Number: XK0-005
Passing Score: 800
Time Limit: 120
File Version: 32.0

Exam Code: XK0-005

Exam Name: CompTIA Linux+

Exam A

QUESTION 1
A server is experiencing intermittent connection issues. Some connections to the Internet work as intended, but some fail as if there is no connectivity. The systems administrator inspects the server configuration:

Routing table:

```
default via 89.107.157.129 dev ens3 proto static metric 100
default via 10.0.5.1 dev ens11 proto dhcp metric 101
10.0.0.0/16 dev sn11 proto kernel scope link src 10.0.6.225 metric 101
89.107.157.128/26 via 89.107.157.129 dev ens3 proto static metric 100
89.107.157.129 dev ens3 proto static scope link metric 100
89.107.157.160/29 dev ens3 proto kernel scope link src 89.107.157.161 metric 100
```

IP configuration:

```
ens3:
  inet 89.107.157.161/29 brd 89.107.157.167 scope global neprefixroute ens3
ens11:
  inet 10.0.6.225/16 brd 10.0.255.255 scope global noprefixroute dynamic ens11
```

ARP table:

Address	Hwtype	Hwaddress	Flags	Mask	Iface
10.0.5.1	ether	64:d1:54:c4:75:cb	C		ens11
89.107.157.129	ether	5c:5e:ab:01:85:cf	C		ens3
89.107.157.162	ether	52:54:00:e1:44:0a	C		ens3
10.0.255.1	ether	00:50:7f:e3:aa:1c	C		ens11

```
/etc/resolv.conf:
Generated by NetworkHanager
search company.com
nameserver 10.0.5.1
```

Which of the following is MOST likely the cause of the issue?

A. An internal-only DNS server is configured.
B. The IP netmask is wrong for ens3.
C. Two default routes are configured.
D. The ARP table contains incorrect entries.

Correct Answer: C
Section:

Explanation:
The most likely cause of the issue is that two default routes are configured on the server. The default route is the route that is used when no other route matches the destination of a packet. The default route is usually the gateway that connects the local network to the Internet. The server configuration shows that there are two default routes in the routing table, one with the gateway 192.168.1.1 and the other with the gateway 10.0.0.1. This can cause a conflict and confusion for the server when deciding which gateway to use for the outgoing packets. Some packets may be sent to the wrong gateway and fail to reach the Internet, while some packets may be sent to the correct gateway and work as intended. This can result in intermittent connection issues and inconsistent behavior. The administrator should remove one of the default routes and keep only the correct one for the network. This can be done by using the ip route del command or by editing the network configuration files. This will resolve the issue and restore the connectivity. The other options are incorrect because they are not supported by the outputs. The DNS server, the IP netmask, and the ARP table are not the causes of the issue. Reference: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 12: Managing Network Connections, pages 381-382.

QUESTION 2
A cloud engineer needs to block the IP address 192.168.10.50 from accessing a Linux server. Which of the following commands will achieve this goal?

A. iptables -F INPUT -j 192.168.10.50 -m DROP
B. iptables -A INPUT -s 192.168.10.30 -j DROP
C. iptables -i INPUT --ipv4 192.168.10.50 -z DROP
D. iptables -j INPUT 192.168.10.50 -p DROP

Correct Answer: B
Section:
Explanation:
The correct command to block the IP address 192.168.10.50 from accessing a Linux server is iptables -A INPUT -s 192.168.10.50 -j DROP. This command appends a rule to the INPUT chain that matches the source address 192.168.10.50 and jumps to the DROP target, which discards the packet. The other commands are incorrect because they either have invalid syntax, wrong parameters, or wrong order of arguments. Reference: CompTIA Linux+ Study Guide, Fourth Edition, page 457-458.

QUESTION 3
A Linux administrator generated a list of users who have root-level command-line access to the Linux server to meet an audit requirement. The administrator analyzes the following /etc/passwd and /etc/sudoers files:
$ cat /etc/passwd
root:x: 0:0: :/home/root: /bin/bash
lee: x: 500: 500: :/home/lee:/bin/tcsh
mallory:x: 501:501: :/root:/bin/bash
eve:x: 502: 502: /home/eve:/bin/nologin
carl:x:0:503: :/home/carl:/bin/sh
bob:x: 504: 504: : /home/bob:/bin/ksh
alice:x: 505:505: :/home/alice:/bin/rsh
$ cat /etc/sudoers
Cmnd_Alias SHELLS = /bin/tcsh, /bin/sh, /bin/bash
Cmnd_Alias SYSADMIN = /usr/sbin/tcpdump
ALL = (ALL) ALL
ALL = NOPASSWD: SYSADMIN
Which of the following users, in addition to the root user, should be listed in the audit report as having root-level command-line access? (Select two).

A. Carl
B. Lee
C. Mallory
D. Eve
E. Bob
F. Alice

Correct Answer: A, C
Section:
Explanation:
The users who have root-level command-line access are those who have either the same user ID (UID) as root, which is 0, or the ability to run commands as root using sudo. Based on the /etc/passwd and /etc/sudoers files, the users who meet these criteria are:
Carl: Carl has the same UID as root, which is 0, as shown in the /etc/passwd file. This means that Carl can log in as root and execute any command with root privileges1
Mallory: Mallory has the ability to run commands as root using sudo, as shown in the /etc/sudoers file. The line ALL = (ALL) ALL means that any user can run any command as any other user, including root, by using sudo. Mallory can also use the root shell /bin/bash as her login shell, as shown in the /etc/passwd file2
Therefore, the correct answer is A and C. Lee, Eve, Bob, and Alice do not have root-level command-line access because they have different UIDs from root and they cannot use sudo to run commands as root. Lee can only use sudo to run the commands listed in the Cmnd_Alias SHELLS, which are /bin/tcsh, /bin/sh, and /bin/bash. Eve cannot log in at all because her login shell is /bin/nologin. Bob and Alice can only use sudo to run the command /usr/sbin/tcpdump without a password, as specified by the Cmnd_Alias SYSADMIN and the line ALL = NOPASSWD: SYSADMIN2

QUESTION 4
A systems administrator is configuring a Linux system so the network traffic from the internal network 172.17.0.0/16 going out through the eth0 interface would appear as if it was sent directly from this interface. Which of the following commands will accomplish this task?

A. iptables -A POSTROUTING -s 172.17.0.0/16 -o eth0 -j MASQUERADE
B. firewalld -A OUTPUT -s 172.17.0.0/16 -o eth0 -j DIRECT
C. nmcli masq-traffic eth0 -s 172.17.0.0/16 -j MASQUERADE
D. ifconfig -- nat eth0 -s 172.17.0.0/16 -j DIRECT

Correct Answer: A
Section:
Explanation:
This command will use the iptables tool to append a rule to the POSTROUTING chain of the nat table, which will match any packet with a source address of 172.17.0.0/16 and an output interface of eth0, and apply the MASQUERADE target to it.This means that the packet will have its source address changed to the address of the eth0 interface, effectively hiding the internal network behind a NAT12.

QUESTION 5
A user is unable to log on to a Linux workstation. The systems administrator executes the following command:
cat /etc/shadow | grep user1
The command results in the following output:
user1 :! 6QERgAsdvojadv4asdvaarC/9dj34GdafGVaregmkdsfa:18875:0:99999:7 :::
Which of the following should the systems administrator execute to fix the issue?

A. chown -R userl:user1 /home/user1
B. sed -i '/ ::: / :: /g' /etc/shadow
C. chgrp user1:user1 /home/user1
D. passwd -u user1

Correct Answer: D
Section:
Explanation:
The output shows that the user1 account has a locked password, indicated by the exclamation point (!) in the second field of the /etc/shadow file1.To unlock the password and allow the user to log in, the systems administrator should use the passwd command with the -u (unlock) option2.

QUESTION 6
A Linux engineer finds multiple failed login entries in the security log file for application users. The Linux engineer performs a security audit and discovers a security issue. Given the following:
grep -iE '*www*|db' /etc/passwd
www-data:x:502:502:www-data:/var/www:/bin/bash

db:x: 505:505:db: /opt/db:/bin/bash
Which of the following commands would resolve the security issue?

A. usermod -d /srv/www-data www-data && usermod -d /var/lib/db db
B. passwd -u www-data && passwd -u db
C. renice -n 1002 -u 502 && renice -n 1005 -u 505
D. chsh -s /bin/false www-data && chsh -s /bin/false db

Correct Answer: D
Section:
Explanation:
This command will use the chsh tool to change the login shell of the users www-data and db to /bin/false, which means they will not be able to log in to the system1. This will prevent unauthorized access attempts and improve security.

QUESTION 7
A Linux systems administrator is configuring a new filesystem that needs the capability to be mounted persistently across reboots. Which of the following commands will accomplish this task?
(Choose two.)

A. df -h /data
B. mkfs.ext4 /dev/sdc1
C. fsck /dev/sdc1
D. fdisk -l /dev/sdc1
E. echo "/data /dev/sdc1 ext4 defaults 0 0" >> /etc/fstab
F. echo "/dev/sdc1 /data ext4 defaults 0 0" >> /etc/fstab

Correct Answer: B, F
Section:
Explanation:
"modify the /etc/fstab text file to automatically mount the new partition by opening it in an editor and adding the following line:
/dev/ xxx 1 /data ext4 defaults 1 2 where xxx is the device name of the storage device"
https://learning.oreilly.com/library/view/mastering-linux-system/9781119794455/b01.xhtml
To configure a new filesystem that needs the capability to be mounted persistently across reboots, two commands are needed: mkfs.ext4 /dev/sdc1 and echo "/dev/sdc1 /data ext4 defaults 0 0" >> /etc/fstab. The first command creates an ext4 filesystem on the device /dev/sdc1, which is the partition that will be used for the new filesystem. The second command appends a line to the /etc/fstab file, which is the configuration file that controls persistent mount points of filesystems. The line specifies the device name, the mount point (/data), the filesystem type (ext4), the mount options (defaults), and the dump and pass values (0 0). The other commands are incorrect because they either do not create or configure a filesystem, or they have wrong syntax or arguments.
Reference: CompTIA Linux+ Study Guide, Fourth Edition, page 409-410, 414-415.

QUESTION 8
A Linux administrator is alerted to a storage capacity issue on a server without a specific mount point or directory. Which of the following commands would be MOST helpful for troubleshooting? (Choose two.)

A. parted
B. df
C. mount
D. du
E. fdisk
F. dd
G. ls

Correct Answer: B, D
Section:
Explanation:
To troubleshoot a storage capacity issue on a server without a specific mount point or directory, two commands that would be most helpful are df and du. The df command displays information about disk space usage on all mounted filesystems, including their size, used space, available space, and percentage of usage. The du command displays disk space usage by files and directories in a given path, which can help identify large files or directories that may be taking up too much space. The other commands are incorrect because they either do not show disk space usage, or they are used for other purposes such as partitioning, formatting, checking, mounting, copying, or listing files.
Reference: CompTIA Linux+ Study Guide, Fourth Edition, page 417-419.

QUESTION 9
A Linux administrator needs to remove software from the server. Which of the following RPM options should be used?

A. rpm -s
B. r?m -d
C. rpm -q
D. rpm -e

Correct Answer: D
Section:
Explanation:
The RPM option -e should be used to remove software from the server. The rpm command is a tool for managing software packages on RPM-based Linux distributions. The -e option stands for erase and removes the specified package from the system. This is the correct option to use to accomplish the task. The other options are incorrect because they either do not exist (-s or -d) or do not remove software (-q stands for query and displays information about the package). Reference: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 16: Managing Software, page 489.

QUESTION 10
A Linux system fails to start and delivers the following error message:

```
Checking all file systems.
/dev/sda1 contains a file system with errors, check forced.
/dev/sda1: Inodes that were part of a corrupted orphan linked list found.
/dev/sda1: UNEXPECTED INCONSISTENCY;
```

Which of the following commands can be used to address this issue?

A. fsck.ext4 /dev/sda1
B. partprobe /dev/sda1
C. fdisk /dev/sda1
D. mkfs.ext4 /dev/sda1

Correct Answer: A
Section:
Explanation:
The command fsck.ext4 /dev/sda1 can be used to address the issue. The issue is caused by a corrupted filesystem on the /dev/sda1 partition. The error message shows that the filesystem type is ext4 and the superblock is invalid. The command fsck.ext4 is a tool for checking and repairing ext4 filesystems. The command will scan the partition for errors and attempt to fix them. This command can resolve the issue and allow the system to start. The other options are incorrect because they either do not fix the filesystem (partprobe or fdisk) or destroy the data on the partition (mkfs.ext4). Reference: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 10: Managing Storage, page 325.

QUESTION 11
Based on an organization's new cybersecurity policies, an administrator has been instructed to ensure that, by default, all new users and groups that are created fall within the specified values below.

```
# Min/max values for automatic uid selection in useradd
#
UID_MIN 1000
UID_MAX 60000
# Min/max values for automatic gid selection in groupadd
#
GID_MIN 1000
GID_MAX 60000
```

To which of the following configuration files will the required changes need to be made?

A. /etc/login.defs
B. /etc/security/limits.conf
C. /etc/default/useradd
D. /etc/profile

Correct Answer: A
Section:
Explanation:
The required changes need to be made to the /etc/login.defs configuration file. The /etc/login.defs file defines the default values for user and group IDs, passwords, shells, and other parameters for user and group creation. The file contains the directives UID_MIN, UID_MAX, GID_MIN, and GID_MAX, which set the minimum and maximum values for automatic user and group ID selection. The administrator can edit this file and change the values to match the organization's new cybersecurity policies. This is the correct file to modify to accomplish the task. The other options are incorrect because they either do not affect the user and group IDs (/etc/security/limits.conf or /etc/profile) or do not set the default values (/etc/default/useradd). Reference: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 15: Managing Users and Groups, page 463.

QUESTION 12
A Linux administrator is trying to remove the ACL from the file /home/user/dat a. txt but receives the following error message:

```
setfacl: data.txt: operation not permitted
```

Given the following analysis:

```
/dev/mapper/linux-home on /home type xfs (rw,relatime,seclabel,attr2,inode64,usrquota)

-rw-rw-r--+ 1 user staff 2354 Sep 15 16:33 data.txt
-rw-rw-r--+ user staff unconfined_u:object_r:user_home_t:s0 data.txt

# file: data.txt
# owner: user
# group: staff
user::rw-
user:accounting:rw-
group::r-
mask::rw-
other::r—

Attributes:
-----a-----------
```

Which of the following is causing the error message?

A. The administrator is not using a highly privileged account.
B. The filesystem is mounted with the wrong options.
C. SELinux file context is denying the ACL changes.
D. File attributes are preventing file modification.

Correct Answer: D
Section:
Explanation:
File attributes are preventing file modification, which is causing the error message. The output of lsattr /home/user/data.txt shows that the file has the immutable attribute (i) set, which means that the file cannot be changed, deleted, or renamed. The command setfacl -b /home/user/data.txt tries to remove the ACL from the file, but fails because of the immutable attribute. The administrator needs to remove the immutable attribute first by using the command chattr -i /home/user/data.txt and then try to remove the ACL again. The other options are incorrect because they are not supported by the outputs. The administrator is using a highly privileged account, as shown by the # prompt. The filesystem is mounted with the correct options, as shown by the output of mount | grep /home. SELinux file context is not denying the ACL changes, as shown by the output of ls -Z /home/user/data.txt. Reference: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 11: Managing Files and Directories, pages 357-358.

QUESTION 13
A Linux administrator needs to create a new cloud.cpio archive containing all the files from the current directory. Which of the following commands can help to accomplish this task?

A. ls | cpio -iv > cloud.epio
B. ls | cpio -iv < cloud.epio
C. ls | cpio -ov > cloud.cpio
D. ls cpio -ov < cloud.cpio

Correct Answer: C
Section:
Explanation:
The command ls | cpio -ov > cloud.cpio can help to create a new cloud.cpio archive containing all the files from the current directory. The ls command lists the files in the current directory and outputs them to the standard output. The | operator pipes the output to the next command.

The cpio command is a tool for creating and extracting compressed archives. The -o option creates a new archive and the -v option shows the verbose output. The > operator redirects the output to the cloud.cpio file. This command will create a new cloud.cpio archive with all the files from the current directory. The other options are incorrect because they either use the wrong options (-i instead of -o), the wrong arguments (cloud.epio instead of cloud.cpio), or the wrong syntax (< instead of > or missing |). Reference: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 11: Managing Files and Directories, page 351.

QUESTION 14
A systems administrator made some changes in the ~/.bashrc file and added an alias command.
When the administrator tried to use the alias command, it did not work. Which of the following should be executed FIRST?

A. source ~/.bashrc
B. read ~/.bashrc
C. touch ~/.bashrc
D. echo ~/.bashrc

Correct Answer: A
Section:
Explanation:
The command source ~/.bashrc should be executed first to use the alias command.
The source command reads and executes commands from a file in the current shell environment.
The ~/.bashrc file is a configuration file that contains commands and aliases that are executed when a new bash shell is started. The administrator made some changes in the ~/.bashrc file and added an alias command, but the changes are not effective until the file is sourced or a new shell is started.
The command source ~/.bashrc will reload the file and make the alias command available. The other options are incorrect because they either do not execute the commands in the file (read, touch, or echo) or do not affect the current shell environment (read or echo). Reference: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 9: Working with the Linux Shell, page 295.

QUESTION 15
A junior systems administrator has just generated public and private authentication keys for passwordless login. Which of the following files will be moved to the remote servers?

A. id_dsa.pem
B. id_rsa
C. id_ecdsa
D. id_rsa.pub

Correct Answer: D
Section:
Explanation:
The file id_rsa.pub will be moved to the remote servers for passwordless login. The id_rsa.pub file is the public authentication key that is generated by the ssh-keygen command. The public key can be copied to the remote servers by using the ssh-copy-id command or manually. The remote servers will use the public key to authenticate the user who has the corresponding private key (id_rsa). This will allow the user to log in without entering a password. The other options are incorrect because they are either private keys (id_rsa, id_dsa.pem, or id_ecdsa) or non-existent files (id_dsa.pem or id_ecdsa). Reference: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 13: Managing Network Services, page 410.

QUESTION 16
An administrator accidentally deleted the /boot/vmlinuz file and must resolve the issue before the server is rebooted. Which of the following commands should the administrator use to identify the correct version of this file?

A. rpm -qa | grep kernel; uname -a
B. yum -y update; shutdown -r now
C. cat /etc/centos-release; rpm -Uvh --nodeps
D. telinit 1; restorecon -Rv /boot

Correct Answer: A

Section:
Explanation:
The command rpm -qa | grep kernel lists all the installed kernel packages, and the command uname -a displays the current kernel version. These commands can help the administrator identify the correct version of the /boot/vmlinuz file, which is the kernel image file. The other options are not relevant or helpful for this task. Reference: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 8: Managing the Linux Boot Process, page 267.

QUESTION 17
A cloud engineer needs to change the secure remote login port from 22 to 49000. Which of the following files should the engineer modify to change the port number to the desired value?

A. /etc/host.conf
B. /etc/hostname
C. /etc/services
D. /etc/ssh/sshd_config

Correct Answer: D
Section:
Explanation:
The file /etc/ssh/sshd_config contains the configuration settings for the SSH daemon, which handles the secure remote login. To change the port number, the engineer should edit this file and modify the line that says Port 22 to Port 49000. The other files are not related to the SSH service. Reference: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 13: Managing Network Services, page 411.

QUESTION 18
A new file was added to a main Git repository. An administrator wants to synchronize a local copy with the contents of the main repository. Which of the following commands should the administrator use for this task?

