Hana BERRACHED

Standard evaluation scale: Waiting for the processing of possible precision requests	Weighted evaluation scale: Waiting for the processing of possible precision requests

Powershell

Standard Evaluation Scale: Note pending processing of possible requests for clarification

AAVs :
- **[3] Prepare PowerShell scripts for information retrieval**
- **[3] Prepare PowerShell scripts to interact with Active Directory**
- **[5] Propose a set of scripts to optimize IT management**

❓ Question 1   Single answer question

PowerShell passes objects from one command to another via:

Repones correct s		1 point obtained on 1	

	Expected response	**Entered response**	**Discrepancy in response**	
A	☐	☐	Not	IRC
B	☑	☑	Not	the pipeline
C	☐	☐	Not	SNMP
D	☐	☐	Not	object management protocol
E	☐	☐	Not	system traps

💬 **Correction comment**

A pipeline is a series of commands connected by pipeline operators (|) (ASCII 124). Each pipeline operator sends the results of the previous command to the next command.

❓ Question 2   Association question

Associate each command with its UNIX alias.

Correct answers	0 discordance	1 point obtained on 1

Element to associate	Expected response	Entered response	Discrepancy in response	
Get-Location	pwd	pwd	Not	
Set-Location	cd	cd	Not	
Get-ChildItem	ls	ls	Not	
Get-Content	cat	cat	Not	

💬 **Correction comment**

An alias is an alternate name or abbreviation for a cmdlet or a command element, such as a function,a script, a file, or an executable. You can run the command using the alias instead of the executable name.

PowerShell has several aliases that allow users of UNIX and cmd.exe to use familiar commands in Windows.

For more information: https://learn.microsoft.com/en-us/powershell/scripting/learn/shell/using-aliases?view=powershell-7.3

❓ Question 3   Multiple choice question

Select the correct statements about ____ from PowerShell. (3 answers expected) es)

Repones correct s	0 discordance	1 point obtained on 1

	Expected response	Input response	Discrepant response	
A	☑	☑	Not	The default value for all variables is $null.
B	☑	☑	Not	You can store any type of object in a variable, including integers, strings, arrays, and hash tables.
C	☐	☐	Not	You can store any type of object in a variable except hash tables.
D	☐	☐	Not	PowerShell accepts and returns only text.
E	☑	☑	Not	PowerShell is based on the common language runtime (CLR) .NET.

💬 **Correction comment**

PowerShell is based on the .NET common language runtime (CLR). All inputs and outputs are .NET objects. It is not necessary to analyze the text output to extract information from the output.
You can store any type of object in a variable, including integers, strings, arrays, and hash tables. And, objects that represent processes, services, event logs, and
computers.
The default value for all variables is $null.

❓ Question 4   Single answer question

You want to be able to run your own scripts as well as those signed by a trusted developer. You use the command Get-ExecutionPolicy

RepIncorrect answerstes		-0 points obtained out of 1

	Expected response	Entered response	Discrepancy in response	
A	☐	☐	Not	Restricted
B	☑	☐	Yes (+1)	AllSigned
C	☐	☑	Yes (+1)	RemoteSigned
D	☐	☐	Not	Unrestricted
E	☐	☐	Not	Unasigned

💬 **Correction comment**

The PowerShell execution strategy is a security feature that controls the conditions under which PowerShell loads configuration files and executes scripts. This feature helps prevent the execution of malicious scripts.

AllSigned
Scripts can be executed.
requires that all scripts and configuration files be signed by an approved publisher, including scripts that you write on the local computer.
Invite you before defecting scripts from dedictors that you have not yet classified as approved or ninapprouvated.

Risks linked to the shortcomings of signed, but malicious scripts.
To find out more: https://learn.microsoft.com/fr-fr/powershell/module/microsoft.powershell.core/about/about_execution_policiesview=powershell-7.3

❓ Question 5 — Single answer question

Among the following commands, which one has the capability to interact with a remote computer?

Repones correct s		1 point obtained on 1	

	Expected response	Entered response	Discrepancy in response	
A	☑	☑	Not	Invoke-Command
B	☐	☐	Not	Enter-PSSession
C	☐	☐	Not	Get-CimInstance
D	☐	☐	Not	Get-WmiObject
E	☐	☐	Not	Get-Host

💬 Correction comment

The L'applet Invoke-Command command executes commands on a local or remote computer and returns all the command outputs, including errors. With a single Invoke-Command command, you can execute commands on multiple computers.

❓ Question 6 — Multiple choice question

What does this script do? (2 responses expected)

```
$path="OU=CESI,DC=enterprise,DC=com"
$username="CESIuser"
$count=1..10
foreach ($i in $count)
New-AdUser -Name $username$i -Path $path -Enabled $True -ChangePasswordAtLogon $true `
-AccountPassword (ConvertTo-SecureString "P@ssw0rd" -AsPlainText -force) -passThru
```

Repones correct s	0 encore	1 point obtained on 1

	Expected response	Input response	Discrepant response	
A	☑	☑	Not	10 users are created with a default password.
B	☐	☐	Not	10 users are created with an inactive account.
C	☐	☐	Not	One of the created accounts is named CESIuser$2
D	☐	☐	Not	Users are created in the local domain group "CESI" in the "enterprise.com" domain
E	☑	☑	Not	The users created will have to change their password on the next connection.

