

Maintenance-related questions

6. The different computer components (memory, CPU, peripherals, etc.) are connected via: (1 point)

Put ✓ beside answer(s)	Answer(s)
	Registry
	Pointers
	Operating system
	Bus

7. What is the command, to be applied in Windows, in order to open the *Registry Editor*? (1 point)

8. What is a *System Restore Point* under Windows and what is its purpose? (1 point)

9. What is a *Ghost Image* of Windows and what is its purpose? (1 point)

10. Give three symptoms of failed RAM? (1 point)

11. Give two factors to be considered when adding/combining **extra** RAM sticks? (1 point)

12. Give three physical and logical means to protect user's data. (3 points)

Networking questions

13. What is the command, to be applied in Windows, in order to get IP addresses of all *Network Interface Cards*? (1 point)

14. Give four protocols that are/could be used to receive emails? (2 points)

15. Which protocol is used to send emails? (1 point)

Put ✓ beside answer(s)	Answer(s)
	NNTP
	XDMA
	SMTP
	POP3
	FTP

16. The following string “CC:B2:82:BG:53:B7” represents : (1 point)

Put ✓ beside answer(s)	Answer(s)
	MAC address
	Port number
	IP address
	SAP number

17. Regarding Ethernet *Hubs* and *Switches*, which of the following statement is true? (1point)

Put ✓ beside answer(s)	Answer(s)
	A <i>Hub</i> is faster than a <i>Switch</i>
	Inbound data on one <i>Hub</i> port are broadcasted to all other Ports
	A <i>Switch</i> has been originally designed to route traffic among different networks
	10, 100 mbps / 1gbps <i>Hubs</i> Ports function simultaneously which is not the case for <i>Switch</i> Ports

18. Which *network service* allows to associate names to IP addresses? (1 point)

Put ✓ beside answer(s)	Answer(s)
	DHCP
	FQDN
	BOOTP
	WINS
	DNS

19. Which *network service* allows to automatically distribute IP addresses to network devices? (1 point)

Put ✓ beside answer(s)	Answer(s)
	BOOTP
	DHCP
	TCP
	UDP
	IGMP

20. What is a LAN? (1 point)

Put ✓ beside answer(s)	Answer(s)
	Is a new standard to remotely access V92 Modems
	Is a local network
	Is a cable connecting two Ethernet cards
	Is a remote access to Enterprise network

21. Which server allows to store locally the visited web pages in order to provide them quickly for the users when these pages will be consulted again? (1 point)

Put ✓ beside answer(s)	Answer(s)
	WINS
	DNS
	PROXY
	WEB

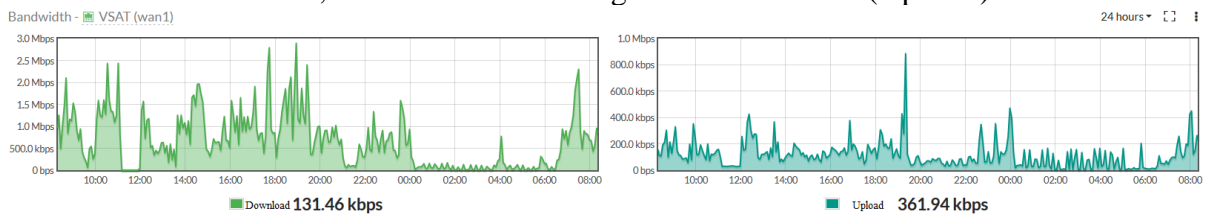
22. In a working environment where the use of the Internet connection is mainly done by Office applications (web browsing, email, Teams, videoconferencing, collaborative tools, shared folder via a Cloud service), what are the quotas that you dedicate for Download and Upload traffic assuming that the total bandwidth is 5 mbps? (1 point)

Put ✓ beside answer(s)	Answer(s)
	3.5 for Download and 1.5 for Upload
	1.5 for Download and 3.5 for Upload
	5 for Download and 0 for Upload
	Others. Specify quotas:

23. Regarding WAN connections, which of the following statements are true? **Multiple answers are possible.** (2 points)

Put <input checked="" type="checkbox"/> beside answer(s)	Answer(s)
	3G/4G connections can only be dedicated connections
	ADSL connections can only be asymmetric connections
	VSAT connections could be dedicated and symmetric
	VSAT connections could be shard and asymmetric

24. Assuming a WAN connection with 3 mbps Download/1 mbps Upload, based on the following bandwidth charts which are produced by the Client Firewall regarding the concerned WAN, which of the following statement is true? (2 points)



Put <input checked="" type="checkbox"/> beside answer(s)	Answer(s)
	The ISP doesn't respect its bandwidth engagement during the last 24 hours
	The ISP respects its bandwidth engagement during the last 24 hours
	The first two statements are not able to be verified with the following charts because they are produced by the Client Firewall and not the ISP one
	The first two statements are not able to be verified based only on the following charts

25. By analyzing the following ping results, which interpretation could you make, knowing that 151.101.52.81 is the IP address of the www.bbc.com site? (2 points)

```

c:\ Command Prompt
C:\Documents and Settings>ping 151.101.52.81
Pinging 151.101.52.81 with 32 bytes of data:
Reply from 151.101.52.81: bytes=32 time=5ms TTL=57
Reply from 151.101.52.81: bytes=32 time=4ms TTL=57
Reply from 151.101.52.81: bytes=32 time=5ms TTL=57
Reply from 151.101.52.81: bytes=32 time=6ms TTL=57
Ping statistics for 151.101.52.81
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 4ms, Maximum = 6ms, Average = 5ms
  
```

```

c:\ Command Prompt
C:\Documents and Settings>ping www.bbc.com
Pinging 151.101.52.81 with 32 bytes of data:
Request timed out.
Request timed out.
Request timed out.
Request timed out.
Ping statistics for 151.101.52.81
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
  
```

26. Regarding VPN, which of the following statements are true? **Multiple answers are possible.** (1 point)

Put <input checked="" type="checkbox"/> beside answer(s)	Answer(s)
	A VPN is a tunnel to encrypt exchanged data between two points in a secure manner over a LAN
	A VPN is a tunnel to encrypt exchanged data between two points in a secure manner over a non-secure network
	A VPN allows mobiles users to access the internal IT resources of their Enterprise remotely
	All previous statements are false

Data base-related questions

Assume a *Customers* table being created using the following SQL statement and filled out as shown in Table 1.

```
CREATE TABLE Customers (
  CustomerID int NOT NULL,
  CustomerName varchar(255) NOT NULL,
  City varchar(255) NOT NULL,
  Country varchar(255) NOT NULL,
  PRIMARY KEY (CustomerID)
);
```

Table 1 *Customers* Table

CustomerID	CustomerName	City	Country
1	Maria Anders	Berlin	Germany
2	Ana Trujillo	México	Mexico
3	Antonio Moreno	México	Mexico
4	Thomas Hardy	London	UK
5	Christina Berglund	Lulea	Sweden
6	Hanna Moos	Mannheim	Germany
7	Frédérique Citeaux	Strasbourg	France
8	Martín Sommer	Madrid	Spain
9	Laurence Lebihans	Marseille	France
10	Elizabeth Lincoln	Tsawassen	Canada

27. What is the result of applying the following SQL statement on the *Customers* table? (1 points)

```
INSERT INTO Customers (CustomerID, CustomerName, City, Country)
VALUES ('2', 'Maria Anders', 'Berlin', 'Germany');
```