A. git reflog
B. git pull
C. git status
D. git push

Correct Answer: B
Section:
Explanation:
The command iptables -t nat -A PREROUTING -p tcp --dport 80 -j DNAT --to-destination 192.0.2.25:3128 adds a rule to the nat table that redirects all incoming TCP packets with destination port 80 (HTTP) to the proxy server 192.0.2.25 on port 3128. This is the correct way to achieve the task. The other options are incorrect because they either delete a rule (-D), use the wrong protocol (top instead of tcp), or use the wrong port (81 instead of 80). Reference: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 12: Managing Network Connections, page 381.

QUESTION 19
A Linux administrator needs to redirect all HTTP traffic temporarily to the new proxy server 192.0.2.25 on port 3128. Which of the following commands will accomplish this task?

A. iptables -t nat -D PREROUTING -p tcp --sport 80 -j DNAT - -to-destination 192.0.2.25:3128
B. iptables -t nat -A PREROUTING -p top --dport 81 -j DNAT --to-destination 192.0.2.25:3129
C. iptables -t nat -I PREROUTING -p top --sport 80 -j DNAT --to-destination 192.0.2.25:3129
D. iptables -t nat -A PREROUTING -p tcp --dport 80 -j DNAT --to-destination 192.0.2.25:3128

Correct Answer: D
Section:
Explanation:
The command iptables -t nat -A PREROUTING -p tcp --dport 80 -j DNAT --to-destination 192.0.2.25:3128 adds a rule to the nat table that redirects all incoming TCP packets with destination port 80 (HTTP) to the proxy server 192.0.2.25 on port 3128. This is the correct way to achieve the task. The other options are incorrect because they either delete a rule (-D), use the wrong protocol (top instead of tcp), or use the wrong port (81 instead of 80).

Reference: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 12: Managing Network Connections, page 381.

QUESTION 20
Developers have requested implementation of a persistent, static route on the application server.
Packets sent over the interface eth0 to 10.0.213.5/32 should be routed via 10.0.5.1. Which of the following commands should the administrator run to achieve this goal?

A. route -i etho -p add 10.0.213.5 10.0.5.1
B. route modify eth0 +ipv4.routes "10.0.213.5/32 10.0.5.1"
C. echo "10.0.213.5 10.0.5.1 eth0" > /proc/net/route
D. ip route add 10.0.213.5/32 via 10.0.5.1 dev eth0

Correct Answer: D
Section:
Explanation:
The command ip route add 10.0.213.5/32 via 10.0.5.1 dev eth0 adds a static route to the routing table that sends packets destined for 10.0.213.5/32 (a single host) through the gateway 10.0.5.1 on the interface eth0. This is the correct way to achieve the goal. The other options are incorrect because they either use the wrong syntax (route -i etho -p add), the wrong command (route modify), or the wrong file (/proc/net/route). Reference: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 12: Managing Network Connections, page 379.

QUESTION 21
A user is asking the systems administrator for assistance with writing a script to verify whether a file exists. Given the following:

```
#1/bin/bash
filename=$1
<CONDITIONAL>
echo "File exists"
else
echo "File does not exist"
fi
```

Which of the following commands should replace the <CONDITIONAL> string?

A. if [-f "$filename"]; then
B. if [-d "$filename"]; then
C. if [-f "$filename"] then
D. if [-f "$filename"]; while

Correct Answer: A
Section:
Explanation:
The command if [-f "$filename"]; then checks if the variable $filename refers to a regular file that exists. The -f option is used to test for files. If the condition is true, the commands after then are executed. This is the correct way to replace the <CONDITIONAL> string. The other options are incorrect because they either use the wrong option (-d tests for directories), the wrong syntax (missing a semicolon after the condition), or the wrong keyword (while is used for loops, not conditions). Reference: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 16: Writing and Executing Bash Shell Scripts, page 493.

QUESTION 22
A systems administrator is deploying three identical, cloud-based servers. The administrator is using the following code to complete the task:

```
resource "abc_instance" "ec2_instance" {

   ami                              = data.abc_ami.vendor-Linux-2.id
   associate_public_ip_address      = true
   count                            = 3
   instance_type                    = "instance_type"
   vpc_security_group_ids           = [abc.security_group.allow_ssh.
                                      id]
   key_name                         = abc_key_pair.key_pair.key_name

 tags = {
     Name = "${var.namespace} $(count.index)"
  }

}
```

Which of the following technologies is the administrator using?

A. Ansible
B. Puppet
C. Chef
D. Terraform

Correct Answer: D
Section:
Explanation:
The code snippet is written in Terraform language, which is a tool for building, changing, and versioning infrastructure as code. Terraform uses a declarative syntax to describe the desired state of the infrastructure and applies the changes accordingly. The code defines a resource of type aws_instance, which creates an AWS EC2 instance, and sets the attributes such as the AMI ID, instance type, security group IDs, and key name. The code also uses a count parameter to create three identical instances and assigns them different names using the count.index variable. This is the correct technology that the administrator is using. The other options are incorrect because they use different languages and syntaxes for infrastructure as code. Reference: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 19: Managing Cloud and Virtualization Technologies, page 559.

QUESTION 23
Which of the following technologies can be used as a central repository of Linux users and groups?

A. LDAP
B. MFA
C. SSO
D. PAM

Correct Answer: A
Section:
Explanation:
LDAP stands for Lightweight Directory Access Protocol, which is a protocol for accessing and managing a central directory of users and groups. LDAP can be used as a central repository of Linux users and groups, allowing for

centralized authentication and authorization across multiple Linux systems. MFA, SSO, and PAM are not technologies that can be used as a central repository of Linux users and groups. MFA stands for Multi-Factor Authentication, which is a method of verifying a user's identity using more than one factor, such as a password, a token, or a biometric. SSO stands for Single Sign-On, which is a feature that allows a user to log in once and access multiple applications or systems without having to re-enter credentials. PAM stands for Pluggable Authentication Modules, which is a framework that allows Linux to use different authentication methods, such as passwords, tokens, or biometrics. Reference: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 8: Managing Users and Groups

QUESTION 24
A systems administrator is troubleshooting connectivity issues and trying to find out why a Linux server is not able to reach other servers on the same subnet it is connected to. When listing link parameters, the following is presented:

```
# ip link list dev eth0
2: etho: <NO-CARRIER, BROADCAST, MULTICAST, UP> mtu 1500, qdisc
fq_codel state DOWN mode DEFAULT group default qlen 1000
link/ether ac:00:11:22:33:cd brd ff:ff:ff:ff:ff:ff
```

Based on the output above, which of following is the MOST probable cause of the issue?

A. The address ac:00:11:22:33:cd is not a valid Ethernet address.
B. The Ethernet broadcast address should be ac:00:11:22:33:ff instead.
C. The network interface eth0 is using an old kernel module.
D. The network interface cable is not connected to a switch.

Correct Answer: D
Section:
Explanation:
The most probable cause of the connectivity issue is that the network interface cable is not connected to a switch. This can be inferred from the output of the ip link list dev eth0 command, which shows that the network interface eth0 has the NO-CARRIER flag set. This flag indicates that there is no physical link detected on the interface, meaning that the cable is either unplugged or faulty. The other options are not valid causes of the issue. The address ac:00:11:22:33:cd is a valid Ethernet address, as it follows the format of six hexadecimal octets separated by colons. The
Ethernet broadcast address should be ff:ff:ff:ff:ff:ff, which is the default value for all interfaces. The network interface eth0 is not using an old kernel module, as it shows the UP flag, which indicates that the interface is enabled and ready to transmit data. Reference: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 14: Managing Networking

QUESTION 25
A Linux administrator was asked to run a container with the httpd server inside. This container should be exposed at port 443 of a Linux host machine while it internally listens on port 8443. Which of the following commands will accomplish this task?

A. podman run -d -p 443:8443 httpd
B. podman run -d -p 8443:443 httpd
C. podman run -d -e 443:8443 httpd
D. podman exec -p 8443:443 httpd

Correct Answer: A
Section:
Explanation:
The command that will accomplish the task of running a container with the httpd server inside and exposing it at port 443 of the Linux host machine while it internally listens on port 8443 is podman run -d -p 443:8443 httpd. This command uses the podman tool, which is a daemonless container engine that can run and manage containers on Linux systems. The -d option runs the container in detached mode, meaning that it runs in the background without blocking the terminal. The -p option maps a port on the host machine to a port inside the container, using the format host_port:container_port. In this case, port 443 on the host machine is mapped to port 8443 inside the container, allowing external access to the httpd server. The httpd argument specifies the name of the image to run as a container, which in this case is an image that contains the Apache HTTP Server software. The other options are not correct commands for accomplishing the task. Podman run -d -p 8443:443 httpd maps port 8443 on the host machine to port 443 inside the container, which does not match the

requirement. Podman run -d -e 443:8443 httpd uses the -e option instead of the -p option, which sets an environment variable inside the container instead of mapping a port. Podman exec -p 8443:443 httpd uses the podman exec command instead of the podman run command, which executes a command inside an existing container instead of creating a new one. Reference: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 18: Automating Tasks

QUESTION 26
A Linux administrator needs to analyze a failing application that is running inside a container. Which of the following commands allows the Linux administrator to enter the running container and analyze the logs that are stored inside?

A. docker run -ti app /bin/sh
B. podman exec -ti app /bin/sh
C. podman run -d app /bin/bash
D. docker exec -d app /bin/bash

Correct Answer: B
Section:
Explanation:
Podman exec -ti app /bin/sh allows the Linux administrator to enter the running container and analyze the logs that are stored inside. This command uses the podman tool, which is a daemonless container engine that can run and manage containers on Linux systems. The exec option executes a command inside an existing container, in this case app, which is the name of the container that runs the failing application. The -ti option allocates a pseudo-TTY and keeps STDIN open, allowing for interactive shell access to the container. The /bin/sh argument specifies the shell command to run inside the container, which can be used to view and manipulate the log files.
The other options are not correct commands for entering a running container and analyzing the logs.
Docker run -ti app /bin/sh creates a new container from the app image and runs the /bin/sh command inside it, but does not enter the existing container that runs the failing application.
Podman run -d app /bin/bash also creates a new container from the app image and runs the /bin/bash command inside it, but does so in detached mode, meaning that it runs in the background without interactive shell access. Docker exec -d app /bin/bash executes the /bin/bash command inside the existing app container, but also does so in detached mode, without interactive shell access.
Reference: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 18: Automating Tasks; View container logs | Docker Docs; How to see the logs of a docker container - Stack Overflow

QUESTION 27
A systems administrator needs to clone the partition /dev/sdc1 to /dev/sdd1. Which of the following commands will accomplish this task?

A. tar -cvzf /dev/sdd1 /dev/sdc1
B. rsync /dev/sdc1 /dev/sdd1
C. dd if=/dev/sdc1 of=/dev/sdd1
D. scp /dev/sdc1 /dev/sdd1

Correct Answer: C
Section:
Explanation:
The command dd if=/dev/sdc1 of=/dev/sdd1 copies the data from the input file (if) /dev/sdc1 to the output file (of) /dev/sdd1, byte by byte. This is the correct way to clone a partition. The other options are incorrect because they either compress the data (tar -cvzf), synchronize the files (rsync), or copy the files over a network (scp), which are not the same as cloning a partition. Reference: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 10: Managing Storage, page 321.

QUESTION 28
When trying to log in remotely to a server, a user receives the following message:

```
Password:
Last failed login: Wed Sep 15 17:23:45 CEST 2021 from 10.0.4.3 on ssh:notty
There were 3 failed login attempts since the last successful login.
Connection to localhost closed.
```

The server administrator is investigating the issue on the server and receives the following outputs:

Output 1:

```
user:x:1001:7374::/home/user:/bin/false
```

Output 2:

```
dzwx------. 2 user 62 Sep 15 17:17 /home/user
```

Output 3:

```
Sep 12 14:14:05 server sshd[22958] Failed password for user from 10.0.2.8
Sep 15 17:24:03 server sshd[8460]: Accepted keyboard-interactive/pam for user from 10.0.6.5 port 50928 ssh2
Sep 15 17:24:03 server sshd[8460]: pam_unix(sshd:session): session opened for user testuser
Sep 15 17:24:03 server sshd[8460]: pam_unix(sshd:session): session closed for user testuser
```

Which of the following is causing the issue?

A. The wrong permissions are on the user's home directory.
B. The account was locked out due to three failed logins.
C. The user entered the wrong password.
D. The user has the wrong shell assigned to the account.

Correct Answer: D
Section:
Explanation:
The user has the wrong shell assigned to the account, which is causing the issue. The output 1 shows that the user's shell is set to /bin/false, which is not a valid shell and will prevent the user from logging in. The output 2 shows that the user's home directory has the correct permissions (drwxr-xrx), and the output 3 shows that the user entered the correct password and was accepted by the SSH daemon, but the session was closed immediately due to the invalid shell. The other options are incorrect because they are not supported by the outputs. Reference: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 13: Managing Network Services, page 413.

QUESTION 29
A new Linux systems administrator just generated a pair of SSH keys that should allow connection to the servers. Which of the following commands can be used to copy a key file to remote servers? (Choose two.)

A. wget
B. ssh-keygen
C. ssh-keyscan
D. ssh-copy-id
E. ftpd
F. scp

Correct Answer: D, F
Section:
Explanation:
The commands ssh-copy-id and scp can be used to copy a key file to remote servers. The command ssh-copy-id copies the public key to the authorized_keys file on the remote server, which allows the user to log in without a password. The command scp copies files securely over SSH, which can be used to transfer the key file to any location on the remote server. The other options are incorrect because they are not related to copying key files. The command wget downloads files from the web, the command ssh-keygen generates key pairs, the command ssh-keyscan collects public keys from remote hosts, and the command ftpd is a FTP server daemon. Reference: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 13: Managing Network Services, pages 408-410.

QUESTION 30
A systems administrator needs to reconfigure a Linux server to allow persistent IPv4 packet forwarding. Which of the following commands is the correct way to accomplish this task?

A. echo 1 > /proc/sys/net/ipv4/ipv_forward
B. sysctl -w net.ipv4.ip_forward=1
C. firewall-cmd --enable ipv4_forwarding
D. systemctl start ipv4_forwarding

Correct Answer: B
Section:
Explanation:
The command sysctl -w net.ipv4.ip_forward=1 enables IPv4 packet forwarding temporarily by setting the kernel parameter net.ipv4.ip_forward to 1. To make this change persistent, the administrator needs to edit the file /etc/sysctl.conf and add the line net.ipv4.ip_forward = 1. The other options are incorrect because they either use the wrong file (/proc/sys/net/ipv4/ipv_forward), the wrong command (firewall-cmd or systemctl), or the wrong option (--enable or start). Reference: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 12: Managing Network Connections, page 378.

QUESTION 31
A Linux administrator would like to use systemd to schedule a job to run every two hours. The administrator creates timer and service definitions and restarts the server to load these new configurations. After the restart, the administrator checks the log file and notices that the job is only running daily. Which of the following is MOST likely causing the issue?

A. The checkdiskspace.service is not running.
B. The checkdiskspace.service needs to be enabled.
C. The OnCalendar schedule is incorrect in the timer definition.
D. The system-daemon services need to be reloaded.

Correct Answer: C
Section:
Explanation:
The OnCalendar schedule is incorrect in the timer definition, which is causing the issue. The OnCalendar schedule defines when the timer should trigger the service. The format of the schedule is OnCalendar=<year>-<month>-<day> <hour>:<minute>:<second>. If any of the fields are omitted, they are assumed to be *, which means any value. Therefore, the schedule OnCalendar=*-*-* 00:00:00 means every day at midnight, which is why the job is running daily. To make the job run every two hours, the schedule should be OnCalendar=*-*-* *:00:00/2, which means every hour divisible by 2 at the start of the minute. The other options are incorrect because they are not related to the schedule. The checkdiskspace.service is running, as shown by the output of systemctl status checkdiskspace.service. The checkdiskspace.service is enabled, as shown by the output of systemctl is-enabled checkdiskspace.service. The system-daemon services do not need to be reloaded, as the timer and service definitions are already loaded by the restart. Reference: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 14: Managing Processes and Scheduling Tasks, page 437.

QUESTION 32
An administrator deployed a Linux server that is running a web application on port 6379/tcp.
SELinux is in enforcing mode based on organization policies.
The port is open on the firewall.
Users who are trying to connect to a local instance of the web application receive Error 13, Permission denied.
The administrator ran some commands that resulted in the following output:

```
# semanage port -l | egrep '(^http_port_t|6379)'
http_port_t tcp 80, 81, 443, 488, 8008, 8009, 8443, 9000

# curl http://localhost/App.php
Cannot connect to App Server.
```

Which of the following commands should be used to resolve the issue?

A. semanage port -d -t http_port_t -p tcp 6379
B. semanage port -a -t http_port_t -p tcp 6379
C. semanage port -a http_port_t -p top 6379
D. semanage port -l -t http_port_tcp 6379

Correct Answer: B
Section:
Explanation:
The command semanage port -a -t http_port_t -p tcp 6379 adds a new port definition to the SELinux policy and assigns the type http_port_t to the port 6379/tcp. This allows the web application to run on this port and accept connections from users. This is the correct way to resolve the issue. The other options are incorrect because they either delete a port definition (-d), use the wrong protocol (top instead of tcp), or list the existing port definitions (-l). Reference: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 18: Securing Linux Systems, page 535.

QUESTION 33
A systems administrator created a web server for the company and is required to add a tag for the API so end users can connect. Which of the following would the administrator do to complete this requirement?

A. hostnamectl status --no-ask-password
B. hostnamectl set-hostname "$(perl -le "print" "A" x 86)"
C. hostnamectl set-hostname Comptia-WebNode -H root@192.168.2.14
D. hostnamectl set-hostname Comptia-WebNode --transient

Correct Answer: C
Section:
Explanation:
The command hostnamectl set-hostname Comptia-WebNode -H root@192.168.2.14 sets the hostname of the web server to Comptia-WebNode and connects to the server using the SSH protocol and the root user. This is the correct way to complete the requirement. The other options are incorrect because they either display the current hostname status (hostnamectl status), set an invalid hostname (hostnamectl set-hostname "$(perl -le "print" "A" x 86)"), or set a transient hostname that is not persistent (hostnamectl set-hostname Comptia-WebNode --transient). Reference: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 9: Managing System Components, page 291.

QUESTION 34
A systems administrator wants to back up the directory /data and all its contents to /backup/data on a remote server named remote. Which of the following commands will achieve the desired effect?

A. scp -p /data remote:/backup/data
B. ssh -i /remote:/backup/ /data
C. rsync -a /data remote:/backup/
D. cp -r /data /remote/backup/

Correct Answer: C
Section:
Explanation:
The command that will back up the directory /data and all its contents to /backup/data on a remote server named remote is rsync -a /data remote:/backup/. This command uses the rsync tool, which is a remote and local file synchronization tool. It uses an algorithm to minimize the amount of data copied by only moving the portions of files that have changed. The -a option stands for archive mode, which preserves the permissions, ownership, timestamps, and symbolic links of the files. The /data argument specifies the source directory to be backed up, and the remote:/backup/ argument specifies the destination directory on the remote server. The rsync tool will create a subdirectory named data under /backup/ on the remote server, and copy all the files and subdirectories from /data on the local server.
The other options are not correct commands for backing up a directory to a remote server. The scp -p /data remote:/backup/data command will copy the /data directory as a file named data under /backup/ on the remote server, not as a subdirectory with its contents. The -p option preserves the permissions and timestamps of the file, but not the ownership or symbolic links. The ssh -i /remote:/backup/ /data command will try to use /remote:/backup/ as an identity file for SSH authentication, which is not valid. The cp -r /data /remote/backup/ command will try to copy the /data directory to a local directory named /remote/backup/, not to a remote server. Reference: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 18: Automating Tasks; rsync(1) - Linux manual page

QUESTION 35
An administrator needs to make some changes in the IaC declaration templates. Which of the following commands would maintain version control?