💬 Correction comment

$path="OU=CESI,DC=enterprise,DC=com" : Specifies the path where users will be created. Here, users will be created in the Organizational Unit (OU) "CESI" within the domain "enterprise.com".

New-ADUser : The command that creates a new user in Active Directory with the specified parameters.

-Name $username$i : The user name that changes with each iteration of the loop, adding the number to the end of the base name defined by $username ("CESIuser").

-Path $path : The path where the user will be created.

-Enabled $True : Enables the user account.

-ChangePasswordAtLogon $true : Forces the user to change their password at the next login.

foreach ($i in $count) : Iterates over each element of the number range defined by $count, so 10 times (10 users)

❓ Question 7 — Single answer question

On which OS can we use Powershell?

Repones correct s			1 points obtained sor 1

	Expected response	Entered response	Discrepancy in response	
A	☐	☐	Not	Only for Windows and Linux
B	☐	☐	Not	Only for Windows
C	☐	☐	Not	Windows and MacOS only
D	☐	☐	Not	Windows Server only
E	☑	☑	Not	Windows, Linux and MacOS

💬 **Correction comment**

Microsoft has been offering multi-platform PowerShell versions for several years.
PowerShell is a multi-platform task automation solution, consisting of a command interpreter (shell), a scripting language, and a configuration management framework. PowerShell runs on Windows, Linux, and macOS.

❓ Question 8 — Single answer question

Create mass user accounts in Active Directory from a list defined in a CSV file?

RepIncorrect answerstes			-0 points obtained out of 1

	Expected response	Input response	Discrepant response	
A	☐	☐	Not	Using the "Import" menu in the "Users and Computers active directory" console.
B	☑	☐	Yes (+1)	Using PowerShell with Import-CSV and New-ADUser.
C	☐	☐	Not	Using PowerShell with ADUser-CSV.
D	☐	☑	Yes (+1)	Importing a CSV file via the context menu of the 'Users' OU.
E	☐	☐	Not	It is impossible to create users in bulk from a CSV file.

💬 **Correction comment**

Utilize the cmdlet Import-Csv with New-ADUser to create multiple Active Directory user objects.
To do this, use Import-Csv to create custom objects from a CSV file (values separated by commas) containing a list of object properties. Then, pass these objects through the pipeline to the New-ADUser command to create user objects.

Example:
$CSVFile = "C:\\Scripts\\AD_USERS\\Utilisateurs.csv"
$CSVData = Import-CSV -Path $CSVFile -Delimiter ";" -Encoding UTF8

❓ **Question 9**	**Single answer question**

What code can give this result?

```
Name                Length
----                ------
tmp1.txt             82920
tmp2.txt            114000
tmp3.txt            123000
```

Repones correct s	1 poobtained on 1

	Expected response	**Entered response**	**Discrepancy in response**	
A	☑	☑	Not	Get-ChildItem -Path *.txt | Where-Object {$_.length -gt 10000} | Sort-Object -Property length| Format-Table -Property name, length
B	☐	☐	Not	Get-ChildItem -Path *.txt Where-Object {$_.length -gt 10000} >>Sort-Object -Property length >>Format-Table -Property name, length
C	☐	☐	Not	Get-ChildItem -Path *.txt | Where-Object {$_.length -gt 10000} | Get-Object -Property length | Format-Table -Property name, length
D	☐	☐	Not	Get-ChildItem -Path *.txt Where-Object {$_.length -gt 10000} Get-Object -Property length Format-Table -Property name, length
E	☐	☐	Not	Get-ChildItem -Path *.txt | Where-Object {$_.length -gt 100000} | Sort-Object -Property length| Format-Table -Property name, length

💬 **Correction comment**

This example of pipeline gets text files in the active directory, selects only the files that are more than 10,000 bytes, sorts them by length, and displays the name and length of each file in a table.

A pipeline is a series of commands connected by the pipeline operators (|) (ASCII 124). Each pipeline operator sends the results of the previous command to the next command.

Supervision

Standard Evaluation Scale: Note pending processing of possible requests for clarification

AAVs :

- [3] Use monitoring tools

- [2] Recognize different protocols for supervision

- [2] Describe the role of MIB and OID

- [5] Propose technical and functional supervision

❓ Question 1 — Single answer question

What authentication mode is used by the first version of SNMP?

Repones correct s	1 point obtained on 1

	Expected response	Input response	Discrepant response	
A	☑	☑	Not	A dauthentification mode based on the name of the community
B	☐	☐	Not	MD5/SHA authentication mode
C	☐	☐	Not	Kerberos authentication mode
D	☐	☐	Not	CHAP authentication mode
E	☐	☐	Not	No authentication mode is used in the first version.

💬 **Correction comment**

Avec SNMPv1, première version du protocole (RFC 1157), la seule vérification faite est basée sur la chaîne de caractères "community".

❓ Question 2 — Single answer question

What do SNMP traps correspond to?

Repones correct s	1 point obtained on 1

	Expected response	Input response	Discrepant response	
A	☐	☐	Not	To an SNMP request sent from the server to the agent
B	☑	☑	Not	To an SNMP request sent from the agent to the server
C	☐	☐	Not	Alarm sent from the server to the agent when a problem occurs
D	☐	☐	Not	Response received by the server after an SNMP request sent to the agent
E	☐	☐	Not	Informative request sent by the agent without having knowledge of its successful reception by the server

💬 **Correction comment**

The SNMP protocol also defines a concept of interruptions (traps in English). Once defined, if a certain event occurs, such as the exceeding of a threshold, the agent sends a UDP packet to port 162 of the supervision server.