Put ✓ beside answer(s)	Answer(s)			
	CustomerID	CustomerName	City	Country
	1	Maria Anders	Berlin	Germany
	2	Maria Anders	Berlin	Germany
	3	Antonio Moreno	México	Mexico
	4	Thomas Hardy	London	UK
	5	Christina Berglund	Lulea	Sweden
	6	Hanna Moos	Mannheim	Germany
	7	Frédérique Citeaux	Strasbourg	France
	8	Martín Sommer	Madrid	Spain
	9	Laurence Lebihans	Marseille	France
	10	Elizabeth Lincoln	Tsawassen	Canada
	CustomerID	CustomerName	City	Country
	1	Maria Anders	Berlin	Germany
	2	Ana Trujillo	México	Mexico
	3	Antonio Moreno	México	Mexico
	4	Thomas Hardy	London	UK
	5	Christina Berglund	Lulea	Sweden
	6	Hanna Moos	Mannheim	Germany
	7	Frédérique Citeaux	Strasbourg	France
	8	Martín Sommer	Madrid	Spain
	9	Laurence Lebihans	Marseille	France
	10	Elizabeth Lincoln	Tsawassen	Canada
	CustomerID	CustomerName	City	Country
	1	Maria Anders	Berlin	Germany
	2	Ana Trujillo	México	Mexico
	2(1)	Maria Anders	Berlin	Germany
	3	Antonio Moreno	México	Mexico
	4	Thomas Hardy	London	UK
	5	Christina Berglund	Lulea	Sweden
	6	Hanna Moos	Mannheim	Germany
	7	Frédérique Citeaux	Strasbourg	France
	8	Martín Sommer	Madrid	Spain
	9	Laurence Lebihans	Marseille	France
	10	Elizabeth Lincoln	Tsawassen	Canada

28. What is the result of applying the following SQL statement on the *Customers* table? (2 points)

```
SELECT COUNT( "CustomerID" ), "Country"
FROM "Customers"
GROUP BY "Country"
HAVING COUNT( "CustomerID" ) > 1
```

Virtualization-related questions

29. Which of the following statements are true? **Multiple answers are possible.** (1 point)

Put ✓ beside answer(s)	Answer(s)
	The Virtualization is a Windows simulation
	The Virtualization is a Linux simulation
	The Virtualization is running a Guest OS on top of a Hypervisor
	The Virtualization reduces costs linked to the Hardware investments

30. Gives 3 softwares that allow us to make hypervisor (1 point)

Use case

Network description

MSF network is extended over two sites: *Office* and *Hospital*. Both sites are interconnected via a WIFI bridge using Ubiquiti Nano Stations.

Office segment is constituted of a **dual WAN** Firewall (where the WAN connection is plugged), a Switch (SW_01), a network printer (Print_01), WIFI Access Point (AP_01), four computers (COMP[01-04]) and a Nano Station (NS_01).

Hospital segment is constituted of a Switch (SW_02), a network printer (Print_02), WIFI Access Point (AP_02), three computers (COMP[05-07]) and a Nano Station (NS_02).

WIFI Access Points, printers and Nano Stations have fixed IP addresses and don't belong to the IP range of the DHCP Server. Contrariwise, computers IP addresses have to be distributed by the DHCP Server.

The IP range of the DHCP Server is between 10.234.1.30.and 10.234.1.254

Both segments belong to one subnet (10.234.1.0/24); no VLAN should be used in the corrective actions.

Questions (see appendix page 14)

31. There is a problem regarding the applied DHCP configuration. Identify the problem and enumerate the corrective action(s) to resolve it. (2 points)

32. In order to restrict the access to the *Office* and *Hospital* network, a MAC Filtering is applied on the Firewall. There are two problems regarding the applied MAC Filtering configuration. Identify both problems and enumerate the corrective actions to resolve them. (3 points)

33. Assuming that there is a good 4G coverage in the Office/Hospital neighborhood, and in order to provide a backup connection for the whole network, how many 4G subscriptions would you subscribe for? Where would you connect your 4G routers? (2 points)

Appendix: MSF network Topology