A.
```
git clone https://github.com/comptia/linux+-.git
git push origin
```
B.
```
git clone https://qithub.com/comptia/linux+-.git
git fetch New-Branch
```
C.
```
git clone https://github.com/comptia/linux+-.git
git status
```
D.
```
git clone https://github.com/comptia/linuxt+-.git
git checkout -b <new-branch>
```

Correct Answer: D
Section:
Explanation:
The command that will maintain version control while making some changes in the IaC declaration templates is git checkout -b <new-branch>. This command uses the git tool, which is a distributed version control system that tracks changes in source code and enables collaboration among developers. The checkout option switches to a different branch in the git repository, where a branch is a pointer to a specific commit in the history. The -b option creates a new branch with the given name, and switches to it. This way, the administrator can make changes in the new branch without affecting the main branch, and later merge them if needed.
The other options are not correct commands for maintaining version control while making some changes in the IaC declaration templates. The git clone https://github.com/comptia/linux±.git command will clone an existing repository from a remote URL to a local directory, but it will not create a new branch for making changes. The git push origin command will push the local changes to a remote repository named origin, but it will not create a new branch for making changes. The git fetch New-Branch command will fetch updates from a remote branch named New-Branch, but it will not create a new branch for making changes. Reference: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 19: Managing Source Code; Git - Basic Branching and Merging

QUESTION 36
An administrator attempts to rename a file on a server but receives the following error.

```
mv: cannot move 'files/readme.txt' to 'files/readme.txt.orig': Operation not permitted.
```

The administrator then runs a few commands and obtains the following output:

```
$ ls -ld files/
 drwxrwxrwt.1    users    users    20    Sep 10 15:15    files/
$ ls -a files/
 drwxrwxrwt.1    users    users    20    Sep 10 15:15    .
 drwxr-xr-x.1    users    users    32    Sep 10 15:15    ..
 -rw-rw-r--.1    users    users    4     Sep 12 10:34    readme.txt
```

Which of the following commands should the administrator run NEXT to allow the file to be renamed by any user?

A. chgrp reet files
B. chacl -R 644 files
C. chown users files
D. chmod -t files

Correct Answer: D
Section:
Explanation:
The command that the administrator should run NEXT to allow the file to be renamed by any user is chmod -t files. This command uses the chmod tool, which is used to change file permissions and access modes. The -t option removes (or sets) the sticky bit on a directory, which restricts deletion or renaming of files within that directory to only their owners or root. In this case, since files is a directory with sticky bit set (indicated by t in drwxrwxrwt), removing it will allow any user to rename or delete files within that directory.
The other options are not correct commands for allowing any user to rename files within files directory. The chgrp reet files command will change the group ownership of files directory to reet, but it will not affect its permissions or access modes. The chacl -R 644 files command is invalid, as chacl is used to change file access control lists (ACLs), not permissions or access modes. The chown users files command will change the user ownership of files directory to users, but it will not affect its permissions or access modes. Reference: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 8: Managing Users and Groups; chmod(1) - Linux manual page

QUESTION 37
Which of the following commands will display the operating system?

A. uname -n
B. uname -s
C. uname -o
D. uname -m

Correct Answer: C

Section:
Explanation:
The command that will display the operating system is uname -o. This command uses the uname tool, which is used to print system information such as the kernel name, version, release, machine, and processor. The -o option stands for operating system, and prints the name of the operating system implementation (usually GNU/Linux).
The other options are not correct commands for displaying the operating system. The uname -n command will display the network node hostname of the system. The uname -s command will display the kernel name of the system. The uname -m command will display the machine hardware name of the system. Reference: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 1:
Exploring Linux Command-Line Tools; uname(1) - Linux manual page

QUESTION 38
A systems engineer is adding a new 1GB XFS filesystem that should be temporarily mounted under /ops/app. Which of the following is the correct list of commands to achieve this goal?

A.

```
pvcreate -L1G /dev/app
mkfs.xfs /dev/app
mount /dev/app /opt/app
```

B.

```
parted /dev/sdb --script mkpart primary xfs 1GB
mkfs.xfs /dev/sdb
mount /dev/sdb /opt/app
```

C.

```
lvs --create 1G --name app
mkfs.xfs /dev/app
mount /dev/app /opt/app
```

D.

```
lvcreate -L 1G -n app app_vg
mkfs.xfs /dev/app_vg/app
mount /dev/app_vg/app /opt/app
```

Correct Answer: D
Section:
Explanation:
The list of commands in option D is the correct way to achieve the goal. The commands are as follows:
fallocate -l 1G /ops/app.img creates a 1GB file named app.img under the /ops directory.
mkfs.xfs /ops/app.img formats the file as an XFS filesystem.
mount -o loop /ops/app.img /ops/app mounts the file as a loop device under the /ops/app directory.
The other options are incorrect because they either use the wrong commands (dd or truncate instead of fallocate), the wrong options (-t or -f instead of -o), or the wrong order of arguments (/ops/app.img /ops/app instead of /ops/app /ops/app.img). Reference: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 10: Managing Storage, pages 323-324.

QUESTION 39
A Linux administrator recently downloaded a software package that is currently in a compressed file.
Which of the following commands will extract the files?

A. unzip -v
B. bzip2 -z
C. gzip
D. funzip

Correct Answer: C
Section:
Explanation:
The command gzip can extract files that are compressed with the gzip format, which has the extension .gz. This is the correct command to use for the software package. The other options are incorrect because they either compress files (bzip2 -z), unzip files that are compressed with the zip format (unzip -v or funzip), or have the wrong options (-v or -z instead of -d). Reference: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 11: Managing Files and Directories, page 353.

QUESTION 40
A Linux administrator is troubleshooting SSH connection issues from one of the workstations.
When users attempt to log in from the workstation to a server with the IP address 104.21.75.76, they receive the following message:

```
ssh: connect to host 104.21.75.76 port 22: Connection refused
```

The administrator reviews the information below:

Workstation output 1:

```
eth0: <BROADCAST,MULTICAST, UP, LOWER_UP> mtu 1500 qdisc mq state UP group default
link/ether 00:15:5d:e9:e9:fb brd 5.189.153.255 scope global eth0
inet 5.189.153.89/24 brd 5.189.153.255 scope global eth0
```

Workstation output 2:

```
default via 5.189.153.1 dev eth0
5.189.153.0/24 dev eth0 proto kertnel scope link src 5.189.153.89
```

Server output 1:

```
target     prot   opt   source            destination
REJECT     tcp    --    101.68.78.194     0.0.0.0/0    tcp dpt:22 ctstate NEW, UNTRACKED
                                                       reject-with icmp-port-unreachable
REJECT     tcp    --    222.186.180.130   0.0.0.0/0    tcp dpt:22 ctstate NEW, UNTRACKED
                                                       reject-with icmp-port-unreachable
REJECT     tcp    --    104.131.1.39      0.0.0.0/0    tcp dpt:22 ctstate NEW, UNTRACKED
                                                       reject-with icmp-port-unreachable
REJECT     tcp    --    68.183.196.11     0.0.0.0/0    tcp dpt:22 ctstate NEW, UNTRACKED
                                                       reject-with icmp-port-unreachable
REJECT     tcp    --    5.189.153.89      0.0.0.0/0    tcp dpt:22 ctstate NEW, UNTRACKED
                                                       reject-with icmp-port-unreachable
REJECT     tcp    --    41.93.32.148      0.0.0.0/0    tcp dpt:22 ctstate NEW, UNTRACKED
                                                       reject-with icmp-port-unreachable
```

Server output 2:

```
sshd. service - OpenSSH server daemon
  Loaded: loaded (/usr/lib/systemd/system/sshd.service: disabled: vendor preset: enabled)
  Active: active (running) since Thu 2021-08-26 18:50:19 CEST; 2 weeks 5 days ago
```

Server output 3:

```
eth0: <BROADCAST, MULTICAST, UP, LOWER_UP> mtu 1500 qdisc mg state UP group default
link/ether 52:52:00:2a:bb:98 brd 104.21.75.255 scope global eth0
inet 104.21.75.76/24 brd 104.21.75.255 scope qlobal eth0
```

Server output 4:

```
default via 104.21.75.254 dev eth0
104.21.75.0/24 dev eth0 proto kertnel scope link src 104.21.75.76
```

Which of the following is causing the connectivity issue?

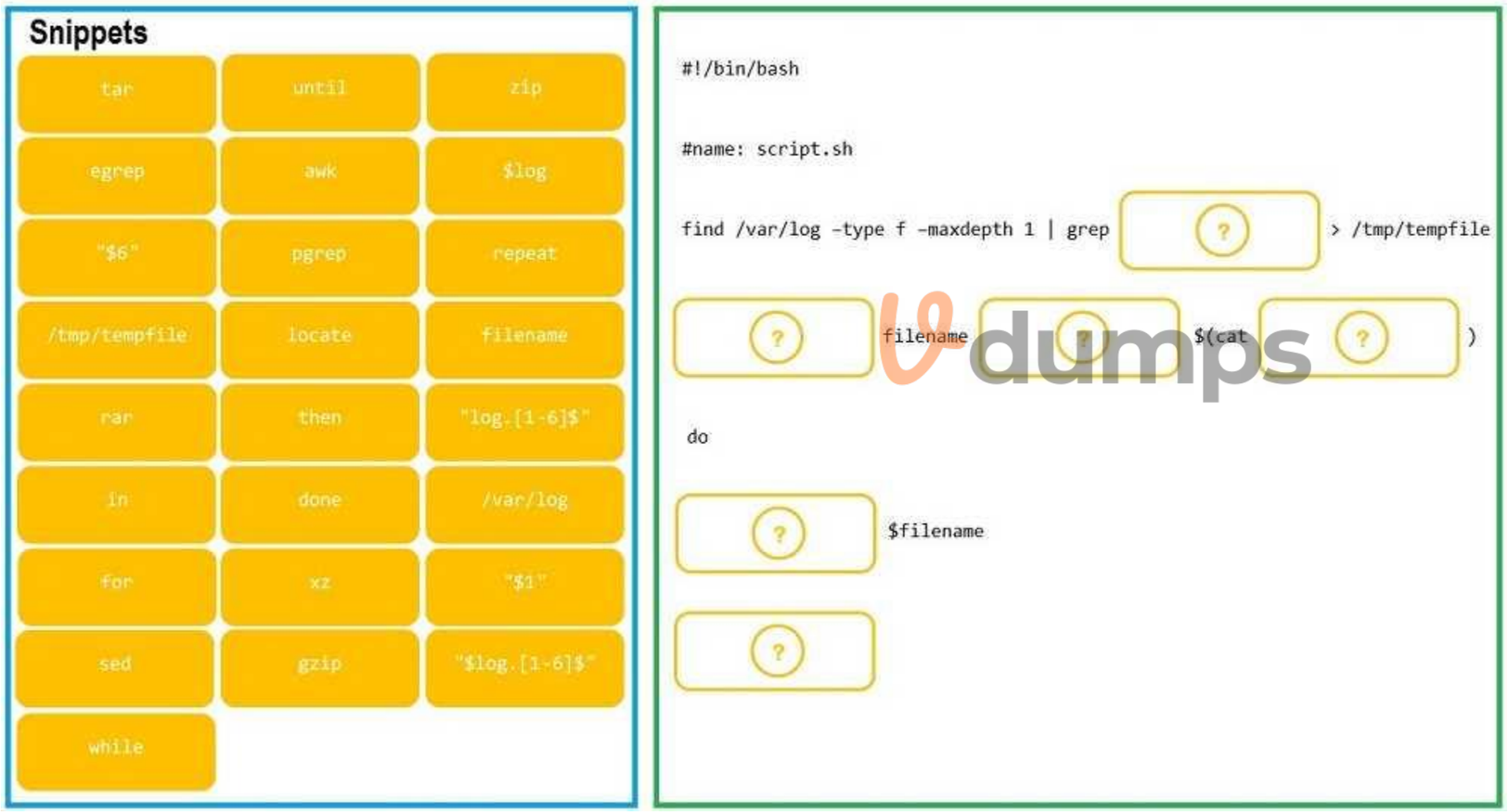
A. The workstation has the wrong IP settings.
B. The sshd service is disabled.
C. The server's firewall is preventing connections from being made.
D. The server has an incorrect default gateway configuration.

Correct Answer: C
Section:
Explanation:
The server's firewall is preventing connections from being made, which is causing the connectivity issue. The output of iptables -L -n shows that the firewall is blocking all incoming traffic on port 22, which is the default port

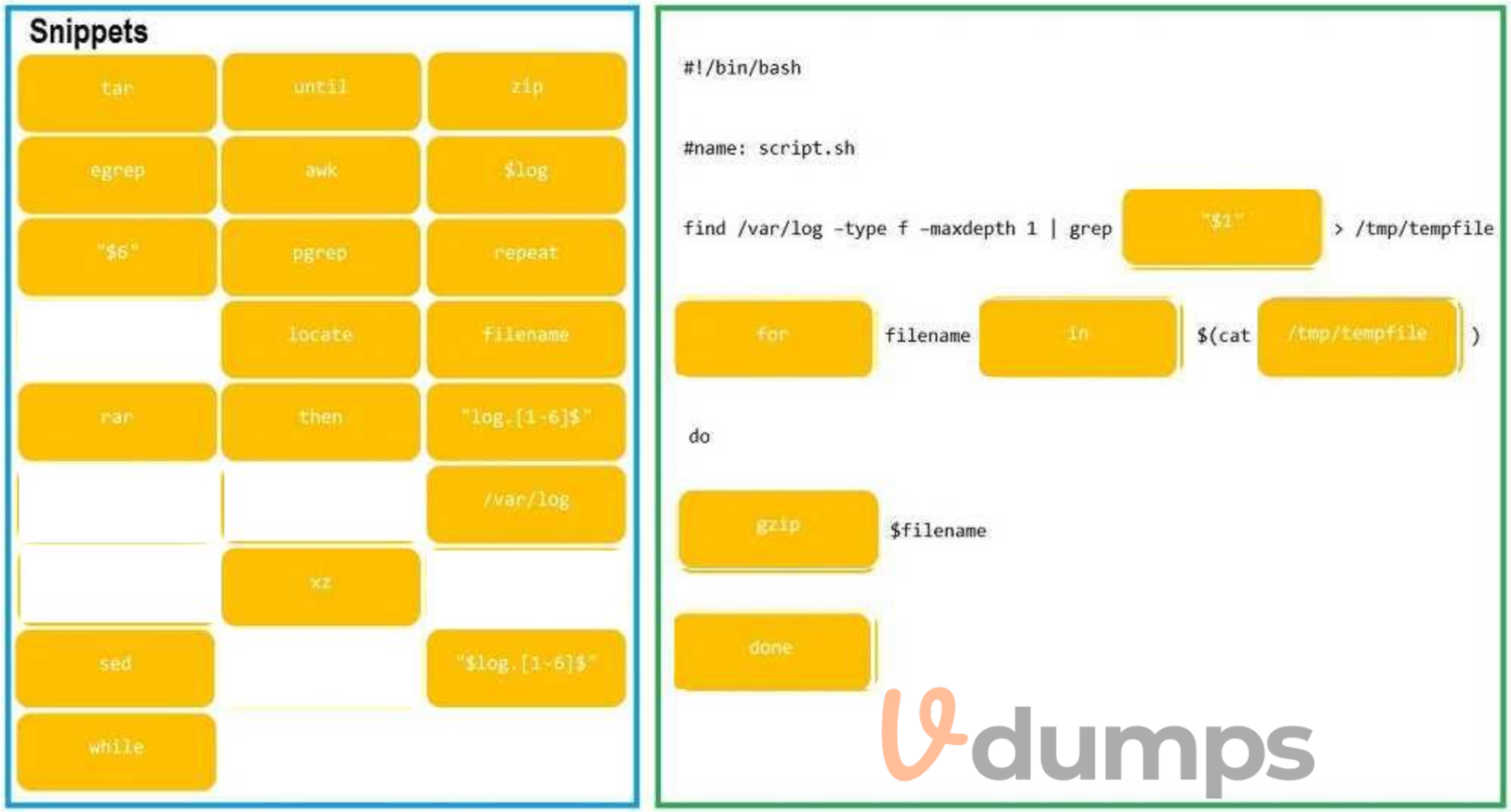
for SSH. The output of ssh -v user@104.21.75.76 shows that the connection is refused by the server. To resolve the issue, the administrator needs to allow port 22 on the firewall.
The other options are incorrect because they are not supported by the outputs. The workstation has the correct IP settings, as shown by the output of ip addr show. The sshd service is enabled and running, as shown by the output of systemctl status sshd. The server has the correct default gateway configuration, as shown by the output of ip route show. Reference: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 13: Managing Network Services, pages 406-407.

QUESTION 41
DRAG DROP
As a Systems Administrator, to reduce disk space, you were tasked to create a shell script that does the following:
Add relevant content to /tmp/script.sh, so that it finds and compresses rotated files in /var/log without recursion.
INSTRUCTIONS Fill the blanks to build a script that performs the actual compression of rotated log files.
If at any time you would like to bring back the initial state of the simulation, please click the Reset All button.

Select and Place:



Correct Answer:



Section:
Explanation:

QUESTION 42
Which of the following files holds the system configuration for journal when running systemd?

A. /etc/systemd/journald.conf
B. /etc/systemd/systemd-journalctl.conf
C. /usr/lib/systemd/journalctl.conf
D. /etc/systemd/systemd-journald.conf

Correct Answer: A
Section:
Explanation:
The file that holds the system configuration for journal when running systemd is /etc/systemd/journald.conf. This file contains various settings that control the behavior of the journald daemon, which is responsible for collecting and storing log messages from various sources.
The journald.conf file can be edited to change the default values of these settings, such as the storage location, size limits, compression, and forwarding options of the journal files. The file also supports a drop-in directory /etc/systemd/journald.conf.d/ where additional configuration files can be placed to override or extend the main file. Reference: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 18: Automating Tasks; journald.conf(5) - Linux manual page

QUESTION 43

A Linux administrator is tasked with creating resources using containerization. When deciding how to create this type of deployment, the administrator identifies some key features, including portability, high availability, and scalability in production. Which of the following should the Linux administrator choose for the new design?

A. Docker
B. On-premises systems
C. Cloud-based systems
D. Kubernetes

Correct Answer: D
Section:
Explanation:
The Linux administrator should choose Kubernetes for the new design that requires portability, high availability, and scalability in production using containerization. Kubernetes is an open-source platform that automates the deployment, scaling, and management of containerized applications across clusters of nodes. Kubernetes provides features such as service discovery, load balancing, storage orchestration, self-healing, secret and configuration management, and batch execution. Kubernetes also supports multiple container runtimes, such as Docker, containerd, and CRI-O, making it portable across different platforms and clouds. Reference: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 18: Automating Tasks; What is Kubernetes? | Kubernetes

QUESTION 44
Which of the following tools is commonly used for creating CI/CD pipelines?

A. Chef
B. Puppet
C. Jenkins
D. Ansible

Correct Answer: C
Section:
Explanation:
The tool that is commonly used for creating CI/CD pipelines is Jenkins. Jenkins is an open-source automation server that enables continuous integration and continuous delivery (CI/CD) of software projects. Jenkins allows developers to build, test, and deploy code changes automatically and frequently using various plugins and integrations. Jenkins also supports distributed builds, parallel execution, pipelines as code, and real-time feedback. Reference: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 19: Managing Source Code; Jenkins

QUESTION 45
A systems administrator requires that all files that are created by the user named web have read-only permissions by the owner. Which of the following commands will satisfy this requirement?