Question 3 | Multiple choice question

Why use the ICMP protocol in monitoring? (2 answers expected)

| Repones correct s | | 0   discordance | 1 point obtained on 1 |

	Expected response	**Entered response**	**Discrepancy in response**	
A	☐	☐	Not	To traverse a MIB.
B	☐	☐	Not	To retrieve safe information.
C	☑	☑	Not	To detect network congestion.
D	☐	☐	Not	To stream.
E	☑	☑	Not	To detect a connectivity problem.

💬 **Correction comment**

The ICMP (Internet Control Message Protocol) is an important network layer protocol for computer networks. It provides a standardized mechanism allowing network devices to communicate vital information such as connectivity and network status. All devices connected to the network, including routers and endpoints, can process ICMP messages. The ICMP protocol has been adapted to function with both IPv4 and IPv6.

Question 4 | Single answer question

Which file are you going to modify to enable SNMP on Linux?

| RepIncorrect answerstes | | -0 points earnedout of 1 |

	Expected response	**Entered response**	**Discrepancy in response**	
A	☐	☐	Not	/users/etc/snmpd.conf
B	☑	☐	Yes (+1)	/etc/snmp/snmpd.conf
C	☐	☑	Yes (+1)	/etc/conf/snmpd.conf
D	☐	☐	Not	/etc/sysconfig/iptables/snmpd.conf
E	☐	☐	Not	/etc/sysconfig/snmpd.conf

💬 **Correction comment**

The file "snmpd.conf" is located in the directory [/etc/snmp/]The file snmpd.conf is used for configuration information. Each entry in the file consists of a keyword followed by a string of parameters.

❓ Question 5 — Single answer question

In the following SNMP command, what information is missing?

```
snmpget -Of -v -c public 172.16.252.2 SNMPv2-MIB::sysName.0
```

Repones correct   s | 1 point obtenot sure 1

	Expected response	Entered response	Discrepancy in response	
A	☐	☐	Not	The community
B	☑	☑	Not	The version
C	☐	☐	Not	The agent's IP address
D	☐	☐	Not	Interrogated SNMP branch
E	☐	☐	Not	No, the command is functional

💬 **Correction comment**

The version is missing:
snmpget -Of -v **2c** -c public 172.16.252.2 SNMPv2-MIB::sysName.0
-c public defines the SNMP community as "public".
172.16.252.2 is the IP address of the device to query.
SNMPv2-MIB::sysName.0 is the OID corresponding to the device\'s system name.

❓ Question 6 — Single answer question

What layer of the OSI model does SNMP operate?

Repones correct   s | 1 point obtained on 1

	Expected response	Entered response	Discrepancy in response	
A	☐	☐	Not	Transport
B	☐	☐	Not	Network
C	☑	☑	Not	Application
D	☐	☐	Not	Physique
E	☐	☐	Not	Data Link

💬 **Correction comment**

SNMP uses the UDP (Users Datagram Protocol) packet transport protocol, which is not resource-intensive in terms of equipment and bandwidth. Located at level 4 of the OSI layer, like TCP/IP, UDP does not guarantee data transmission.
However, the SNMP protocol is a protocol that belongs to layer 7 of the OSI reference model (application layer)

Question 7 — Multiple choice question

What ports are used by SNMP (2 expected responses)

Repones correct s	0 discordance	1 point obtained on 1

	Expected response	Entered response	Discrepancy in response	
A	☐	☐	Not	UDP 151
B	☑	☑	Not	UDP 161
C	☑	☑	Not	UDP 162
D	☐	☐	Not	UDP 152
E	☐	☐	Not	TCP 162

💬 **Correction comment**

An SNMP request is a UDP datagram usually sent by the manager for port 161 of the agent. Leprotocol SNMP also defines a concept of interruptions (traps in English). Once defined, if a certain event is
Produced, such as exceeding a threshold, the agent sends an UDP package to Port 162 of the supervision server.

Question 8 — Multiple choice question

What is the role of metrology? (3 answers expected)

Reppartial ones correct ones	2 discordances	0.2 points obtained out of 1

	Expected response	Entered response	Discrepancy in response	
A	☑	☐	Yes (+1)	It defines units of measurement.
B	☐	☑	Yes (+1)	It aims to answer the question "Is the service accessible?"
C	☑	☑	Not	It performs numerical measurements of a load.
D	☐	☐	Not	She is characterized by her alert system.
E	☑	☑	Not	She traces the evolution of a load.

💬 **Correction comment**

Metrology is the science of measurement. Metrology collects metrics, such as for example the number of internet users connected in real time or even the number of simultaneous connections to the database, memory usage etc. Metrics also have the advantage of being able to be visualized in the form of graphs.
Supervision consists of a set of probes operated regularly to go check the proper functioning of the services and components of an infrastructure.
In the event of a failure, an alert procedure is triggered based on different criteria.

