terminal
vlan 10
name Students
vlan 20
name Employees
```

- exit
- interface range fastEthernet 0/1-2
- switchport mode access
- switchport access vlan 10
- exit
- interface range fastEthernet 0/3-4
- switchport mode access
- switchport access vlan 20
- exit

    - Select **Switch 2** and go to the CLI tab.

5. **Configure Trunk Port**:

- On **Switch 1**, configure the port connecting to **Switch 2** as a trunk port:
- On **Switch 2**, configure the port connecting to **Switch 1** as a trunk port:

6. **Assign IP Addresses**:

- Assign IP addresses to each device on the network to ensure they are in the correct subnets.

Example IP configuration:

- **Server**: 192.168.1.1/24 (Default Gateway: 192.168.1.254)
- **Student Desktops**: 192.168.1.2/24, 192.168.1.3/24 (Default Gateway: 192.168.1.254)
- **Employee Laptop**: 192.168.2.2/24 (Default Gateway: 192.168.2.254)
- **Employee Desktops**: 192.168.2.3/24, 192.168.2.4/24 (Default Gateway: 192.168.2.254)

7. **Verify Connectivity**:

- Test the network by pinging from the student desktops to the server and from the employee devices to the server to ensure the VLANs are configured correctly and devices can communicate through the trunk link.
- This setup should create two separate VLANs for the student and employee networks, allowing them to connect to the same server but remain isolated from each other.