A. chown web:web /home/web
B. chmod -R 400 /home/web
C. echo "umask 377" >> /home/web/.bashrc
D. setfacl read /home/web

Correct Answer: C
Section:
Explanation:
The command that will satisfy the requirement of having all files that are created by the user named web have read-only permissions by the owner is echo "umask 377" >> /home/web/.bashrc. This command will append the umask 377 command to the end of the .bashrc file in the web user's home directory. The .bashrc file is a shell script that is executed whenever a new interactive shell session is started by the user. The umask command sets the file mode creation mask, which determines the default permissions for newly created files or directories by subtracting from the maximum permissions (666 for files and 777 for directories). The umask 377 command means that the user does not want to give any permissions to the group or others (3 = 000 in binary), and only wants to give read permission to the owner (7 - 3 = 4 = 100 in binary). Therefore, any new file created by the web user will have read-only permission by the owner (400) and no permission for anyone else. Reference: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 8: Managing Users and Groups; Umask Command in Linux | Linuxize

QUESTION 46
A systems administrator is tasked with preventing logins from accounts other than root, while the file /etc/nologin exists. Which of the following PAM modules will accomplish this task?

A. pam_login.so
B. pam_access.so
C. pam_logindef.so
D. pam_nologin.so

Correct Answer: D
Section:
Explanation:
The PAM module pam_nologin.so will prevent logins from accounts other than root, while the file /etc/nologin exists. This module checks for the existence of the file /etc/nologin and displays its contents to the user before denying access. The root user is exempt from this check and can still log in. This is the correct module to accomplish the task. The other options are incorrect because they are either non-existent modules (pam_login.so or pam_logindef.so) or do not perform the required function (pam_access.so controls access based on host, user, or time). Reference: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 15: Managing Users and Groups, page 471.

QUESTION 47
A systems administrator has been tasked with disabling the nginx service from the environment to prevent it from being automatically and manually started. Which of the following commands will accomplish this task?

A. systemctl cancel nginx
B. systemctl disable nginx
C. systemctl mask nginx
D. systemctl stop nginx

Correct Answer: C
Section:
Explanation:
The command systemctl mask nginx disables the nginx service from the environment and prevents it from being automatically and manually started. This command creates a symbolic link from the service unit file to /dev/null, which makes the service impossible to start. This is the correct way to accomplish the task. The other options are incorrect because they either do not exist (systemctl cancel nginx), do not prevent manual start (systemctl disable nginx), or do not prevent automatic start (systemctl stop nginx). Reference: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 14: Managing Processes and Scheduling Tasks, page 429.

QUESTION 48
A Linux administrator is troubleshooting an issue in which an application service failed to start on a Linux server. The administrator runs a few commands and gets the following outputs:

Output 1:

```
Dec 23 23:14:15 root systemd[1] logsearch.service: Failed to start Logsearch.
```

Output 2:

```
logsearch.service - Log Search
  Loaded: loaded (/etc/systemd/system/logsearch.service; enabled; vendor preset:enabled)
  Active: failed (Result: timeout)
  Process: 3267 ExecStart=/usr/share/logsearch/bin/logger ...
  Main PID: 3267 (code=killed, signal=KILL)
```

Based on the above outputs, which of the following is the MOST likely action the administrator should take to resolve this issue?

A. Enable the logsearch.service and restart the service.
B. Increase the TimeoutStartUSec configuration for the logsearch.sevice.
C. Update the OnCalendar configuration to schedule the start of the logsearch.service.
D. Update the KillSignal configuration for the logsearch.service to use TERM.

Correct Answer: B
Section:
Explanation:
The administrator should increase the TimeoutStartUSec configuration for the logsearch.service to resolve the issue. The output of systemctl status logsearch.service shows that the service failed to start due to a timeout. The output of cat /etc/systemd/system/logsearch.service shows that the service has a TimeoutStartUSec configuration of 10 seconds, which might be too short for the service to start. The administrator should increase this value to a higher number, such as 30 seconds or 1 minute, and then restart the service. The other options are incorrect because they are not related to the issue. The service is already enabled, as shown by the output of systemctl is-enabled logsearch.service. The service does not use an OnCalendar configuration, as it is not a timer unit. The service does not use a KillSignal configuration, as it is not being killed by a signal. Reference: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 14: Managing Processes and Scheduling Tasks, pages 434-435.

QUESTION 49
A Linux administrator has installed a web server, a database server, and a web application on a server. The web application should be active in order to render the web pages. After the administrator restarts the server, the website displays the following message in the browser: Error establishing a database connection. The Linux administrator reviews the following relevant output from the systemd init files:

```
[Unit]
Description=The Apache #HTTP Server
Wants=httpd-init.service
After=network.target remote-fs.target nss-lookup-target httpd-init.service mariadb.service
```

```
[Unit]
Description=MariaDB 10.5 database server
After=network.target
```

The administrator needs to ensure that the database is available before the web application is started. Which of the following should the administrator add to the HTTP server .service file to accomplish this task?

A. TRIGGERS=mariadb.service
B. ONFAILURE=mariadb.service
C. WANTEDBY=mariadb.service
D. REQUIRES=mariadb.service

Correct Answer: D
Section:
Explanation:
The administrator should add REQUIRES=mariadb.service to the HTTP server .service file to ensure that the database is available before the web application is started. This directive specifies that the HTTP server unit requires the MariaDB server unit to be started before it can run. If the MariaDB server unit fails to start or stops for any reason, the HTTP server unit will also fail or stop. This way, the dependency between the web application and the database is enforced by systemd.
The other options are not correct directives for accomplishing this task. TRIGGERS=mariadb.service is not a valid directive in systemd unit files. ONFAILURE=mariadb.service means that the HTTP server unit will start only if the MariaDB server unit fails, which is not what we want.
WANTEDBY=mariadb.service means that the HTTP server unit will be started when the MariaDB server unit is enabled, but it does not imply a strong dependency or ordering relationship between them. Reference: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 10: Managing Services with systemd; systemd.unit(5) - Linux manual page

QUESTION 50
Several users reported that they were unable to write data to the /oracle1 directory. The following output has been provided:

Filesystem	Size	Used	Available	Use%	Mounted on
/dev/sdb1	100G	50G	50G	50%	/oracle1

Which of the following commands should the administrator use to diagnose the issue?

A. df -i /oracle1
B. fdisk -1 /dev/sdb1
C. lsblk /dev/sdb1
D. du -sh /oracle1

Correct Answer: A
Section:
Explanation:
The administrator should use the command df -i /oracle1 to diagnose the issue of users being unable to write data to the /oracle1 directory. This command will show the inode usage of the /oracle1 filesystem, which indicates how many files and directories can be created on it. If the inode usage is 100%, it means that no more files or directories can be added, even if there is still free space on the disk. The administrator can then delete some unnecessary files or directories, or increase the inode limit of the filesystem, to resolve the issue.
The other options are not correct commands for diagnosing this issue. The fdisk -l /dev/sdb1 command will show the partition table of /dev/sdb1, which is not relevant to the inode usage. The lsblk /dev/sdb1 command will show information about /dev/sdb1 as a block device, such as its size, mount point, and type, but not its inode usage. The du -sh /oracle1 command will show the disk usage of /oracle1 in human-readable format, but not its inode usage. Reference: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 7: Managing Disk Storage; How to Check Inode Usage in Linux - Fedingo

QUESTION 51
After installing some RPM packages, a systems administrator discovers the last package that was installed was not needed. Which of the following commands can be used to remove the package?

A. dnf remove packagename
B. apt-get remove packagename
C. rpm -i packagename
D. apt remove packagename

Correct Answer: A
Section:
Explanation:
The command that can be used to remove an RPM package that was installed by mistake is dnf remove packagename. This command will use the DNF package manager to uninstall an RPM package and its dependencies from a Linux system that uses RPM-based distributions, such as Red Hat Enterprise Linux or CentOS. The DNF package manager handles dependency resolution and metadata searching for RPM packages.
The other options are not correct commands for removing an RPM package from a Linux system. The apt-get remove packagename and apt remove packagename commands are used to remove Debian packages from a Linux system that uses Debian-based distributions, such as Ubuntu or Debian. They are not compatible with RPM packages. The rpm -i packagename command is used to install an RPM package, not to remove it. Reference: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 9: Managing Software Packages; How to install/remove/query/update RPM packages in Linux (Cheat Sheet …

QUESTION 52
A systems administrator is checking the system logs. The administrator wants to look at the last 20 lines of a log. Which of the following will execute the command?

A. tail -v 20
B. tail -n 20
C. tail -c 20
D. tail -l 20

Correct Answer: B

Section:
Explanation:
The command tail -n 20 will display the last 20 lines of a file. The -n option specifies the number of lines to show. This is the correct command to execute the task. The other options are incorrect because they either use the wrong options (-v, -c, or -l) or have the wrong arguments (20 instead of 20 filename). Reference: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 11: Managing Files and Directories, page 352.

QUESTION 53
An administrator is trying to diagnose a performance issue and is reviewing the following output:

```
avg-cpu:  %user   %nice %system %iowait  %steal   %idle
           2.00    0.00    3.00   32.00    0.00   63.00

Device            tps    kB_read/s    kB_wrtn/s    kB_read    kB_wrtn
sdb            345.00         0.02         0.04 4739073123   23849523
sdb1           345.00     32102.03     12203.01 4739073123   23849523
```

System Properties:
CPU: 4 vCPU Memory: 40GB Disk maximum IOPS: 690 Disk maximum throughput: 44Mbps | 44000Kbps Based on the above output, which of the following BEST describes the root cause?

A. The system has reached its maximum IOPS, causing the system to be slow.
B. The system has reached its maximum permitted throughput, therefore iowait is increasing.
C. The system is mostly idle, therefore the iowait is high.
D. The system has a partitioned disk, which causes the IOPS to be doubled.

Correct Answer: B
Section:
Explanation:
The system has reached its maximum permitted throughput, therefore iowait is increasing. The output of iostat -x shows that the device sda has an average throughput of 44.01 MB/s, which is equal to the disk maximum throughput of 44 Mbps. The output also shows that the device sda has an average iowait of 99.99%, which means that the CPU is waiting for the disk to complete the I/O requests. This indicates that the disk is the bottleneck and the system is slow due to the high iowait.
The other options are incorrect because they are not supported by the outputs. The system has not reached its maximum IOPS, as the device sda has an average IOPS of 563.50, which is lower than the disk maximum IOPS of 690. The system is not mostly idle, as the output of top shows that the CPU is 100% busy. The system does not have a partitioned disk, as the output of lsblk shows that the device sda has only one partition sda1. Reference: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 17: Optimizing Linux Systems, pages 513-514.

QUESTION 54
A systems administrator wants to test the route between IP address 10.0.2.15 and IP address 192.168.1.40. Which of the following commands will accomplish this task?

A. route -e get to 192.168.1.40 from 10.0.2.15
B. ip route get 192.163.1.40 from 10.0.2.15
C. ip route 192.169.1.40 to 10.0.2.15
D. route -n 192.168.1.40 from 10.0.2.15

Correct Answer: B
Section:

Explanation:
The command ip route get 192.168.1.40 from 10.0.2.15 will test the route between the IP address 10.0.2.15 and the IP address 192.168.1.40. The ip route get command shows the routing decision for a given destination and source address. This is the correct command to accomplish the task. The other options are incorrect because they either use the wrong commands (route instead of ip route), the wrong options (-e or -n instead of get), or the wrong syntax (to instead of from). Reference: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 12: Managing Network Connections, page 379.

QUESTION 55
A Linux administrator was tasked with deleting all files and directories with names that are contained in the sobelete.txt file. Which of the following commands will accomplish this task?

A. xargs -f cat toDelete.txt -rm
B. rm -d -r -f toDelete.txt
C. cat toDelete.txt | rm -frd
D. cat toDelete.txt | xargs rm -rf

Correct Answer: D
Section:
Explanation:
The command cat toDelete.txt | xargs rm -rf will delete all files and directories with names that are contained in the toDelete.txt file. The cat command reads the file and outputs its contents to the standard output. The | operator pipes the output to the next command. The xargs command converts the output into arguments for the next command. The rm -rf command removes the files and directories recursively and forcefully. This is the correct way to accomplish the task. The other options are incorrect because they either use the wrong options (-f instead of -a for xargs), the wrong arguments (toDelete.txt instead of toDelete.txt filename for rm), or the wrong commands (rm instead of xargs). Reference: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 11:
Managing Files and Directories, pages 349-350.

QUESTION 56
A Linux administrator is troubleshooting the root cause of a high CPU load and average.

```
$ uptime
07:30:43 up 20 days, 3 min, 1 user, load average: 2.98, 3.62, 5.21

$ top
PID  USER PR  NI  VIRT RES   SHR  S %CPU %MEM TIME+  COMMAND
6295 user1 30 -10 5465 56465 8254 R 86.5 1.5 7:35.25 app1

$ ps -ef | grep user1
user1 6295 1 7:42:19 tty/1   06:48:29 /usr/local/bin/app1
```

Which of the following commands will permanently resolve the issue?

A. renice -n -20 6295
B. pstree -p 6295
C. iostat -cy 1 5
D. kill -9 6295

Correct Answer: D
Section:

Explanation:
The command that will permanently resolve the issue of high CPU load and average is kill -9 6295.
This command will send a SIGKILL signal to the process with the PID 6295, which is the process that is consuming 99.7% of the CPU according to the top output. The SIGKILL signal will terminate the process immediately and free up the CPU resources. The kill command is used to send signals to processes by PID or name.
The other options are not correct commands for resolving this issue. The renice -n -20 6295 command will change the priority (niceness) of the process with PID 6295 to -20, which is the highest priority possible. This will make the process more CPU-intensive, not less. The renice command is used to change the priority of running processes. The pstree -p 6295 command will show a tree of processes with PID 6295 as the root. This will not affect the CPU load or average, but only display information. The pstree command is used to display a tree of processes. The iostat -cy 1 5 command will show CPU and disk I/O statistics for 5 iterations with an interval of 1 second. This will also not affect the CPU load or average, but only display information. The iostat command is used to report CPU and I/O statistics. Reference: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 11: Troubleshooting Linux Systems; kill(1) - Linux manual page; renice(1) - Linux manual page; pstree(1) -Linux manual page; iostat(1) - Linux manual page

QUESTION 57
A Linux administrator wants to set the SUID of a file named dev_team.text with 744 access rights.
Which of the following commands will achieve this goal?

A. chmod 4744 dev_team.txt
B. chmod 744 --setuid dev_team.txt
C. chmod -c 744 dev_team.txt
D. chmod -v 4744 --suid dev_team.txt

Correct Answer: A
Section:
Explanation:
The command that will set the SUID of a file named dev_team.txt with 744 access rights is chmod 4744 dev_team.txt. This command will use the chmod utility to change the file mode bits of dev_team.txt. The first digit (4) represents the SUID bit, which means that when someone executes dev_team.txt, it will run with the permissions of the file owner. The next three digits (744) represent the read, write, and execute permissions for the owner (7), group (4), and others (4). This means that the owner can read, write, and execute dev_team.txt, while the group and others can only read it. The other options are not correct commands for setting the SUID of a file with 744 access rights. The chmod 744 --setuid dev_team.txt command is invalid because there is no --setuid option in chmod. The chmod -c 744 dev_team.txt command will change the file mode bits to 744, but it will not set the SUID bit. The -c option only means that chmod will report when a change is made. The chmod -v 4744 --suid dev_team.txt command is also invalid because there is no --suid option in chmod. The -v option only means that chmod will output a diagnostic for every file processed. Reference: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 8: Managing Users and Groups; chmod(1) - Linux manual page

QUESTION 58
A developer has been unable to remove a particular data folder that a team no longer uses. The developer escalated the issue to the systems administrator. The following output was received:

```
# rmdir data/
rmdir: failed to remove 'data/': Operation not permitted
# rm -rf data/
rm: cannot remove 'data': Operation not permitted
# mv data/ mydata
mv: cannot move 'data/' to 'mydata': Operation not permitted
# cd data/
# cat > test.txt
bash: test.txt: Permission denied
```

Which of the following commands can be used to resolve this issue?

A. chgrp -R 755 data/
B. chmod -R 777 data/
C. chattr -R -i data/
D. chown -R data/

Correct Answer: C
Section:
Explanation:
The command that can be used to resolve the issue of being unable to remove a particular data folder is chattr -R -i data/. This command will use the chattr utility to change file attributes on a Linux file system. The -R option means that chattr will recursively change attributes of directories and their contents. The -i option means that chattr will remove (unset) the immutable attribute from files or directories. When a file or directory has the immutable attribute set, it cannot be modified, deleted, or renamed.
The other options are not correct commands for resolving this issue. The chgrp -R 755 data/ command will change the group ownership of data/ and its contents recursively to 755, which is not a valid group name. The chgrp command is used to change group ownership of files or directories. The chmod -R 777 data/ command will change the file mode bits of data/ and its contents recursively to 777, which means that everyone can read, write, and execute them. However, this will not remove the immutable attribute, which prevents deletion or modification regardless of permissions. The chmod command is used to change file mode bits of files or directories. The chown -R data/ command is incomplete and will produce an error. The chown command is used to change the user and/or group ownership of files or directories, but it requires at least one argument besides the file name.
Reference: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 7: Managing Disk Storage; chattr(1) - Linux manual page; chgrp(1) - Linux manual page; chmod(1) - Linux manual page; chown(1) - Linux manual page

QUESTION 59
A Linux administrator needs to ensure that Java 7 and Java 8 are both locally available for developers to use when deploying containers. Currently only Java 8 is available. Which of the following commands should the administrator run to ensure both versions are available?

A. docker image load java:7
B. docker image pull java:7
C. docker image import java:7
D. docker image build java:7

Correct Answer: B
Section:
Explanation:
The command that the administrator should run to ensure that both Java 7 and Java 8 are locally available for developers to use when deploying containers is docker image pull java:7. This command will use the docker image pull subcommand to download the java:7 image from Docker Hub, which is the default registry for Docker images. The java:7 image contains Java 7 installed on a Debian-based Linux system. The administrator can also specify a different registry by using the syntax registry/repository:tag.
The other options are not correct commands for ensuring that both Java 7 and Java 8 are locally available for developers to use when deploying containers. The docker image load java:7 command will load an image from a tar archive or STDIN, not from a registry. The docker image import java:7 command will create a new filesystem image from the contents of a tarball, not from a registry. The docker image build java:7 command will build an image from a Dockerfile, not from a registry. Reference: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 18: Automating Tasks; docker image pull | Docker Docs

QUESTION 60
A cloud engineer is installing packages during VM provisioning. Which of the following should the engineer use to accomplish this task?

A. Cloud-init
B. Bash
C. Docker
D. Sidecar

Correct Answer: A
Section:
Explanation:
The cloud engineer should use cloud-init to install packages during VM provisioning. Cloud-init is a tool that allows the customization of cloud instances at boot time. Cloud-init can perform various tasks, such as setting the

hostname, creating users, installing packages, configuring network, and running scripts. Cloud-init can work with different cloud platforms and Linux distributions. This is the correct tool to accomplish the task. The other options are incorrect because they are either not suitable for cloud provisioning (Bash or Docker) or not a tool but a design pattern (Sidecar). Reference: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 19: Managing Cloud and Virtualization Technologies, page 563.

QUESTION 61
A systems administrator is tasked with creating a cloud-based server with a public IP address.

```
---
-name: start an instance with a public IP address
 community.abc.ec2_instance:
    name: "public-compute-instance"
    key_name: "comptia-ssh-key"
    vpc_subnet_id: subnet-5cjssh1
    instance_type: instance.type
    security_group: comptia
    network:
       assign_public_ip: true
    image_id: ami-1234568
    tags:
       Environment: Comptia-Items-Writing-Workshop
...
```

Which of the following technologies did the systems administrator use to complete this task?