❓ Question 9 — Multiple choice question

What are the currently existing versions of SNMP? (3 answers expected)

Repones correct s	0 discordance	1 point obtained on 1

	Expected response	Entered response	Discrepancy in response	
A	☑	☑	Not	SNMP version 1
B	☑	☑	Not	SNMP version 2c
C	☑	☑	Not	SNMP version 3
D	☐	☐	Not	SNMP v3c
E	☐	☐	Not	SNMP v1c

💬 **Correction comment**

There are currently 3 different versions of the SNMP protocol:
-SNMP v1 (RFC 1155, 1157, and 1212).
-SNMP v2c (RFC 1901 to 1908).
-SNMP v3 (RFC 3411 to 3418).

❓ Question 10 — Single answer question

A private company wishing to develop objects specific to its equipment must rely on the MIB branch:

RepIncorrect answerstes	-0 points obtained out of 1

	Expected response	Entered response	Discrepancy in response	
A	☐	☐	Not	Management
B	☑	☐	Yes (+1)	Private
C	☐	☐	Not	Security
D	☐	☐	Not	Experimental
E	☐	☑	Yes (+1)	Enterprise

💬 **Correction comment**

The MIB (Management Information Base) are hierarchical databases organized in an arborescent manner.
They use a branch structure to organize information and managed objects by the SNMP (Simple Network Management Protocol).
Each branch of the MIB is identified by a unique object number, defined by the OID (Object Identifier).

Private: This branch is reserved for enterprises and organizations to define their own management objects. It allows customizing the MIB to meet specific needs.

Question 11   Single answer question

You are using the command:

snmpwalk -v2c -c public 127.0.0.1 .1.3.6.1.2.1.1

What information does .1.3.6.1.2.1.1 represent?

Repones correct s	1 point obtained on 1

	Expected response	**Entered response**	**Discrepancy in response**	
A	☐	☐	Not	A MIB
B	☑	☑	Not	An OID "node"
C	☐	☐	Not	An IP address
D	☐	☐	Not	Security information
E	☐	☐	Not	A MAC address

💬 **Correction comment**

Here is the syntax of the command:

snmpwalk [Options] [Community-String/Authentication Information] [Host Name/Address Name] [**Object Identifier**]

snmpwalk allows you to retrieve all values of an OID « node ». snmpwalk allows you to retrieve all values of a subtree: you will retrieve all available values below the tree.

Question 12   Single answer question

What is the objective of the SNMP protocol?

Repones correct s	1 point obtained on 1

	Expected response	**Input response**	**Discrepant response**	
A	☐	☐	Not	Connect to remote equipment to ensure administration through a console
B	☐	☐	Not	Secure exchanges of a transmission with a community name
C	☑	☑	Not	Remotely control or retrieve the status of the main network components to identify problems
D	☐	☐	Not	Define a hierarchy containing objects called MIB
E	☐	☐	Not	Deploy agents to perform inventory of the park

💬 **Correction comment**

Simple Network Management Protocol (abbreviated SNMP), in French "simple network management protocol", is a communication protocol that allows network administrators to manage network equipment, supervise and diagnose network and hardware problems remotely.

❓ Question 13 — Multiple choice question

In the context of SNMP-based supervision, check the correct statements. (3 answers expected)

| Repones correct s	0 discordance	1 point obtained on 1

	Expected response	Input response	Discrepant response	
A	☑	☑	Not	The OID is unique and universal.
B	☐	☐	Not	Loid is represented in the form of an enumeration of numbers and delets separated by points.
C	☑	☑	Not	Part of the OID is specific to a constructor.
D	☐	☐	Not	The OID is presented in the form of a tree where each node is an identifier called MIB.
E	☑	☑	Not	The OID is a node of the MIB.

💬 **Correction comment**

OIDs (for object identifier) are universal identifiers, represented as a sequence of integers. They are organized hierarchically with nodes. Each node of the tree is represented by a series of integers separated by a point, corresponding to the path from the root and traversing the ancestor nodes to the node.

A MIB (management information base, base d'informations pour la gestion du réseau) is a structured set of information. This information can be retrieved, or sometimes modified, by a protocol such as SNMP. The structure of the MIB is hierarchical: information is grouped into a tree. Each information has an object identifier.

❓ Question 14 — Association question

Here is a diagram showing the basic operation of the SNMP protocol. Associate each sentence with the place where it should be located on this diagram. The letters indicate only a location, they do not indicate an execution order.
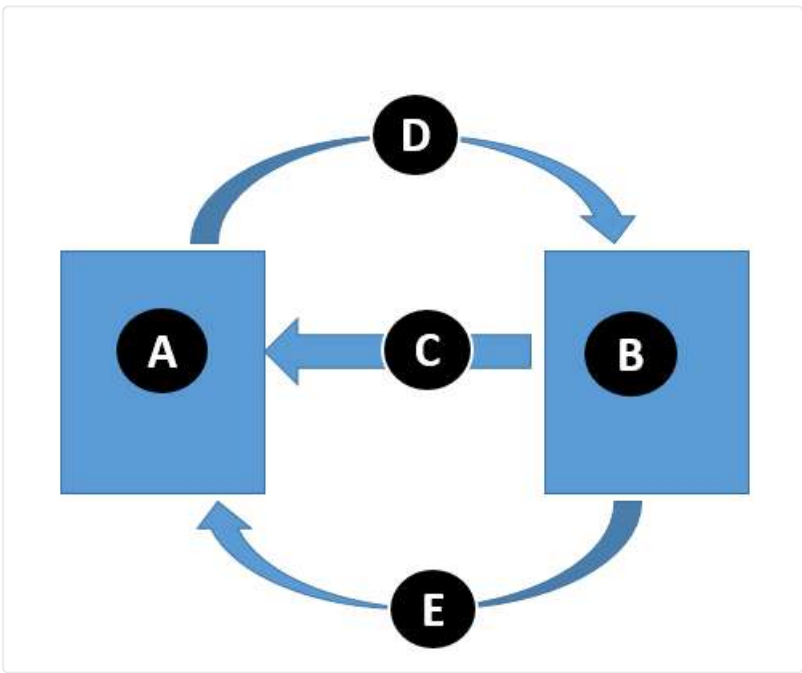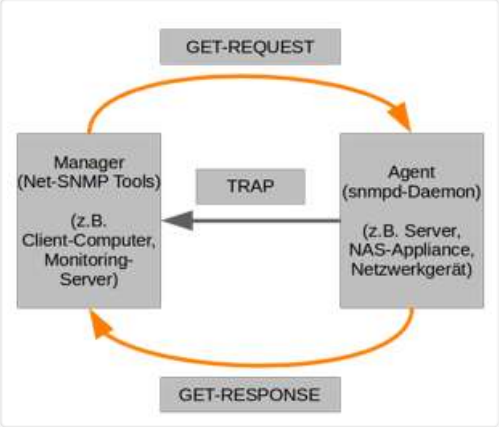