A. Puppet
B. Git
C. Ansible
D. Terraform

Correct Answer: D
Section:
Explanation:
The systems administrator used Terraform to create a cloud-based server with a public IP address. Terraform is a tool for building, changing, and versioning infrastructure as code. Terraform can create and manage resources on different cloud platforms, such as AWS, Azure, or Google Cloud. Terraform uses a declarative syntax to describe the desired state of the infrastructure and applies the changes accordingly. Terraform can also assign a public IP address to a cloud server by using the appropriate resource attributes. This is the correct technology that the systems administrator used to complete the task. The other options are incorrect because they are either not designed for creating cloud servers (Puppet or Git) or not capable of assigning public IP addresses (Ansible). Reference: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 19: Managing Cloud and Virtualization Technologies, page 559.

QUESTION 62
A Linux systems administrator is setting up a new web server and getting 404 - NOT FOUND errors while trying to access the web server pages from the browser. While working on the diagnosis of this issue, the Linux systems administrator executes the following commands:

```
# getenforce
Enforcing

# matchpathcon -V /var/www/html/*
/var/www/html/index.html has context unconfined_u:object_r:user_home_t:s0, should be system_u:object_r:httpd_sys_content_t:s0
/var/www/html/page1.html has context unconfined_u:object_r:user_home_t:s0, should be system_u:object_r:httpd_sys_content_t:s0
```

Which of the following commands will BEST resolve this issue?

A. sed -i 's/SELINUX=enforcing/SELINUX=disabled/' /etc/selinux/config
B. restorecon -R -v /var/www/html
C. setenforce 0
D. setsebool -P httpd_can_network_connect_db on

Correct Answer: B
Section:
Explanation:
The command restorecon -R -v /var/www/html will best resolve the issue. The issue is caused by the incorrect SELinux context of the web server files under the /var/www/html directory. The output of ls -Z /var/www/html shows that the files have the type user_home_t, which is not allowed for web content. The command restorecon restores the default SELinux context of files based on the policy rules. The options -R and -v are used to apply the command recursively and verbosely. This command will change the type of the files to httpd_sys_content_t, which is the correct type for web content.
This will allow the web server to access the files and serve the pages to the browser. The other options are incorrect because they either disable SELinux entirely (sed -i 's/SELINUX=enforcing/SELINUX=disabled/' /etc/selinux/config or setenforce 0), which is not a good security practice, or enable an unnecessary boolean (setsebool -P httpd_can_network_connect_db on), which is not related to the issue. Reference: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 18: Securing Linux Systems, page 535.

QUESTION 63
A cloud engineer is asked to copy the file deployment.yaml from a container to the host where the container is running. Which of the following commands can accomplish this task?

A. docker cp container_id/deployment.yaml deployment.yaml
B. docker cp container_id:/deployment.yaml deployment.yaml
C. docker cp deployment.yaml local://deployment.yaml
D. docker cp container_id/deployment.yaml local://deployment.yaml

Correct Answer: B
Section:
Explanation:
The command docker cp container_id:/deployment.yaml deployment.yaml can accomplish the task of copying the file deployment.yaml from a container to the host. The docker command is a tool for managing Docker containers and images. The cp option copies files or directories between a container and the local filesystem. The container_id is the identifier of the container, which can be obtained by using the docker ps command. The /deployment.yaml is the path of the file in the container, which must be preceded by a slash. The deployment.yaml is the path of the file on the host, which can be relative or absolute. The command docker cp container_id:/deployment.yaml deployment.yaml will copy the file deployment.yaml from the container to the current working directory on the host. This is the correct command to use to accomplish the task. The other options are incorrect because they either use the wrong syntax (docker cp container_id/deployment.yaml deployment.yaml or docker cp container_id/deployment.yaml local://deployment.yaml) or do not exist (docker cp deployment.yaml local://deployment.yaml). Reference: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 19: Managing Cloud and Virtualization Technologies, page 567.

QUESTION 64
A Linux system is failing to start due to issues with several critical system processes. Which of the following options can be used to boot the system into the single user mode? (Choose two.)

A. Execute the following command from the GRUB rescue shell: mount -o remount, ro/sysroot.
B. Interrupt the boot process in the GRUB menu and add systemd.unit=single in the kernel line.
C. Interrupt the boot process in the GRUB menu and add systemd.unit=rescue.target in the kernel line.
D. Interrupt the boot process in the GRUB menu and add single=user in the kernel line.

E. Interrupt the boot process in the GRUB menu and add init=/bin/bash in the kernel line.
F. Interrupt the boot process in the GRUB menu and add systemd.unit=single.target in the kernel line.

Correct Answer: C, F
Section:
Explanation:
The administrator can use the following two options to boot the system into the single user mode:
Interrupt the boot process in the GRUB menu and add systemd.unit=rescue.target in the kernel line.
This option will boot the system into the rescue mode, which is a minimal environment that allows the administrator to perform basic tasks such as repairing the system. The GRUB menu is a screen that appears when the system is powered on and allows the administrator to choose which kernel or operating system to boot. The kernel line is a line that specifies the parameters for the kernel, such as the root device, the init system, and the boot options. The administrator can interrupt the boot process by pressing the e key in the GRUB menu and edit the kernel line by adding systemd.unit=rescue.target at the end. This option will tell the system to use the rescue target, which is a unit that defines the state of the system in the rescue mode. The administrator can then press Ctrl+X to boot the system with the modified kernel line. This option will boot the system into the single user mode and allow the administrator to troubleshoot the issues.
Interrupt the boot process in the GRUB menu and add systemd.unit=single.target in the kernel line.
This option will boot the system into the single user mode, which is a mode that allows the administrator to log in as the root user and perform maintenance tasks. The GRUB menu and the kernel line are the same as the previous option. The administrator can interrupt the boot process by pressing the e key in the GRUB menu and edit the kernel line by adding systemd.unit=single.target at the end. This option will tell the system to use the single target, which is a unit that defines the state of the system in the single user mode. The administrator can then press Ctrl+X to boot the system with the modified kernel line. This option will boot the system into the single user mode and allow the administrator to troubleshoot the issues.
The other options are incorrect because they either do not boot the system into the single user mode (execute the following command from the GRUB rescue shell: mount -o remount, ro/sysroot or interrupt the boot process in the GRUB menu and add systemd.unit=single in the kernel line) or do not use the correct syntax (interrupt the boot process in the GRUB menu and add single=user in the kernel line or interrupt the boot process in the GRUB menu and add init=/bin/bash in the kernel line). Reference: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 8:
Managing the Linux Boot Process, pages 267-268.

QUESTION 65
A DevOps engineer needs to allow incoming traffic to ports in the range of 4000 to 5000 on a Linux server. Which of the following commands will enforce this rule?

A. iptables -f filter -I INPUT -p tcp --dport 4000:5000 -A ACCEPT
B. iptables -t filter -A INPUT -p tcp --dport 4000:5000 -j ACCEPT
C. iptables filter -A INPUT -p tcp --dport 4000:5000 -D ACCEPT
D. iptables filter -S INPUT -p tcp --dport 4000:5000 -A ACCEPT

Correct Answer: B
Section:
Explanation:
The command iptables -t filter -A INPUT -p tcp --dport 4000:5000 -j ACCEPT will enforce the rule of allowing incoming traffic to ports in the range of 4000 to 5000 on a Linux server.
The iptables command is a tool for managing firewall rules on Linux systems. The -t option specifies the table to operate on, in this case filter, which is the default table that contains the rules for filtering packets. The -A option appends a new rule to the end of a chain, in this case INPUT, which is the chain that processes the packets that are destined for the local system. The -p option specifies the protocol to match, in this case tcp, which is the transmission control protocol. The --dport option specifies the destination port or port range to match, in this case 4000:5000, which is the range of ports from 4000 to 5000. The -j option specifies the target to jump to if the rule matches, in this case ACCEPT, which is the target that allows the packet to pass through. The command iptables -t filter -A INPUT -p tcp --dport 4000:5000 -j ACCEPT will add a new rule to the end of the INPUT chain that will accept the incoming TCP packets that have a destination port between 4000 and 5000. This command will enforce the rule and allow the traffic to the specified ports. This is the correct command to use to accomplish the task. The other options are incorrect because they either use the wrong options (-f instead of -t or -D instead of -A) or do not exist (iptables filter -A INPUT -p tcp --dport 4000:5000 -D ACCEPT or iptables filter -S INPUT -p tcp --dport 4000:5000 -A ACCEPT). Reference: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 18: Securing Linux Systems, page 543.

QUESTION 66
A Linux administrator needs to determine whether a hostname is in the DNS. Which of the following would supply the information that is needed?

A. nslookup
B. rsyn?

C. netstat
D. host

Correct Answer: A
Section:
Explanation:
The commands nslookup or host can be used to determine whether a hostname is in the DNS. The DNS is the domain name system, which is a service that translates domain names into IP addresses and vice versa. The nslookup command is a tool for querying the DNS and obtaining information about a domain name or an IP address. The host command is a similar tool that performs DNS lookups. Both commands can be used to check if a hostname is in the DNS by providing the hostname as an argument and seeing if the command returns a valid IP address or an error message.
For example, the command nslookup www.google.com or host www.google.com will return the IP address of the Google website, while the command nslookup www.nosuchdomain.com or host www.nosuchdomain.com will return an error message indicating that the hostname does not exist.
These commands will supply the information that is needed to determine whether a hostname is in the DNS. These are the correct commands to use for this task. The other options are incorrect because they do not query the DNS or obtain information about a hostname (rsync or netstat). Reference: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 12:
Managing Network Connections, page 378.

QUESTION 67
A systems administrator pressed Ctrl+Z after starting a program using the command line, and the shell prompt was presented. In order to go back to the program, which of the following commands can the administrator use?

A. fg
B. su
C. bg
D. ed

Correct Answer: A
Section:
Explanation:
Ctrl+Z suspended the process, and "fg" will bring it back into the foreground of the shell A Comprehensive and Detailed To go back to a program that was suspended by pressing Ctrl+Z in the command line, the command that can be used is fg. The fg command stands for foreground, and it resumes the job that is next in the queue and brings it to the foreground. Alternatively, if there are more than one suspended jobs, fg can be followed by a job number to resume a specific job. The other commands are incorrect because they either do not resume a suspended job, or they have different functions such as switching user (su), pushing a job to the background (bg), or editing a file (ed). Reference: CompTIA Linux+ Study Guide, Fourth Edition, page 181-182.

QUESTION 68
A systems administrator received a notification that a system is performing slowly. When running the top command, the systems administrator can see the following values:

```
%Cpu(s): 2.7 us, 1.9 sy, 0.0 ni, 0.4 id, 95 wa, 0.0 hi, 0.0 si 0.0 st
```

Which of the following commands will the administrator most likely run NEXT?

A. vmstat
B. strace
C. htop
D. lsof

Correct Answer: A
Section:
Explanation:
The command vmstat will most likely be run next by the administrator to troubleshoot the system performance. The vmstat command is a tool for reporting virtual memory statistics on Linux systems. The command shows information about processes, memory, paging, block IO, interrupts, and CPU activity. The command can help the administrator identify the source of the performance issue, such as high CPU usage, low free memory, excessive swapping, or disk IO bottlenecks. The command can also be used with an interval and a count to display the statistics repeatedly over time and observe the changes. The command vmstat will provide useful

information for diagnosing the system performance and finding the root cause of the issue. This is the most likely command to run next after the top command. The other options are incorrect because they either do not show the virtual memory statistics (strace or lsof) or do not provide more information than the top command (htop). Reference: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 14: Managing Processes and Scheduling Tasks, page 425.

QUESTION 69
Which of the following technologies provides load balancing, encryption, and observability in containerized environments?

A. Virtual private network
B. Sidecar pod
C. Overlay network
D. Service mesh

Correct Answer: D
Section:
Explanation:
"A service mesh controls the delivery of service requests in an application. Common features provided by a service mesh include service discovery, load balancing, encryption and failure recovery."
The technology that provides load balancing, encryption, and observability in containerized environments is service mesh. A service mesh is a dedicated infrastructure layer that manages the communication and security between microservices in a distributed system. A service mesh consists of two components: a data plane and a control plane. The data plane is composed of proxies that are deployed alongside the microservices as sidecar pods. The proxies handle the network traffic between the microservices and provide features such as load balancing, encryption, authentication, authorization, routing, and observability. The control plane is responsible for configuring and managing the data plane and providing a unified interface for the administrators and developers. A service mesh can help improve the performance, reliability, and security of containerized applications and simplify the development and deployment process. A service mesh is the technology that provides load balancing, encryption, and observability in containerized environments. This is the correct answer to the question. The other options are incorrect because they either do not provide all the features of a service mesh (virtual private network or overlay network) or are not a technology but a component of a service mesh (sidecar pod). Reference: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 19: Managing Cloud and Virtualization Technologies, page 574.
https://www.techtarget.com/searchitoperations/definition/service-mesh

QUESTION 70
A development team asks an engineer to guarantee the persistency of journal log files across system reboots. Which of the following commands would accomplish this task?

A. grep -i auto /etc/systemd/journald.conf && systemctl restart systemd-journald.service
B. cat /etc/systemd/journald.conf | awk '(print $1,$3)'
C. sed -i 's/auto/persistent/g' /etc/systemd/journald.conf && sed -i 'persistent/s/^#//q' /etc/systemd/journald.conf
D. journalctl --list-boots && systemctl restart systemd-journald.service

Correct Answer: C
Section:
Explanation:
The command sed -i 's/auto/persistent/g' /etc/systemd/journald.conf && sed -i 'persistent/s/^#//q' /etc/systemd/journald.conf will accomplish the task of guaranteeing the persistency of journal log files across system reboots. The sed command is a tool for editing text files on Linux systems. The -i option modifies the file in place. The s command substitutes one string for another. The g flag replaces all occurrences of the string. The && operator executes the second command only if the first command succeeds. The q command quits after the first match. The /etc/systemd/journald.conf file is a configuration file for the systemd-journald service, which is responsible for collecting and storing log messages. The command sed -i 's/auto/persistent/g' /etc/systemd/journald.conf will replace the word auto with the word persistent in the file. This will change the value of the Storage option, which controls where the journal log files are stored. The value auto means that the journal log files are stored in the volatile memory and are lost after reboot, while the value persistent means that the journal log files are stored in the persistent storage and are preserved across reboots. The command sed -i 'persistent/s/^#//q' /etc/systemd/journald.conf will remove the # character at the beginning of the line that contains the word persistent. This will uncomment the Storage option and enable it. The command sed -i 's/auto/persistent/g' /etc/systemd/journald.conf && sed -i 'persistent/s/^#//q' /etc/systemd/journald.conf will guarantee the persistency of journal log files across system reboots by changing and enabling the Storage option to persistent. This is the correct command to use to accomplish the task. The other options are incorrect because they either do not change the value of the Storage option (grep -i auto /etc/systemd/journald.conf && systemctl restart systemd-journald.service or cat /etc/systemd/journald.conf | awk '(print $1,$3)') or do not enable the Storage option (journalctl --list-boots && systemctl restart systemdjournald. service). Reference: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 16:
Managing Logging and Monitoring, page 489.

QUESTION 71

A systems administrator is receiving tickets from users who cannot reach the application app that should be listening on port 9443/tcp on a Linux server.
To troubleshoot the issue, the systems administrator runs netstat and receives the following output:

```
# netstat -anp | grep appd | grep -w LISTEN
tcp 0 0 127.0.0.1:9443 0.0.0.0:* LISTEN 1234/appd
```

Based on the information above, which of the following is causing the issue?

A. The IP address 0.0.0.0 is not valid.
B. The application is listening on the loopback interface.
C. The application is listening on port 1234.
D. The application is not running.

Correct Answer: B
Section:
Explanation:
The server is in a "Listen" state on port 9943 using its loopback address. The "1234" is a process-id
The cause of the issue is that the application is listening on the loopback interface. The loopback interface is a virtual network interface that is used for internal communication within the system.
The loopback interface has the IP address 127.0.0.1, which is also known as localhost. The netstat output shows that the application is listening on port 9443 using the IP address 127.0.0.1. This means that the application can only accept connections from the same system, not from other systems on the network. This can prevent the users from reaching the application and cause the issue. The administrator should configure the application to listen on the IP address 0.0.0.0, which means all available interfaces, or on the specific IP address of the system that is reachable from the network.
This will allow the application to accept connections from other systems and resolve the issue. The cause of the issue is that the application is listening on the loopback interface. This is the correct answer to the question. The other options are incorrect because they are not supported by the outputs. The IP address 0.0.0.0 is valid and means all interfaces, the application is not listening on port 1234, and the application is running as shown by the process ID 1234. Reference: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 12: Managing Network Connections, page 383.

QUESTION 72
A systems administrator is troubleshooting a connectivity issue pertaining to access to a system named db.example.com. The system IP address should be 192.168.20.88. The administrator issues the dig command and receives the following output:

```
;; ANSWER SECTION:
db.example.com.    15 IN A 192.168.20.89
```

The administrator runs grep db.example.com /etc/hosts and receives the following output:

```
192.168.20.89 db.example.com
```

Given this scenario, which of the following should the administrator do to address this issue?

A. Modify the /etc/hosts file and change the db.example.com entry to 192.168.20.89.
B. Modify the /etc/network file and change the db.example.com entry to 192.168.20.88.
C. Modify the /etc/network file and change the db.example.com entry to 192.168.20.89.
D. Modify the /etc/hosts file and change the db.example.com entry to 192.168.20.88.

Correct Answer: D
Section:
Explanation:
The administrator should modify the /etc/hosts file and change the db.example.com entry to 192.168.20.88 to address the issue. The /etc/hosts file is a file that maps hostnames to IP addresses on Linux systems. The file can be used to override the DNS resolution and provide a local lookup for hostnames. The dig output shows that the DNS returns the IP address 192.168.20.88 for the hostname db.example.com, which is the correct IP address of

the system. The grep output shows that the /etc/hosts file contains an entry for db.example.com with the IP address 192.168.20.89, which is the wrong IP address of the system. This can cause a conflict and prevent the system from being accessed by the hostname. The administrator should modify the /etc/hosts file and change the db.example.com entry to 192.168.20.88, which is the correct IP address of the system. This will align the /etc/hosts file with the DNS and allow the system to be accessed by the hostname. The administrator should modify the /etc/hosts file and change the db.example.com entry to 192.168.20.88 to address the issue. This is the correct answer to the question. The other options are incorrect because they either do not modify the /etc/hosts file (modify the /etc/network file and change the db.example.com entry to 192.168.20.88 or modify the /etc/network file and change the db.example.com entry to 192.168.20.89) or do not change the IP address to the correct one (modify the /etc/hosts file and change the db.example.com entry to 192.168.20.89). Reference: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 12: Managing Network Connections, page 378.

QUESTION 73

Users have been unable to reach www.comptia.org from a Linux server. A systems administrator is troubleshooting the issue and does the following:

Output 1:

```
2: eth0: <BROADCAST,MULTICAST,UP, LOWER_UP> mtu 1500 qdisc noqueue state UP group default qlen 1000
   link/ether ac:11:22:33:44:cd brd ff:ff:ff:ff:ff:ff
   inet 192.168.168.10/24 brd 192.168.169.255 scope global dynamic noprefixroute eth0
      valid_lft 8097sec preferred_lft 8097sec
   inet fe80::4daf:8c7c:a6ff:2771/64 scope link noprefixroute
      valid_lft forever preferred_lft forever
```

Output 2:

```
nameserver 192.168.168.53
```

Output 3:

```
FING 192.168.168.53 (192.168.168.53) 56(84) bytes of data.
64 bytes from 192.168.168.53: icmp_seq=1 ttl=64 time=2.85 ms

--- 192.168.168.53 ping statistics ---
1 packets transmitted, 1 received, 0% packet loss, time 0ms
rtt min/avg/max/mdev = 2.847/2.847/2.847/0.000 ms
```

Output 4:

```
192.168.168.0/24 dev eth0 proto kernel scope link src 192.168.168.10 metric 600
```

Output 5:

```
...
;; QUESTION SECTION:
;www.comptia.org. IN A

;; ANSWER SECTION:
. 0 CLASS4096 OPT 10 8 LgmNvk0AazU=

;; ADDITIONAL SECTION:
www.comptia.org. 3385 IN A 23.96.239.26
...
```

Based on the information above, which of the following is causing the issue?

A. The name www.comptia.org does not point to a valid IP address.
B. The server 192.168.168.53 is unreachable.
C. No default route is set on the server.
D. The network interface eth0 is disconnected.

Correct Answer: B
Section:
Explanation:
The issue is caused by the server 192.168.168.53 being unreachable. This server is the DNS server configured in the /etc/resolv.conf file, which is used to resolve domain names to IP addresses. The ping command shows that the server cannot be reached, and the nslookup command shows that the name www.comptia.org cannot be resolved using this server. The other options are incorrect because:
The name www.comptia.org does point to a valid IP address, as shown by the nslookup command using another DNS server (8.8.8.8).
The default route is set on the server, as shown by the ip route command, which shows a default gateway of 192.168.168.1.
The network interface eth0 is connected, as shown by the ip link command, which shows a state of UP for eth0. Reference: CompTIA Linux+ Study Guide, Fourth Edition, page 457-458, 461-462.

QUESTION 74
A systems technician is working on deploying several microservices to various RPM-based systems, some of which could run up to two hours. Which of the following commands will allow the technician to execute those services and continue deploying other microservices within the same terminal section?

A. gedit & disown
B. kill 9 %1
C. fg %1
D. bg %1 job name

Correct Answer: D
Section:
Explanation:
The command that will allow the technician to execute the services and continue deploying other microservices within the same terminal session is bg %1 job name. This command will send the job with ID 1 and name job name to the background, where it will run without occupying the terminal.
The other options are incorrect because:
gedit & disown will launch a graphical text editor in the background and detach it from the terminal, but it will not execute any service.
kill 9 %1 will terminate the job with ID 1 using a SIGKILL signal, which cannot be ignored or handled by the process.
fg %1 will bring the job with ID 1 to the foreground, where it will occupy the terminal until it finishes or is stopped. Reference: CompTIA Linux+ Study Guide, Fourth Edition, page 181-182.

QUESTION 75
A Linux administrator was notified that a virtual server has an I/O bottleneck. The Linux administrator analyzes the following output:

```
root@linux:~# uptime
18:43:47 up 1 day, 19:58, 1 user, load average: 9.90, 5.83, 2.49
root@linux:~# vmstat 10 10
procs -----------memory---------- --swap----- -----io---- -system- ------------cpu-------

  r  b  swpd   free   buff    cache  si     so  bi     bo     in      cs  us  sy  id  wa  st
 13  0  5520 141228  98932  2325312   0      2  10     28    192     167   1   0  99   0   0
 10  0  5608 131280  98932  2325324   0  26211   0  26211    342     393  91   9   0   0   0
 10  0  5528   1096  98932  2325324   0   5242   0   5242    333     402  96   4   0   0   0

root@linux:~# free -m
              total        used        free      shared  buff/cache   available
Mem:           3933        1454         110          33        2368        2202
Swap:          1497           5        1491
```

Given there is a single CPU in the sever, which of the following is causing the slowness?

A. The system is running out of swap space.
B. The CPU is overloaded.
C. The memory is exhausted.
D. The processes are paging.

Correct Answer: B
Section:
Explanation:
The slowness is caused by the CPU being overloaded. The iostat command shows that the CPU utilization is 100%, which means that there are more processes competing for CPU time than the CPU can handle. The other options are incorrect because:
The system is not running out of swap space, as shown by the iostat command, which shows that there is no swap activity (si and so columns are zero).
The memory is not exhausted, as shown by the free -m command, which shows that there is still available memory (avail column) and free buffer/cache memory (buff/cache column).
The processes are not paging, as shown by the vmstat command, which shows that there are no major page faults (majflt column) and no swap activity (si and so columns). Reference: CompTIA Linux+ Study Guide, Fourth Edition, page 417-419, 424-425.

QUESTION 76
Employees in the finance department are having trouble accessing the file /opt/work/file. All IT employees can read and write the file. Systems administrator reviews the following output:

```
admin@server:/opt/work$ ls -al file
-rw-rw----+ 1 root it 4 Sep 5 17:29 file
```

Which of the following commands would permanently fix the access issue while limiting access to IT and finance department employees?

A. chattr +i file
B. chown it:finance file
C. chmod 666 file
D. setfacl -m g:finance:rw file

Correct Answer: D
Section:
Explanation:
The command setfacl -m g:finance:rw file will permanently fix the access issue while limiting access to IT and finance department employees. The setfacl command is a tool for modifying the access control lists (ACLs) of files and directories on Linux systems. The ACLs are a mechanism that allows more fine-grained control over the permissions of files and directories than the traditional ownergroup-others model. The -m option specifies the modification to the ACL. The g:finance:rw means that the group named finance will have read and write permissions on the file. The file is the name of the file to modify, in this case /opt/work/file. The command setfacl -m g:finance:rw file will add an entry to the ACL of the file that will grant read and write access to the finance group. This will fix the access issue and allow the finance employees to access the file. The command will also preserve the existing permissions of the file, which means that the IT employees will still have read and write access to the file. This will limit the access to IT and finance department employees and prevent unauthorized access from other users. This is the correct command to use to accomplish the task. The other options are incorrect because they either do not fix the access issue (chattr +i file or chown it:finance file) or do not limit the access to IT and finance department employees (chmod 666 file). Reference: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 11: Managing File Permissions and Ownership, page 352.

QUESTION 77
A Linux engineer needs to create a custom script, cleanup.sh, to run at boot as part of the system services. Which of the following processes would accomplish this task?

A.
Create a unit file in the /etc/default/ directory.
systemctl enable cleanup
systemctl is-enabled cleanup

B.
Create a unit file in the /etc/ske1/ directory.
systemctl enable cleanup
systemctl is-enabled cleanup

C.
Create a unit file in the /etc/systemd/system/ directory.
systemctl enable cleanup
systemctl is-enabled cleanup

D.
Create a unit file in the /etc/sysctl.d/ directory.
systemctl enable cleanup
systemctl is-enabled cleanup

Correct Answer: C
Section:
Explanation:
The process that will accomplish the task of creating a custom script to run at boot as part of the system services is:
Create a unit file in the /etc/systemd/system/ directory. A unit file is a configuration file that defines the properties and behavior of a systemd service. The systemd is a system and service manager that controls the startup and operation of Linux systems. The /etc/systemd/system/ directory is the location where the administrator can create and store custom unit files. The unit file should have a name that matches the name of the script, such as cleanup.service, and should contain the following sections and options:
[Unit]: This section provides the general information about the service, such as the description, dependencies, and conditions. The administrator should specify the following options in this section:
Description: A brief description of the service, such as "Custom cleanup script".
After: The name of another unit that this service should start after, such as "network.target".
ConditionPathExists: The path of the file or directory that must exist for the service to start, such as "/opt/scripts/cleanup.sh".
[Service]: This section defines how the service should be started and stopped, and what commands should be executed. The administrator should specify the following options in this section:
Type: The type of the service, such as "oneshot", which means that the service will run once and then exit.
ExecStart: The command that will start the service, such as "/bin/bash /opt/scripts/cleanup.sh".
RemainAfterExit: A boolean value that indicates whether the service should remain active after the command exits, such as "yes".
[Install]: This section defines how the service should be enabled and under what circumstances it should be started. The administrator should specify the following option in this section:
WantedBy: The name of another unit that wants this service to be started, such as "multiuser. target", which means that the service will be started when the system reaches the multi-user mode.
Run the command systemctl enable cleanup. This command will enable the service and create the necessary symbolic links to start the service at boot.
Run the command systemctl is-enabled cleanup. This command will check the status of the service and confirm that it is enabled.
This process will create a custom script, cleanup.sh, to run at boot as part of the system services. This is the correct process to use to accomplish the task. The other options are incorrect because they either use the wrong directory for the unit file (/etc/default/, /etc/skel/, or /etc/sysctl.d/) or do not create a unit file at all. Reference: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 15:
Managing System Services, pages 457-459.

QUESTION 78
A Linux system is failing to boot. The following error is displayed in the serial console:
[[1;33mDEPEND[Om] Dependency failed for /data.
[[1;33mDEPEND[Om] Dependency failed for Local File Systems
... Welcome to emergency mode! After logging in, type "journalctl -xb" to viewsystem logs, "systemctl reboot" to reboot, "systemctl default" to try again to boot into default mode.
Give root password for maintenance (or type Control-D to continue}
Which of the following files will need to be modified for this server to be able to boot again?

A. /etc/mtab
B. /dev/sda
C. /etc/fstab
D. /ete/grub.conf

Correct Answer: C
Section:
Explanation:
The file that will need to be modified for the server to be able to boot again is /etc/fstab. The /etc/fstab file is a file that contains the information about the file systems that are mounted at boot time on Linux systems. The file specifies the device name, mount point, file system type, mount options, dump frequency, and pass number for each file system. The error message indicates that the dependency failed for /data, which is a mount point for a file system. This means that the system could not mount the /data file system at boot time, which caused the system to enter the emergency mode. The emergency mode is a mode that allows the administrator to log in as the root user and perform basic tasks such as repairing the system. The administrator should modify the /etc/fstab file and check the entry for the /data file system. The administrator should look for any errors or inconsistencies in the device name, file system type, or mount options, and correct them. The administrator should also verify that the device and the file system are intact and functional by using commands such as blkid, fdisk, fsck, or mount. The administrator should then reboot the system and see if the issue is resolved. The file that will need to be modified for the server to be able to boot again is /etc/fstab. This is the correct answer to the question. The other options are incorrect because they are not related to the file systems that are mounted at boot time (/etc/mtab, /dev/sda, or /etc/grub.conf). Reference: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 10:
Managing Storage, page 321.

QUESTION 79
A systems administrator frequently connects to a remote host via SSH and a non-standard port. The systems administrator would like to avoid passing the port parameter on the command line every time. Which of the following files can be used to set a different port value for that host?

A. /etc/ssh/sshd_config
B. /etc/ssh/moduli
C. ~/.ssh/config
D. ~/.ssh/authorized_keys

Correct Answer: C
Section:
Explanation:
The ~/.ssh/config file can be used to set various options for SSH connections, including the port number, for specific hosts or groups of hosts. This file is located in the user's home directory and affects only the current user. The /etc/ssh/sshd_config file is used to configure the SSH server daemon, not the client. The /etc/ssh/moduli file contains parameters for Diffie-Hellman key exchange, not port settings. The ~/.ssh/authorized_keys file contains public keys for authentication, not port settings. Reference: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 12: Secure Shell (SSH), page 414.

QUESTION 80
A Linux administrator modified the SSH configuration file. Which of the following commands should be used to apply the configuration changes?

A. systemctl stop sshd
B. systemctl mask sshd
C. systemctl reload sshd
D. systemctl start sshd

Correct Answer: C
Section:
Explanation:
The systemctl reload sshd command can be used to apply the configuration changes of the SSH server daemon without restarting it. This is useful to avoid interrupting existing connections. The systemctl stop sshd command would stop the SSH server daemon, not apply the changes. The systemctl mask sshd command would prevent the SSH server daemon from being started, not apply the changes. The systemctl start sshd command would start the SSH server daemon if it is not running, but it would not apply the changes if it is already running. Reference: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 12: Secure Shell (SSH), page 415.

QUESTION 81
A cloud engineer needs to check the link status of a network interface named eth1 in a Linux server.
Which of the following commands can help to achieve the goal?

A. ifconfig hw eth1
B. netstat -r eth1
C. ss -ti eth1
D. ip link show eth1

Correct Answer: D
Section:
Explanation:
The ip link show eth1 command can be used to check the link status of a network interface named eth1 in a Linux server. It will display information such as the MAC address, MTU, state, and flags of the interface. The ifconfig hw eth1 command is invalid, as hw is not a valid option for ifconfig. The netstat -r eth1 command would display the routing table for eth1, not the link status. The ss -ti eth1 command would display TCP information for sockets associated with eth1, not the link status. Reference: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 13: Networking Fundamentals, page 436.

QUESTION 82
A systems administrator is tasked with setting up key-based SSH authentication. In which of the following locations should the administrator place the public keys for the server?

A. ~/.sshd/authkeys
B. ~/.ssh/keys
C. ~/.ssh/authorized_keys
D. ~/.ssh/keyauth

Correct Answer: C
Section:
Explanation:
The administrator should place the public keys for the server in the ~/.ssh/authorized_keys file. The SSH (Secure Shell) protocol is a method for establishing secure and encrypted connections between remote systems. The SSH protocol supports two types of authentication: password-based and keybased.
Password-based authentication requires the user to enter the password of the remote system every time they connect. Key-based authentication requires the user to generate a pair of cryptographic keys: a public key and a private key. The public key is stored on the remote system, while the private key is kept on the local system. The public key and the private key are mathematically related, but not identical. The SSH protocol uses the keys to verify the identity of the user and establish a secure connection without requiring a password. The ~/.ssh/authorized_keys file is a file that contains the public keys of the users who are allowed to connect to the remote system using key-based authentication. The administrator should place the public keys for the server in this file, one per line, and set the appropriate permissions for the file. The administrator should also configure the SSH server to enable key-based authentication by editing the /etc/ssh/sshd_config file and setting the option PasswordAuthentication to no. The administrator should place the public keys for the server in the ~/.ssh/authorized_keys file. This is the correct answer to the question. The other options are incorrect because they are not the standard locations for the public keys for the server (~/.sshd/authkeys, ~/.ssh/keys, or ~/.ssh/keyauth). Reference: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 17: Implementing Basic Security, page 513.

QUESTION 83
A Linux administrator needs to create a new user named user02. However, user02 must be in a different home directory, which is under /comptia/projects. Which of the following commands will accomplish this task?

A. useradd -d /comptia/projects user02
B. useradd -m /comptia/projects user02
C. useradd -b /comptia/projects user02
D. useradd -s /comptia/projects user02

Correct Answer: A
Section:
Explanation:
The command useradd -d /comptia/projects user02 will accomplish the task of creating a new user named user02 with a different home directory. The useradd command is a tool for creating new user accounts on Linux systems. The -d option specifies the home directory for the new user, which is the directory where the user's personal files and settings are stored. The /comptia/projects is the path of the home directory for the new user, which is different from the default location of /home/user02.
The user02 is the name of the new user. The command useradd -d /comptia/projects user02 will create a new user named user02 with a home directory under /comptia/projects. This is the correct command to use to

accomplish the task. The other options are incorrect because they either do not specify the home directory for the new user (useradd -m /comptia/projects user02 or useradd -s /comptia/projects user02) or do not use the correct option for the home directory (useradd -b /comptia/projects user02 instead of useradd -d /comptia/projects user02). Reference: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 13: Managing Users and Groups, page 403.

QUESTION 84
One leg of an LVM-mirrored volume failed due to the underlying physical volume, and a systems administrator is troubleshooting the issue. The following output has been provided:

```
Partial mode. Incomplete volume groups will be activated read-only
```

LV	VG	Attr	LSize	Origin	Snap%	Move	Log	Copy%	Devices
linear	vg	-wi-a-	40.00G						unknown device(0)
stripe	vg	-wi-a-	40.00G						unknown device(5120),/dev/sda1(0)

Given this scenario, which of the following should the administrator do to recover this volume?

A. Reboot the server. The volume will automatically go back to linear mode.
B. Replace the failed drive and reconfigure the mirror.
C. Reboot the server. The volume will revert to stripe mode.
D. Recreate the logical volume.

Correct Answer: B
Section:
Explanation:
The administrator should replace the failed drive and reconfigure the mirror to recover the volume. The LVM (Logical Volume Manager) is a tool for managing disk space on Linux systems. The LVM allows the administrator to create logical volumes that span across multiple physical volumes, such as hard disks or partitions. The LVM also supports different types of logical volumes, such as linear, striped, or mirrored. A mirrored logical volume is a type of logical volume that creates a copy of the data on another physical volume, providing redundancy and fault tolerance. The output shows that the logical volume is mirrored and that one leg of the mirror has failed due to the underlying physical volume. This means that one of the physical volumes that contains the data of the logical volume is damaged or missing. This can cause data loss and performance degradation. The administrator should replace the failed drive and reconfigure the mirror to recover the volume. The administrator should identify the failed physical volume by using commands such as pvdisplay, vgdisplay, or lvdisplay. The administrator should then remove the failed physical volume from the volume group by using the vgreduce command. The administrator should then install a new drive and create a new physical volume by using the pvcreate command. The administrator should then add the new physical volume to the volume group by using the vgextend command. The administrator should then reconfigure the mirror by using the lvconvert command. The administrator should replace the failed drive and reconfigure the mirror to recover the volume. This is the correct answer to the question. The other options are incorrect because they either do not recover the volume (reboot the server. The volume will automatically go back to linear mode or reboot the server. The volume will revert to stripe mode) or do not preserve the data of the volume (recreate the logical volume). Reference: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 10: Managing Storage, pages 333-334.

QUESTION 85
A systems administrator created a new Docker image called test. After building the image, the administrator forgot to version the release. Which of the following will allow the administrator to assign the v1 version to the image?

A. docker image save test test:v1
B. docker image build test:vl
C. docker image tag test test:vl
D. docker image version test:v1

Correct Answer: C
Section:
Explanation:
The docker image tag test test:v1 command can be used to assign the v1 version to the image called test. This command creates a new tag for the existing image, without changing the original image.
The docker image save test test:v1 command would save the image to a file, not assign a version. The docker image build test:vl command is invalid, as vl is not a valid version number. The docker image version test:v1 command does not exist. Reference: [CompTIA Linux+ (XK0-005) Certification Study Guide], Chapter 16: Virtualization and Cloud Technologies, page 500.

QUESTION 86
A Linux systems administrator receives a notification that one of the server's filesystems is full.
Which of the following commands would help the administrator to identify this filesystem?

A. lsblk
B. fdisk
C. df -h
D. du -ah

Correct Answer: C
Section:
Explanation:
The df -h command can be used to identify the filesystem that is full. This command displays the disk usage of each mounted filesystem in a human-readable format, showing the total size, used space, available space, and percentage of each filesystem. The lsblk command displays information about block devices, not filesystems. The fdisk command can be used to manipulate partition tables, not check disk usage. The du -ah command displays the disk usage of each file and directory in a humanreadable format, not the filesystems. Reference: [CompTIA Linux+ (XK0-005) Certification Study Guide], Chapter 14: Managing Disk Storage, page 454.

QUESTION 87
A systems administrator is notified that the mysqld process stopped unexpectedly. The systems administrator issues the following command:
sudo grep -i -r 'out of memory' /var/log
The output of the command shows the following:
kernel: Out of memory: Kill process 9112 (mysqld) score 511 or sacrifice child.
Which of the following commands should the systems administrator execute NEXT to troubleshoot this issue? (Select two).