| Incorrect Answers | 4 discordances | 0 point obtained on 1 |

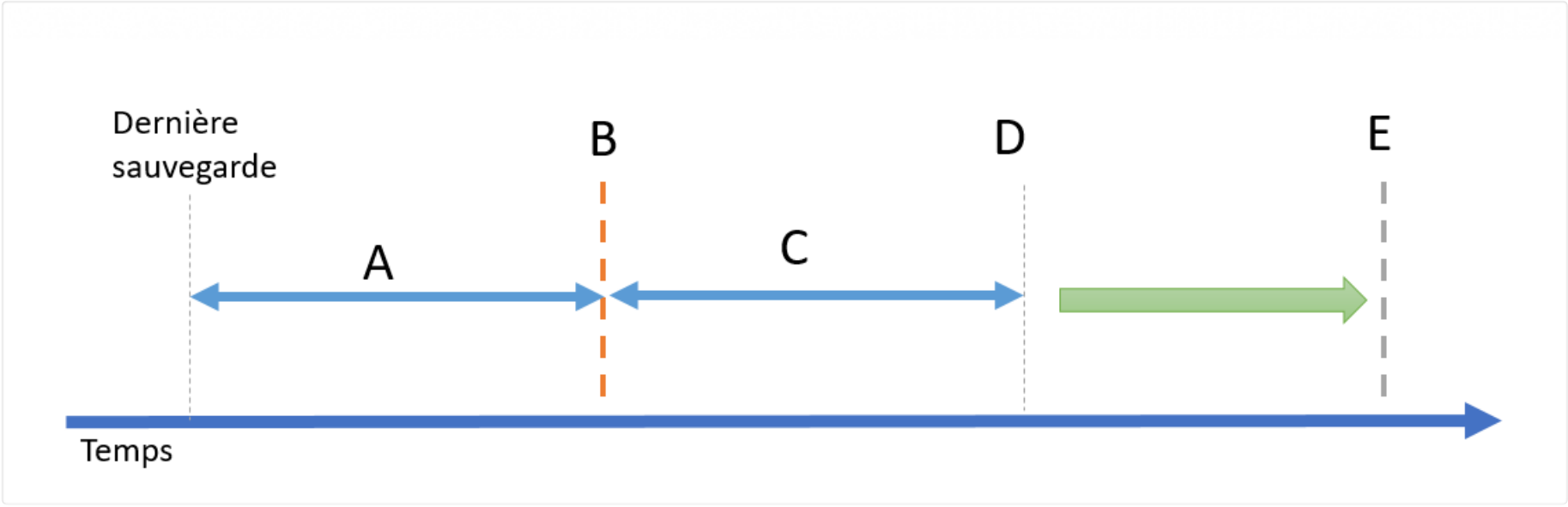| Element to associate	Expected response	Entered response	Discrepancy in response	
TRAP	Location C	Location D	Yes (+1)	
GET-RESPONSE	Location E	Location E	Not	
GET-REQUEST	Location D	Location C	Yes (+1)	
MANAGER (Net-SNMP tools)	Location A	Location B	Yes (+1)	
AGENT (snmpd-Daemon)	Location B	Location A	Yes (+1)	

💬 Correction comment

Backup and security

Standard Evaluation Scale: Note pending processing of possible requests for clarification

AAVs :
- [5] Propose a backup policy in line with business needs
- [2] Differentiate concepts related to the Business Continuity Plan
- [2] Differentiate types of backups
- [5] Reorganize the security of an infrastructure

? Question 1   **Association question**

What do A, B, C, D, and E correspond to on this diagram?

| Incorrect Answers | 2 discordances | 0.2 points obtained out of 1 |

Element to associate	Expected response	Entered response	Discrepancy in response
A	RPO	Incident	Yes (+1)
B	Incident	RPO	Yes (+1)
C	RTO	RTO	Not
D	Recovery of service in degraded mode	Recovery of service in degraded mode	Not
E	Resumption of normal service	Resumption of normal service	Not

💬 **Correction comment**

Recovery Point Objective (RPO) generally refers to the amount of data that can be lost during the most opportune period for a business, before significant damage occurs, from a critical event to the most recent backup.