A. free -h
B. nc -v 127.0.0.1 3306
C. renice -15 $(pidof mysql)
D. lsblk
E. killall -15
F. vmstat -a 1 4

Correct Answer: A, F
Section:
Explanation:
The free -h command can be used to check the amount of free and used memory in the system in a human-readable format. This can help to troubleshoot the issue of mysqld being killed due to out of memory. The vmstat -a 1 4 command can be used to monitor the system's virtual memory statistics, such as swap usage, paging activity, and memory faults, every one second for four times. This can help to identify any memory pressure or performance issues that may cause out of memory errors.
The nc -v 127.0.0.1 3306 command would attempt to connect to the MySQL server on port 3306 and display any diagnostic messages, but this would not help to troubleshoot the memory issue. The renice -15 $(pidof mysql) command would change the priority of the mysql process to -15, but this would not prevent it from being killed due to out of memory. The lsblk command would display information about block devices, not memory usage. The killall -15 command would send a SIGTERM signal to all processes with a matching name, but this would not help to troubleshoot the memory issue. Reference: [CompTIA Linux+ (XK0-005) Certification Study Guide], Chapter 15: Managing Memory and Process Execution, pages 468-469.

QUESTION 88
Users have reported that the interactive sessions were lost on a Linux server. A Linux administrator verifies the server was switched to rescue.target mode for maintenance. Which of the following commands will restore the server to its usual target?

A. telinit 0
B. systemctl reboot
C. systemctl get-default

D. systemctl emergency

Correct Answer: B
Section:
Explanation:
The systemctl reboot command will restore the server to its usual target by rebooting it. This will cause the server to load the default target specified in /etc/systemd/system.conf or /etc/systemd/system/default.target files. The telinit 0 command would shut down the server, not restore it to its usual target. The systemctl get-default command would display the default target, not change it. The systemctl emergency command would switch the server to emergency.target mode, which is even more restrictive than rescue.target mode. Reference: [CompTIA Linux+ (XK0-005) Certification Study Guide], Chapter 17: System Maintenance and Operation, page 516.

QUESTION 89
A systems administrator was tasked with assigning the temporary IP address/netmask 192.168.168.1/255.255.255.255 to the interface eth0 of a Linux server.
When adding the address, the following error appears:
ip address add 192.168.168.1/33 dev eth0
Error: any valid prefix is expected rather than "192.168.168.1/33".
Based on the command and its output above, which of the following is the cause of the issue?

A. The CIDR value /33 should be /32 instead.
B. There is no route to 192.168.168.1/33.
C. The interface eth0 does not exist.
D. The IP address 192.168.168.1 is already in use.

Correct Answer: A
Section:
Explanation:
The cause of the issue is that the CIDR value /33 is invalid for an IPv4 address. The CIDR value represents the number of bits in the network prefix of an IP address, and it can range from 0 to 32 for IPv4 addresses. A CIDR value of /33 would imply a network prefix of more than 32 bits, which is impossible for an IPv4 address. To assign a temporary IP address/netmask of 192.168.168.1/255.255.255.255 to eth0, the CIDR value should be /32 instead, which means a network prefix of 32 bits and a host prefix of 0 bits. There is no route to 192.168.168.1/33 is not the cause of the issue, as the ip address add command does not check the routing table. The interface eth0 does not exist is not the cause of the issue, as the ip address add command would display a different error message if the interface does not exist. The IP address 192.168.168.1 is already in use is not the cause of the issue, as the ip address add command would display a different error message if the IP address is already in use. Reference: [CompTIA Linux+ (XK0-005) Certification Study Guide], Chapter 13: Networking Fundamentals, page 435.

QUESTION 90
A Linux user reported the following error after trying to connect to the system remotely:
ssh: connect to host 10.0.1.10 port 22: Resource temporarily unavailable
The Linux systems administrator executed the following commands in the Linux system while trying to diagnose this issue:

```
# netstat -an | grep 22 | grep LISTEN
tcp      0        0        0.0.0.0:22       0.0.0.0:*        LISTEN

# firewall-cmd --list-all
public (active)
  target: default
  icmp-block-inversion: no
  interfaces: eth0
  sources:
  services: dhcpv6-client
  ports:
  protocols:
  masquerade: no
          forward-ports:
          source-ports:
          icmp-blocks:
          rich rules:
```

Which of the following commands will resolve this issue?

A. firewall-cmd --zone=public --permanent --add-service=22
B. systemctl enable firewalld; systemctl restart firewalld
C. firewall-cmd --zone=public --permanent --add-service=ssh
D. firewall-cmd --zone=public --permanent --add-port=22/udp

Correct Answer: C
Section:
Explanation:
The firewall-cmd --zone=public --permanent --add-service=ssh command will resolve the issue by allowing SSH connections on port 22 in the public zone of the firewalld service. This command will add the ssh service to the permanent configuration of the public zone, which means it will persist after a reboot or a reload of the firewalld service. The firewall-cmd --zone=public --permanent --addservice= 22 command is invalid, as 22 is not a valid service name. The systemctl enable firewalld; systemctl restart firewalld command will enable and restart the firewalld service, but it will not change the firewall rules. The firewall-cmd --zone=public --permanent --add-port=22/udp command will allow UDP traffic on port 22 in the public zone, but SSH uses TCP, not UDP. Reference: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 18: Securing Linux Systems, page 543.

QUESTION 91
A Linux administrator has been tasked with installing the most recent versions of packages on a RPMbased OS. Which of the following commands will accomplish this task?

A. apt-get upgrade
B. rpm -a
C. yum updateinfo
D. dnf update
E. yum check-update

Correct Answer: D
Section:

Explanation:
The dnf update command will accomplish the task of installing the most recent versions of packages on a RPM-based OS. This command will check for available updates from the enabled repositories and apply them to the system. The apt-get upgrade command is used to install updates on a Debianbased OS, not a RPM-based OS. The rpm -a command is invalid, as -a is not a valid option for rpm.
The yum updateinfo command will display information about available updates, but it will not install them. The yum check-update command will check for available updates, but it will not install them. Reference: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 19: Managing Packages and Software, page 559.

QUESTION 92
A Linux administrator needs to expand a volume group using a new disk. Which of the following options presents the correct sequence of commands to accomplish the task?

A.
partprobe
vgcreate
lvextend

B.
lvcreate
fdisk
partprobe

C.
fdisk
partprobe
mkfs

D.
fdisk
pvcreate
vgextend

Correct Answer: D
Section:
Explanation:
The correct sequence of commands to expand a volume group using a new disk is fdisk, pvcreate, vgextend. The fdisk command can be used to create a partition on the new disk with the type 8e (Linux LVM). The pvcreate command can be used to initialize the partition as a physical volume for LVM. The vgextend command can be used to add the physical volume to an existing volume group.
The partprobe command can be used to inform the kernel about partition table changes, but it is not necessary in this case. The vgcreate command can be used to create a new volume group, not expand an existing one. The lvextend command can be used to extend a logical volume, not a volume group. The lvcreate command can be used to create a new logical volume, not expand a volume group. The mkfs command can be used to create a filesystem on a partition or a logical volume, not expand a volume group. Reference: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 14:
Managing Disk Storage, pages 462-463.

QUESTION 93
Which of the following directories is the mount point in a UEFI system?

A. /sys/efi
B. /boot/efi
C. /efi
D. /etc/efi

Correct Answer: B
Section:
Explanation:
The /boot/efi directory is the mount point in a UEFI system. This directory contains the EFI System Partition (ESP), which stores boot loaders and other files required by UEFI firmware. The /sys/efi directory does not exist by default in Linux systems. The /efi directory does not exist by default in Linux systems. The /etc/efi directory does not exist by default in Linux systems. Reference: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter

11: Managing the Linux Boot Process, page 398.

QUESTION 94
A Linux administrator copied a Git repository locally, created a feature branch, and committed some changes to the feature branch. Which of the following Git actions should the Linux administrator use to publish the changes to the main branch of the remote repository?

A. rebase
B. tag
C. commit
D. push

Correct Answer: D
Section:
Explanation:
The push action is used to publish the changes made in a local branch to a remote branch of a Git repository. This action will update the remote branch with the commits made in the local branch and synchronize the two branches. The rebase action is used to reapply commits from one branch onto another branch, creating a linear history of commits. This action does not publish any changes to a remote repository. The tag action is used to create an annotated reference to a specific commit in a Git repository. This action does not publish any changes to a remote repository. The commit action is used to record changes made in the local repository and create a new snapshot of the project state.
This action does not publish any changes to a remote repository. Reference: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 20: Writing and Executing Bash Shell Scripts, page 579.

QUESTION 95
A Linux administrator needs to obtain a list of all volumes that are part of a volume group. Which of the following commands should the administrator use to accomplish this task?

A. vgs
B. lvs
C. fdisk -1
D. pvs

Correct Answer: B
Section:
Explanation:
The lvs command can be used to obtain a list of all volumes that are part of a volume group. This command will display information such as the name, size, attributes, and volume group of each logical volume in the system. The vgs command can be used to obtain a list of all volume groups in the system, not the volumes. The fdisk -1 command is invalid, as -1 is not a valid option for fdisk. The pvs command can be used to obtain a list of all physical volumes in the system, not the volumes. Reference: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 14: Managing Disk Storage, page 461.

QUESTION 96
A Linux administrator is adding a new configuration file to a Git repository. Which of the following describes the correct order of Git commands to accomplish the task successfully?

A. pull -> push -> add -> checkout
B. pull -> add -> commit -> push
C. checkout -> push -> add -> pull
D. pull -> add -> push -> commit

Correct Answer: B
Section:
Explanation:
The correct order of Git commands to add a new configuration file to a Git repository is pull -> add -> commit -> push. The pull command will fetch and merge the changes from the remote repository to the local repository, ensuring that the local repository is up to date. The add command will stage the new configuration file for the next commit, marking it as a new file to be tracked by Git. The commit command will create a new snapshot of

the project state with the new configuration file and a descriptive message. The push command will publish the commit to the remote repository, updating the remote branch with the new configuration file. The pull -> push -> add -> checkout order is incorrect, as it will not create a commit for the new configuration file, and it will switch to a different branch without pushing the changes. The checkout -> push -> add -> pull order is incorrect, as it will switch to a different branch before adding the new configuration file, and it will overwrite the local changes with the remote changes without creating a commit. The pull -> add -> push -> commit order is incorrect, as it will not create a commit before pushing the changes, and it will create a commit that is not synchronized with the remote branch. Reference: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 20: Writing and Executing Bash Shell Scripts, page 579.

QUESTION 97
A systems administrator is tasked with mounting a USB drive on a system. The USB drive has a single partition, and it has been mapped by the system to the device /dev/sdb. Which of the following commands will mount the USB to /media/usb?

A. mount /dev/sdb1 /media/usb
B. mount /dev/sdb0 /media/usb
C. mount /dev/sdb /media/usb
D. mount -t usb /dev/sdb1 /media/usb

Correct Answer: A
Section:
Explanation:
The mount /dev/sdb1 /media/usb command will mount the USB drive to /media/usb. This command will attach the filesystem on the first partition of the USB drive (/dev/sdb1) to the mount point /media/usb, making it accessible to the system. The mount /dev/sdb0 /media/usb command is invalid, as there is no such device as /dev/sdb0. The mount /dev/sdb /media/usb command is incorrect, as it will try to mount the entire USB drive instead of its partition, which may cause errors or data loss. The mount -t usb /dev/sdb1 /media/usb command is incorrect, as usb is not a valid filesystem type for mount. Reference: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 14: Managing Disk Storage, page 455.

QUESTION 98
A developer reported an incident involving the application configuration file /etc/httpd/conf/httpd.conf that is missing from the server. Which of the following identifies the RPM package that installed the configuration file?

A. rpm -qf /etc/httpd/conf/httpd.conf
B. rpm -ql /etc/httpd/conf/httpd.conf
C. rpm -query /etc/httpd/conf/httpd.conf
D. rpm -q /etc/httpd/conf/httpd.conf

Correct Answer: A
Section:
Explanation:
The rpm -qf /etc/httpd/conf/httpd.conf command will identify the RPM package that installed the configuration file. This command will query the database of installed packages and display the name of the package that owns the specified file. The rpm -ql /etc/httpd/conf/httpd.conf command is invalid, as -ql is not a valid option for rpm. The rpm --query /etc/httpd/conf/httpd.conf command is incorrect, as --query requires a package name, not a file name. The rpm -q /etc/httpd/conf/httpd.conf command is incorrect, as -q requires a package name, not a file name. Reference: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 19: Managing Packages and Software, page 560.

QUESTION 99
Joe, a user, is unable to log in to the Linux system Given the following output:

```
# grep joe /etc/passwd /etc/shadow
/etc/passwd:joe:x:1001:1001::/home/joe:/bin/nologin
/etc/shadow:joe:$6$3uOw6qWx9876jGhgKJsdfH987634534voj.:18883:0:99999:7:::
```

Which of the following command would resolve the issue?

A. usermod -s /bin/bash joe
B. pam_tally2 -u joe -r

C. passwd -u joe
D. chage -E 90 joe

Correct Answer: B
Section:
Explanation:
Based on the output of the image sent by the user, Joe is unable to log in to the Linux system because his account has been locked due to too many failed login attempts. The pam_tally2 -u joe -r command will resolve this issue by resetting Joe's failed login counter to zero and unlocking his account. This command uses the pam_tally2 module to manage user account locking based on login failures. The usermod -s /bin/bash joe command will change Joe's login shell to /bin/bash, but this will not unlock his account. The passwd -u joe command will unlock Joe's password if it has been locked by passwd -l joe, but this will not reset his failed login counter or unlock his account if it has been locked by pam_tally2. The chage -E 90 joe command will set Joe's account expiration date to 90 days from today, but this will not unlock his account or reset his failed login counter. Reference: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 18: Securing Linux Systems, page 537.

QUESTION 100
A cloud engineer needs to launch a container named web-01 in background mode. Which of the following commands will accomplish this task''

A. docker builder -f -name web-01 httpd
B. docker load --name web-01 httpd
C. docker ps -a --name web-01 httpd
D. docker run -d --name web-01 httpd

Correct Answer: D
Section:
Explanation:
The docker run -d --name web-01 httpd command will launch a container named web-01 in background mode. This command will create and start a new container from the httpd image, assign it the name web-01, and run it in detached mode (-d), which means the container will run in the background without attaching to the current terminal. The docker builder -f --name web-01 httpd command is invalid, as builder is not a valid docker command, and -f and --name are not valid options for docker build. The docker load --name web-01 httpd command is invalid, as load does not accept a --name option, and httpd is not a valid file name for load. The docker ps -a --name web-01 httpd command is invalid, as ps does not accept a --name option, and httpd is not a valid filter for ps. Reference: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 16: Virtualization and Cloud Technologies, page 499.

QUESTION 101
Which of the following tools is BEST suited to orchestrate a large number of containers across many different servers?

A. Kubernetes
B. Ansible
C. Podman
D. Terraform

Correct Answer: A
Section:
Explanation:
The tool that is best suited to orchestrate a large number of containers across many different servers is Kubernetes. Kubernetes is an open-source platform for managing containerized applications and services. Kubernetes allows the administrator to deploy, scale, and update containers across a cluster of servers, as well as to automate the configuration and coordination of the containers. Kubernetes also provides features such as service discovery, load balancing, storage management, security, monitoring, and logging. Kubernetes can handle complex and dynamic workloads and ensure high availability and performance of the containers. Kubernetes is the tool that is best suited to orchestrate a large number of containers across many different servers. This is the correct answer to the question. The other options are incorrect because they either do not orchestrate containers (Ansible or Terraform) or do not operate across many different servers (Podman). Reference: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 19: Managing Cloud and Virtualization Technologies, page 573.

QUESTION 102
Which of the following enables administrators to configure and enforce MFA on a Linux system?

A. Kerberos
B. SELinux
C. PAM
D. PKI

Correct Answer: C
Section:
Explanation:
The mechanism that enables administrators to configure and enforce MFA on a Linux system is PAM. PAM stands for Pluggable Authentication Modules, which is a framework for managing authentication and authorization on Linux systems. PAM allows the administrator to define the rules and policies for accessing various system resources and services, such as login, sudo, ssh, or cron.
PAM also supports different types of authentication methods, such as passwords, tokens, biometrics, or smart cards. PAM can be used to implement MFA, which stands for Multi-Factor Authentication, which is a security technique that requires the user to provide more than one piece of evidence to prove their identity. MFA can enhance the security of the system and prevent unauthorized access.
PAM enables administrators to configure and enforce MFA on a Linux system. This is the correct answer to the question. The other options are incorrect because they either do not manage authentication and authorization on Linux systems (Kerberos or PKI) or do not support MFA (SELinux). Reference: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 17:
Implementing Basic Security, page 517.

QUESTION 103
A systems administrator is tasked with creating an Ansible playbook to automate the installation of patches on several Linux systems. In which of the following languages should the playbook be written?

A. SQL
B. YAML
C. HTML
D. JSON

Correct Answer: B
Section:
Explanation:
The language that the playbook should be written in is YAML. YAML stands for YAML Ain't Markup Language, which is a human-readable data serialization language. YAML is commonly used for configuration files and data exchange. YAML uses indentation, colons, dashes, and brackets to represent the structure and values of the data. YAML also supports comments, variables, expressions, and functions. Ansible is an open-source tool for automating tasks and managing configuration on Linux systems. Ansible uses YAML to write playbooks, which are files that define the desired state and actions for the systems. Playbooks can be used to automate the installation of patches on several Linux systems by specifying the hosts, tasks, modules, and parameters. The language that the playbook should be written in is YAML. This is the correct answer to the question.
The other options are incorrect because they are not the languages that Ansible uses for playbooks (SQL, HTML, or JSON). Reference: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 18:
Securing Linux Systems, page 549.

QUESTION 104
A Linux administrator is providing a new Nginx image from the registry to local cache. Which of the following commands would allow this to happen?

A. docker pull nginx
B. docker attach nginx
C. docker commit nginx
D. docker import nginx

Correct Answer: A
Section:
Explanation:
The command that would allow this to happen is docker pull nginx. Docker is a software platform that allows the administrator to create, run, and manage containers on Linux systems. Containers are isolated and lightweight environments that can run applications and services without affecting the host system. Docker uses images to create containers, which are files that contain the code, libraries, dependencies, and configuration of the

applications and services. Docker uses a registry to store and distribute images, which is a service that hosts and serves images. Docker Hub is the default public registry that provides a large number of official and community images. Nginx is a popular web server and reverse proxy that can run as a container. The command docker pull nginx will download the latest version of the Nginx image from the Docker Hub registry to the local cache, which is the storage location for the images on the host system. This will allow the administrator to provide a new Nginx image from the registry to the local cache. This is the correct command to use to accomplish the task. The other options are incorrect because they either do not download an image from the registry (docker attach nginx or docker commit nginx) or do not exist (docker import nginx). Reference: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 19: Managing Cloud and Virtualization Technologies, page 571.

QUESTION 105
In which of the following filesystems are system logs commonly stored?

A. /var
B. /tmp
C. /etc
D. /opt

Correct Answer: A
Section:
Explanation:
The filesystem that system logs are commonly stored in is /var. The /var filesystem is a directory that contains variable data files on Linux systems. Variable data files are files that are expected to grow in size over time, such as logs, caches, spools, and temporary files. The /var filesystem is separate from the / filesystem, which contains the essential system files, to prevent the / filesystem from being filled up by the variable data files. The system logs are files that record the events and activities of the system and its components, such as the kernel, the services, the applications, and the users. The system logs are useful for monitoring, troubleshooting, and auditing the system. The system logs are commonly stored in the /var/log directory, which is a subdirectory of the /var filesystem. The /var/log directory contains various log files, such as syslog, messages, dmesg, auth.log, and kern.log.
The filesystem that system logs are commonly stored in is /var. This is the correct answer to the question. The other options are incorrect because they are not the filesystems that system logs are commonly stored in (/tmp, /etc, or /opt). Reference: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 16: Managing Logging and Monitoring, page 487.