Recovery Time Objective (RTO) often refers to the time during which an application, a system, and/or a process can be down without causing significant damage to the business, as well as the time taken to restore the application and its data.
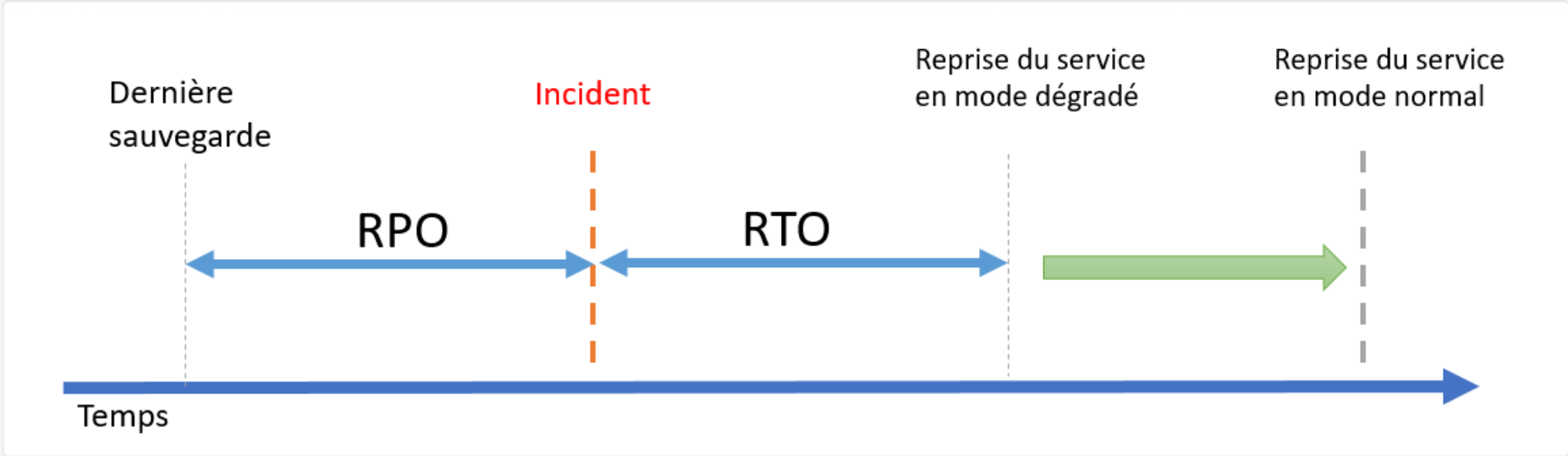
❓ Question 2 — Single answer question

How much storage space in GB can you store on a storage space configured with RAID-1 using two 600 GB drives?

Repones correct s	1 point obtained on 1

	Expected response	Entered response	Discrepancy in response	
A	☐	☐	Not	800
B	☐	☐	Not	500
C	☑	☑	Not	600
D	☐	☐	Not	900
E	☐	☐	Not	1200

💬 **Correction comment**

RAID-1 (also known as mirror) replicates data in real-time on two hard drives. In this type of configuration, the available storage space is equivalent to the size of the smallest drive in the RAID.

❓ Question 3 — Multiple choice question

What does data integrity imply? (2 responses required)

Reppartial ones correct ones		1 discordance	0.5 point earned out of 1

	Expected response	Input response	Discrepant response	
A	☑	☑	Not	Data undergoes no deliberate or accidental alteration or destruction.
B	☑	☑	Not	Data retains a format that allows its use.
C	☐	☐	Not	Users are authenticated.
D	☐	☐	Not	Data is archived in a secure manner.
E	☐	☑	Yes (+1)	Data must be encrypted.

❓ Question 4 — Single answer question

Consider a company that, for regulatory purposes, must retain certain files for 25 years. They will not be used except in the event of an inspection by the State. In the absence of data, fines are very high. Currently, the data is 10 years old.

What is the practice to adopt?

Repones correct s				1 point obtained on 1

	Expected response	Input response	Discrepant response	
A	☐	☐	Not	Data is backed up regularly with a mix of full and incremental backups
B	☐	☐	Not	Data is saved (full backup) only once on high-performance disks
C	☐	☐	Not	Data is saved (full backup) only once on low-performance disks
D	☐	☐	Not	Data is archived while keeping a copy of the data at the original location
E	☑	☑	Not	Data is archived (moved)

❓ Question 5 — Multiple choice question

What is an SLA? (2 answers expected)

Repones correct s	0 discordance	1 point obtained on 1

	Expected response	Entered response	Discrepancy in response	
A	☐	☐	Not	A data protection plan.
B	☑	☑	Not	A commitment to an expected level of service.
C	☐	☐	Not	Information security process.
D	☐	☐	Not	Maximum duration of archiving.
E	☑	☑	Not	A contractual clause that defines specific objectives.

💬 Correction comment

The Service Level Agreement, or SLA, is a contract or part of a contract under which an IT service provider commits to providing a set of services to one or more clients. In other words, it is a contractual clause that defines specific objectives and the level of service that a client is entitled to expect from the signatory provider.

❓ Question 6 | Single answer question

In the case of a classic backup, that is to say full backup on weekends (Friday night) and incremental backups the other working days of the week, Monday to Thursday (not Friday) or four days:
- either D the useful data space to be backed up,
- so that the desired work retention, expressed in weeks,
- or T, the daily change rate of the files in the backup space.
Select the best formula to dimension the volume of a backup device.

Repones correct s			1 point scored out of 1

	Expected response	Entered response	Discrepancy in response	
A	☑	☑	Not	Make sure to allocate a backup space of D x R + (D x T %) x 4
B	☐	☐	Not	Make sure to allocate a backup space of (D x R x T %) x 4
C	☐	☐	Not	Make sure to allocate a backup space of D x R + (D x T %) x 3
D	☐	☐	Not	Make sure to allocate a backup space of D + (R x T %) x 4
E	☐	☐	Not	It is necessary to allocate a backup space of D x R + D + (T % x 4)

💬 **Correction comment**

Example in figures: 100 Go in total to be backed up with a retention of 3 weeks and a modification rate of 20% per day results in 100 x 3 + (100 x 20%) x 4 = 380 Go. 380 Go will be needed to back up 100 Go of data with a retention of 3 weeks and a modification rate of 20% per day.

❓ Question 7 | Multiple choice question

Which statements are true (in the same context)? (2 answers expected)

Repones correct s		0 discordance	1 point obtained on 1

	Expected response	Input response	Discrepant response	
A	☑	☑	Not	The differential backup will allow for a faster restore than the incremental.
B	☐	☐	Not	Incremental backup will allow for faster restoration than differential backup.
C	☑	☑	Not	Incremental backup is faster than a full backup.
D	☐	☐	Not	Incremental backup is less efficient and faster than a full backup.
E	☐	☐	Not	Differential backup requires less storage space than incremental backup.

💬 **Correction comment**

The incremental backup is based on the previous backup, the differential backup is based on its full backup.
The incremental backup requires less storage space, but takes longer to restore.
The differential backup requires more storage space, but takes less time to restore.

Question 8 | Multiple choice question

Select the correct sentences. (2 answers expected)

Reppartial ones	correct ones		2 discordances	0.2 points obtained out of 1

	Expected response	Input response	Discrepant response	
A	☑	☑	Not	The PCI must be considered as one of the parts of the global PCA structure.
B	☐	☐	Not	The PCA should be considered as one of the parts of the global PCI structure.
C	☐	☐	Not	The PCA is part of the PRA.
D	☑	☐	Yes (+1)	The PRA is part of the PCA.
E	☐	☑	Yes (+1)	A PCA is also called PRA.

💬 **Correction comment**

PCI (Plan de Continuité Informatique) is a part of the overall PCA (Plan de Continuité d'Activité) of a structure. The PCI specifically focuses on the continuity of IT operations in the event of a disruption or disaster.
The PRA (Plan de Reprise d'Activité) is an integral part of the PCA. The PRA focuses on restoring business processes and IT systems after a disruptive event. The PCA is a broader framework that encompasses the PRA as well as other continuity plans to ensure the overall resilience of an organization's activities.

Virtualization

Standard Evaluation Scale: Note pending processing of possible requests for clarification

AAVs :
- [2] Describe the operation of virtualization
- [2] Describe the operation of containerization
- [3] Experiment with containerization
- [4] Compare different types of virtualization
- [5] Structure an argument in favor of virtualization based on the context

Question 1 | Single answer question

Un type 1 hypervisor

Repones correct s		1 points scored out of 1

	Expected response	Entered response	Discrepancy in response	
A	☑	☑	Not	is installed directly on physical hardware
B	☐	☐	Not	is installed on the operating system
C	☐	☐	Not	only has device emulations
D	☐	☐	Not	is lighter than a type 3 hypervisor
E	☐	☐	Not	requires the specific application

❓ Question 2 — Multiple choice question

What is the difference between Docker and Docker Compose? (2 answers expected)

Repones correct s	0 discordance	1 point obtained on 1

	Expected response	Input response	Discrepant response	
A	☑	☑	Not	Docker commands concern only one container at a time, while Docker Compose manages multiple Docker containers.
B	☐	☐	Not	Docker Compose is a platform that allows the execution and management of containers from many container execution systems.
C	☐	☐	Not	Docker Compose stores the application configuration details in the form of a model, while Docker runs the application.
D	☐	☐	Not	Docker Compose is a simple text file containing all the necessary "commands" to assemble the desired image based on the selected source image.
E	☑	☑	Not	Docker Compose is a tool that allows you to define and run multi-container applications.

### 💬 Correction comment

Docker is primarily used for managing and running individual containers.
Docker Compose, on the other hand, is a tool specifically designed to define and run multi-container applications.
However, other platforms such as Kubernetes are container orchestrators that can manage containers across multiple execution systems.

❓ Question 3 — Single answer question

What type of architecture is represented on the diagram?
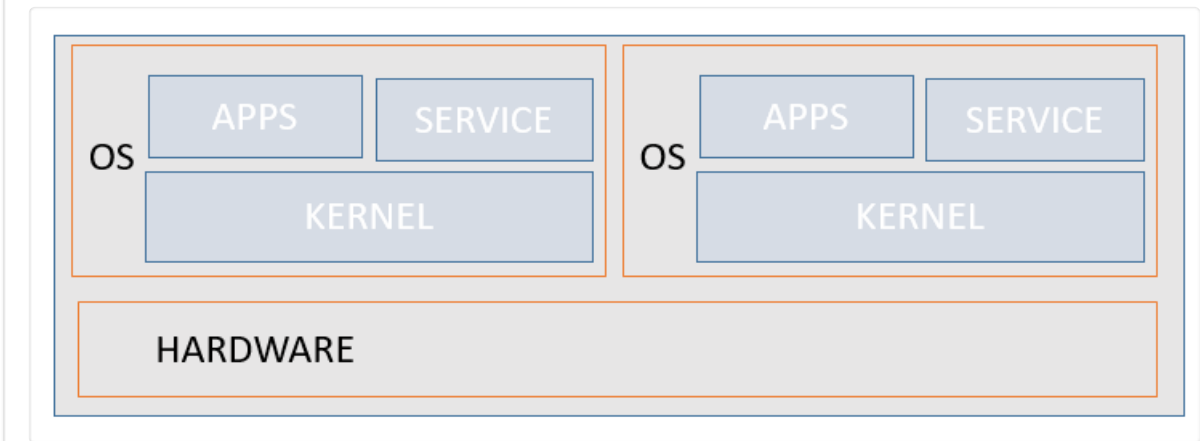
Repones correct s	1 point obtainedout of 1

	Expected response	Entered response	Discrepancy in response	
A	☐	☐	Not	Container Architecture
B	☐	☐	Not	Docker Architecture with Kubernetes
C	☑	☑	Not	Virtual Machine Architecture
D	☐	☐	Not	RAID Architecture
E	☐	☐	Not	Cluster Architecture

❓ Question 4 — Multiple choice question

Select the correct sentences. (2 answers expected)

| Repones correct   s | 0   discordance | 1 point obtained on 1 |

	Expected response	Input response	Discrepant response	
A	☐	☐	Not	Virtual Machines use less system memory than Containers.
B	☑	☑	Not	The virtual machines use more system memory than containers.
C	☐	☐	Not	Azure Kubernetes Service is an orchestrator that deploys VMs.
D	☑	☑	Not	Virtual machines offer the best isolation.
E	☐	☐	Not	Containers offer the best isolation.

❓ Question 5 — Single answer question

Which of these types of virtualization does not exist?

| Repones correct   s | 1 points obtained sor 1 |

	Expected response	Entered response	Discrepancy in response	
A	☐	☐	Not	Application Virtualization
B	☐	☐	Not	Desktop Virtualization
C	☐	☐	Not	Storage Virtualization
D	☐	☐	Not	Network Virtualization
E	☑	☑	Not	All proposals exist

❓ Question 6 — Single answer question

Among the following proposals, which one is an advantage of Docker?

| RepIncorrect answerstes | -0 points obtained out of 1 |

	Expected response	Entered response	Discrepancy in response	
A	☐	☐	Not	Docker protects against system corruption
B	☑	☐	Yes (+1)	Docker eliminates application conflict management issues
C	☐	☐	Not	Automates virtual machine management
D	☐	☐	Not	Permits the management of a larger data volume
E	☐	☑	Yes (+1)	Independent of the operating system

❓ Question 7 — Single answer question

Microsoft infrastructure servers that need to host Active Directory (multi-domain controllers), File Server, RDS. Which virtualization seems to be the most appropriate at first glance?

| | Repones correct   s | 1 point obtained on 1 |

	Expected response	Entered response	Discrepancy in response	
A	☐	☐	Not	Containerization
B	☑	☑	Not	Server Virtualization
C	☐	☐	Not	Storage Virtualization
D	☐	☐	Not	Desktop Virtualization
E	☐	☐	Not	VSA

❓ Question 8 — Multiple choice question

Under VirtualBox, which network access mode can allow a virtual machine to connect with internet access?
(3 answers expected)

| Repones correct   s | 0   discordance | 1 points obtained sor 1 |

	Expected response	Entered response	Discrepancy in response	
A	☑	☑	Not	Mode NAT
B	☑	☑	Not	Network NAT
C	☐	☐	Not	internal network
D	☑	☑	Not	bridge access
E	☐	☐	Not	Host-Only

💬 **Correction comment**

Mode "NAT": the VM accesses the Internet, via the same connection as the physical host.
NAT networks: VMs connected to the same NAT network can communicate with each other, and they can also access the Internet through NAT (as in the previous mode).
Bridge access: the VM is connected to the network under the same conditions as the physical computer where VirtualBox is installed.
A VM connected in "host-only network" mode can contact the physical host where VirtualBox is installed, and it can also contact other virtual machines connected on the same "Host-only" network. However, the virtual machine cannot access your local network, nor even the Internet.
A VM connected in "internal network" mode cannot communicate with the physical VirtualBox host, nor with the rest of the network to which this physical host is connected, nor even with the Internet.

❓ Question 9 **Multiple choice question**

What are the advantages of containers (3 expected responses)

Repones correct s	0 discordance	1 point obtained on 1

	Expected response	**Input response**	**Discrepant response**	
A	☑	☑	Not	Containers are ideal for automation and DevOps pipelines,
B	☑	☑	Not	Containers provide teams with the flexibility they need to manage the many software environments.
C	☑	☑	Not	Containers enable microservices architectures.
D	☐	☐	Not	They allow several operating systems to operate side by side.
E	☐	☐	Not	They are considered to be the foundation of the first generation of Cloud Composting.

💬 **Correction comment**

See resource: https://www.ibm.com/blog/containers-vs-vms/