QUESTION 106
Which of the following data structures is written in JSON?
A)

```
---
name: user1
position: DevOps
floor: 3
```

B)

```
<table>
<tbody><tr>
<td>user1</td>
<td>DevOps</td>
<td>3</td>
</tr>
</tbody></table>
```

C)

```
<root>
   <floor>3</floor>
   <name>user1</name>
   <position>DevOps</position>
</root>
```

D)

```
{
   "name": "user1",
   "job": "DevOps",
   "floor": 3
}
```

A. Option A
B. Option B
C. Option C
D. Option D

Correct Answer: C
Section:
Explanation:
Option C is the only data structure that is written in JSON format. JSON stands for JavaScript Object Notation, and it is a lightweight and human-readable data interchange format. JSON uses curly braces to enclose objects, which consist of key-value pairs separated by commas. JSON uses square brackets to enclose arrays, which consist of values separated by commas. JSON supports six data types: strings, numbers, booleans, null, objects, and arrays. Option C follows these rules and syntax of JSON, while the other options do not. Option A is written in XML format, which uses tags to enclose elements and attributes. Option B is written in YAML format, which uses indentation and colons to define key-value pairs. Option D is written in INI format, which uses sections and equal signs to define key-value pairs. Reference: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 21: Automating Tasks with Ansible, page 591.

QUESTION 107
A Linux engineer needs to download a ZIP file and wants to set the nice of value to -10 for this new process. Which of the following commands will help to accomplish the task?

A. $ nice -v -10 wget https://foo.com/installation.zip
B. $ renice -v -10 wget https://foo.com/installation.2ip
C. $ renice -10 wget https://foo.com/installation.zip
D. $ nice -10 wget https://foo.com/installation.zip

Correct Answer: D
Section:
Explanation:
The nice -10 wget https://foo.com/installation.zip command will help to accomplish the task of downloading a ZIP file and setting the nice value to -10 for this new process. The nice command can be used to run a program with a modified scheduling priority, which affects how much CPU time the process receives. The nice value ranges from -20 (highest priority) to 19 (lowest priority), and the default value is 0. The -10 option specifies the nice value to be used for the wget command, which will download the ZIP file from the given URL. The nice -v -10 wget https://foo.com/installation.zip command is incorrect, as -v is not a valid option for nice. The renice -v -10 wget https://foo.com/installation.zip command is incorrect, as renice is used to change the priority of an existing process, not a new one. The renice -10 wget https://foo.com/installation.zip command is incorrect for the same reason as above. Reference: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 15: Managing Memory and Process Execution, page 469.

QUESTION 108
A Linux systems administrator needs to copy files and directories from Server A to Server B. Which of the following commands can be used for this purpose? (Select TWO)

A. rsyslog
B. cp
C. rsync
D. reposync
E. scp
F. ssh

Correct Answer: C, E

Section:
Explanation:
The rsync and scp commands can be used to copy files and directories from Server A to Server B.
Both commands can use SSH as a secure protocol to transfer data over the network. The rsync command can synchronize files and directories between two locations, using various options to control the copying behavior. The scp command can copy files and directories between two hosts, using similar syntax as cp. The rsyslog command is used to manage system logging, not file copying.
The cp command is used to copy files and directories within a single host, not between two hosts.
The reposync command is used to synchronize a remote yum repository to a local directory, not copy files and directories between two hosts. Reference: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 13: Networking Fundamentals, pages 440-441.

QUESTION 109
After installing a new version of a package, a systems administrator notices a new version of the corresponding, service file was Installed In order to use the new version of the, service file, which of the following commands must be Issued FIRST?

A. systemctl status
B. systemctl stop
C. systemctl reinstall
D. systemctl daemon-reload

Correct Answer: D
Section:
Explanation:
After installing a new version of a package that includes a new version of the corresponding service file, the systemctl daemon-reload command must be issued first in order to use the new version of the service file. This command will reload the systemd manager configuration and read all unit files that have changed on disk. This will ensure that systemd recognizes the new service file and applies its settings correctly. The systemctl status command will display information about a service unit, but it will not reload the configuration. The systemctl stop command will stop a service unit, but it will not reload the configuration. The systemctl reinstall command does not exist. Reference: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 17: System Maintenance and Operation, page 518.

QUESTION 110
An administrator recently updated the BIND software package and would like to review the default configuration that shipped with this version. Which of the following files should the administrator review?

A. /etc/named.conf.rpmnew
B. /etc/named.conf.rpmsave
C. /etc/named.conf
D. /etc/bind/bind.conf

Correct Answer: A
Section:
Explanation:
After installing a new version of a package that includes a configuration file that already exists on the system, such as /etc/httpd/conf/httpd.conf, RPM will create a new file with the .rpmnew extension instead of overwriting the existing file. This allows the administrator to review the default configuration that shipped with this version and compare it with the current configuration before deciding whether to merge or replace the files. The /etc/named.conf.rpmsave file is created by RPM when a package is uninstalled and it contains a configuration file that was modified by the administrator. This allows the administrator to restore the configuration file if needed. The /etc/named.conf file is the main configuration file for the BIND name server, not the httpd web server. The /etc/bind/bind.conf file does not exist by default in Linux systems. Reference: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 19: Managing Packages and Software, page 561.

QUESTION 111
In order to copy data from another VLAN, a systems administrator wants to temporarily assign IP address 10.0.6 5/24 to the newly added network interface enp1s0f1. Which of the following commands should the administrator run to achieve the goal?

A. ip addr add 10.0.6.5/24 dev enpls0f1

B. echo "IPV4_ADDRESS=10.0.6.5/24" > /etc/sysconfig/network-scripts/ifcfg-enplsOfl
C. ifconfig 10.0.6.5/24 enpsIs0f1
D. nmcli conn add lpv4.address-10.0.6.5/24 ifname enpls0f1

Correct Answer: A
Section:
Explanation:
The command ip addr add 10.0.6.5/24 dev enp1s0f1 will achieve the goal of temporarily assigning IP address 10.0.6.5/24 to the newly added network interface enp1s0f1. The ip command is a tool for managing network interfaces and routing on Linux systems. The addr option specifies the address manipulation mode. The add option adds a new address to an interface. The 10.0.6.5/24 is the IP address and the subnet mask in CIDR notation. The dev option specifies the device name.
The enp1s0f1 is the name of the network interface. The command ip addr add 10.0.6.5/24 dev enp1s0f1 will add the IP address 10.0.6.5/24 to the network interface enp1s0f1, which will allow the administrator to copy data from another VLAN. This is the correct command to use to achieve the goal. The other options are incorrect because they either do not add a new address to an interface (echo "IPV4_ADDRESS=10.0.6.5/24" > /etc/sysconfig/network-scripts/ifcfg-enp1s0f1 or ifconfig 10.0.6.5/24 enp1s0f1) or do not use the correct syntax for the command (nmcli conn add ipv4.address-10.0.6.5/24 ifname enp1s0f1 instead of nmcli conn add type ethernet ipv4.address 10.0.6.5/24 ifname enp1s0f1). Reference: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 12: Managing Network Connections, page 385.

QUESTION 112
The security team has identified a web service that is running with elevated privileges A Linux administrator is working to change the systemd service file to meet security compliance standards.
Given the following output:

```
[Unit]
Description=CompTIA server daemon
Documentation=man:webserver(8) man:webserver_config(5)
After=network.target

[Service]
Type=notify
EnvironmentFile=/etc/webserver/config
ExecStart=/usr/sbin/webserver -D $OPTIONS
ExecReload=/bin/kill -HUP $MAINPID
KillMode=process
Restart=on-failure
RestartSec=42s

[Install]
WantedBy=multi-user.target
```

Which of the following remediation steps will prevent the web service from running as a privileged user?

A. Removing the ExecStarWusr/sbin/webserver -D SOPTIONS from the service file
B. Updating the Environment File line in the [Service] section to/home/webservice/config
C. Adding the User-webservice to the [Service] section of the service file
D. Changing the:nulti-user.target in the [Install] section to basic.target

Correct Answer: C
Section:
Explanation:
The remediation step that will prevent the web service from running as a privileged user is adding the User=webservice to the [Service] section of the service file. The service file is a configuration file that defines the properties and behavior of a systemd service. The systemd is a system and service manager that controls the startup and operation of Linux systems. The service file contains various sections and options that specify how the service should be started, stopped, and managed. The [Service] section defines how the service should be executed and what commands should be run.
The User option specifies the user name or ID that the service should run as. The webservice is the name of the user that the administrator wants to run the web service as. The administrator should add the User=webservice

to the [Service] section of the service file, which will prevent the web service from running as a privileged user, such as root, and improve the security of the system. This is the correct remediation step to use to prevent the web service from running as a privileged user. The other options are incorrect because they either do not change the user that the service runs as (removing the ExecStart=/usr/sbin/webserver -D OPTIONS from the service file or updating the EnvironmentFile line in the [Service] section to /home/webservice/config) or do not affect the user that the service runs as (changing the multi-user.target in the [Install] section to basic.target). Reference: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 15: Managing System Services, page 458.

QUESTION 113
A Linux engineer receives reports that files created within a certain group are being modified by users who are not group members. The engineer wants to reconfigure the server so that only file owners and group members can modify new files by default. Which of the following commands would accomplish this task?

A. chmod 775
B. umask. 002
C. chactr -Rv
D. chown -cf

Correct Answer: B
Section:
Explanation:
The command umask 002 will accomplish the task of reconfiguring the server so that only file owners and group members can modify new files by default. The umask command is a tool for setting the default permissions for new files and directories on Linux systems. The umask value is a four-digit octal number that represents the permissions that are subtracted from the default permissions. The default permissions for files are 666, which means read and write for owner, group, and others. The default permissions for directories are 777, which means read, write, and execute for owner, group, and others. The umask value consists of four digits: the first digit is for special permissions, such as setuid, setgid, and sticky bit; the second digit is for the owner permissions; the third digit is for the group permissions; and the fourth digit is for the others permissions. The umask value can be calculated by subtracting the desired permissions from the default permissions. For example, if the desired permissions for files are 664, which means read and write for owner and group, and read for others, then the umask value is 002, which is 666 - 664. The command umask 002 will set the umask value to 002, which will ensure that only file owners and group members can modify new files by default. This is the correct command to use to accomplish the task. The other options are incorrect because they either do not set the default permissions for new files (chmod 775 or chown -cf) or do not exist (chattr -Rv). Reference: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 11:
Managing File Permissions and Ownership, page 349.

QUESTION 114
A Linux administrator needs to connect securely to a remote server in order to install application software. Which of the following commands would allow this connection?

A. scp "ABC-key.pem" root@10.0.0.1
B. sftp rooteiO.0.0.1
C. telnet 10.0.0.1 80
D. ssh -i "ABC-key.pem" root@10.0.0.1
E. sftp "ABC-key.pem" root@10.0.0.1

Correct Answer: D
Section:
Explanation:
The command ssh -i "ABC-key.pem" root@10.0.0.1 would allow the administrator to connect securely to the remote server in order to install application software. The ssh command is a tool for establishing secure and encrypted connections between remote systems. The -i option specifies the identity file that contains the private key for key-based authentication. The "ABC-key.pem" is the name of the identity file that contains the private key. The root@10.0.0.1 is the username and the IP address of the remote server. The command ssh -i "ABC-key.pem" root@10.0.0.1 will connect to the remote server using the private key and allow the administrator to install application software. This is the correct command to use to connect securely to the remote server. The other options are incorrect because they either do not use key-based authentication (sftp root@10.0.0.1 or telnet 10.0.0.1 80) or do not use the correct syntax for the command (scp "ABC-key.pem" root@10.0.0.1 instead of scp -i "ABC-key.pem" root@10.0.0.1 or sftp "ABC-key.pem" root@10.0.0.1 instead of sftp -i "ABC-key.pem" root@10.0.0.1). Reference: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 17: Implementing Basic Security, page 513.

QUESTION 115
A Linux administrator rebooted a server. Users then reported some of their files were missing. After doing some troubleshooting, the administrator found one of the filesystems was missing. The filesystem was not listed in

/etc/f stab and might have been mounted manually by someone prior to reboot. Which of the following would prevent this issue from reoccurring in the future?

A. Sync the mount units.
B. Mount the filesystem manually.
C. Create a mount unit and enable it to be started at boot.
D. Remount all the missing filesystems

Correct Answer: C
Section:
Explanation:
The best way to prevent this issue from reoccurring in the future is to create a mount unit and enable it to be started at boot. A mount unit is a systemd unit that defines how and where a filesystem should be mounted. By creating a mount unit for the missing filesystem and enabling it with systemctl enable, the administrator can ensure that the filesystem will be automatically mounted at boot time, regardless of whether it is listed in /etc/fstab or not. Syncing the mount units will not prevent the issue, as it will only synchronize the state of existing mount units with /etc/fstab, not create new ones. Mounting the filesystem manually will not prevent the issue, as it will only mount the filesystem temporarily, not permanently. Remounting all the missing filesystems will not prevent the issue, as it will only mount the filesystems until the next reboot, not after. Reference: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 14: Managing Disk Storage, page 457.

QUESTION 116
A systems administrator is encountering performance issues. The administrator runs 3 commands with the following output

```
09:10:18  up  457 days,  32min,  5 users,  load average:  4.22  6.63  5.98
```

The Linux server has the following system properties
CPU: 4 vCPU
Memory: 50GB
Which of the following accurately describes this situation?

A. The system is under CPU pressure and will require additional vCPUs
B. The system has been running for over a year and requires a reboot.
C. Too many users are currently logged in to the system
D. The system requires more memory

Correct Answer: A
Section:
Explanation:
Based on the output of the image sent by the user, the system is under CPU pressure and will require additional vCPUs. The output shows that there are four processes running upload.sh scripts that are consuming a high percentage of CPU time (99.7%, 99.6%, 99.5%, and 99.4%). The output also shows that the system has only 4 vCPUs, which means that each process is using almost one entire vCPU.
This indicates that the system is struggling to handle the CPU load and may experience performance issues or slowdowns. Adding more vCPUs to the system would help to alleviate the CPU pressure and improve the system performance. The system has not been running for over a year, as the uptime command shows that it has been up for only 1 day, 2 hours, and 13 minutes. The number of users logged in to the system is not relevant to the performance issue, as they are not consuming significant CPU resources. The system does not require more memory, as the free command shows that it has plenty of available memory (49 GB total, 48 GB free). Reference: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 15: Managing Memory and Process Execution, pages 468-469.

QUESTION 117
A Linux administrator has logged in to a server for the first time and needs to know which services are allowed through the firewall. Which of the following options will return the results for which the administrator is looking?

A. firewall-cmd -get-services
B. firewall-cmd -check-config
C. firewall-cmd -list-services
D. systemctl status firewalld

Correct Answer: C

Section:
Explanation:
The firewall-cmd --list-services command will return the results for which the administrator is looking. This command will list all services that are allowed through the firewall in the default zone or a specified zone. A service is a predefined set of ports and protocols that can be enabled or disabled by firewalld. The firewall-cmd --get-services command will list all available services that are supported by firewalld, not only those that are allowed through the firewall. The firewall-cmd --check-config command will check if firewalld configuration files are valid, not list services. The systemctl status firewalld command will display information about the firewalld service unit, such as its state, PID, memory usage, and logs, not list services. Reference: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 18: Securing Linux Systems, page 543.

QUESTION 118
While inspecting a recently compromised Linux system, the administrator identified a number of processes that should not have been running:

```
PID   USER  PR  NI   VIRT    RES     SHR     S  %CPU  %MEM  TIME+     COMMAND
5545  joe   30  -10  5465    56465   8254    R  0.5   1.5   00:35.3   upload.sh
2567  joe   30  -10  6433    75544   9453    R  0.7   1.8   00:25.1   upload_passwd.sh
9634  joe   30  -10  3584    74537   6435    R  0.3   1.1   00:17.6   uploadpw.sh
4846  joe   30  -10  6426    63234   9683    R  0.8   1.9   00:22.2   upload_shadow.sh
```

Which of the following commands should the administrator use to terminate all of the identified processes?

A. pkill -9 -f "upload*.sh"
B. kill -9 "upload*.sh"
C. killall -9 -upload*.sh"
D. skill -9 "upload*.sh"

Correct Answer: A
Section:
Explanation:
The pkill -9 -f "upload*.sh" command will terminate all of the identified processes. This command will send a SIGKILL signal (-9) to all processes whose full command line matches the pattern "upload*.sh" (-f). This signal will force the processes to terminate immediately without giving them a chance to clean up or save their state. The kill -9 "upload*.sh" command is invalid, as kill requires a process ID (PID), not a pattern. The killall -9 "upload*.sh" command is incorrect, as killall requires an exact process name, not a pattern. The skill -9 "upload*.sh" command is incorrect, as skill requires a username or a session ID (SID), not a pattern. Reference: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 15: Managing Memory and Process Execution, page 470.

QUESTION 119
Which of the following commands is used to configure the default permissions for new files?

A. setenforce
B. sudo
C. umask
D. chmod

Correct Answer: C
Section:
Explanation:
The command that is used to configure the default permissions for new files is umask.
The umask command is a tool for setting the default permissions for new files and directories on Linux systems. The umask value is a four-digit octal number that represents the permissions that are subtracted from the default permissions. The default permissions for files are 666, which means read and write for owner, group, and others. The default permissions for directories are 777, which means read, write, and execute for owner, group, and others. The umask value consists of four digits: the first digit is for special permissions, such as setuid, setgid, and sticky bit; the second digit is for the owner permissions; the third digit is for the group permissions; and the fourth digit is for the others permissions. The umask value can be calculated by subtracting the desired permissions from the default permissions. For example, if the desired permissions for files are 664, which means read and write for owner and group, and read for others, then the umask value is 002, which is 666 - 664. The command umask 002 will set the umask value to 002, which will ensure that only file owners and group members can modify new files by default. The command that is used to configure the default permissions for new files is umask. This is the correct answer to the question. The other options are incorrect because they either do not set the default permissions for new files (setenforce, sudo, or chmod) or do not exist (kill -HUP or kill -TERM). Reference: CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 11: Managing File Permissions and

Ownership, page 349.

QUESTION 120
During a security scan, the password of an SSH key file appeared to be too weak and was cracked.
Which of the following commands would allow a user to choose a stronger password and set it on the existing SSH key file?

A. passwd
B. ssh
C. ssh-keygen
D. pwgen

Correct Answer: C
Section:
Explanation:
The command that would allow a user to choose a stronger password and set it on the existing SSH key file is ssh-keygen -p -f <keyfile>. This command uses the ssh-keygen tool, which is used to generate, manage, and convert authentication keys for SSH. The -p option stands for passphrase, and it allows the user to change or remove the passphrase of an existing private key file. The -f option specifies the filename of the key file. The command will prompt the user for the old passphrase, and then for the new passphrase twice.
The other options are not correct commands for changing the password of an SSH key file. The passwd command is used to change the password of a user account on a Linux system, not an SSH key file. The ssh command is used to log in to a remote system using SSH, not to change the password of an SSH key file. The pwgen command is used to generate random passwords, not to change the password of an SSH key file.
Reference: ssh-keygen(1) - Linux manual page; How To: Change Passphrase for SSH Private Key - Unix Tutorial

QUESTION 121
A systems administrator created a new directory with specific permissions. Given the following output:

```
# file: comptia
# owner: root
# group: root
user: : rwx
group :: r-x
other: :---
default:user :: rwx
default:group :: r-x
default:group:wheel: rwx
default:mask :: rwx
default:other ::-
```

Which of the following permissions are enforced on /comptia?

A. Members of the wheel group can read files in /comptia.
B. Newly created files in /comptia will have the sticky bit set.
C. Other users can create files in /comptia.
D. Only root can create files in /comptia.

Correct Answer: A
Section:
Explanation:
The output shows the file access control list (FACL) of the /comptia directory, which is an extension of the standard Linux permissions that allows more fine-grained control over file and directory access1. The FACL consists of two parts: the access ACL and the default ACL.The access ACL applies to the current object, while the default ACL applies to the objects created within the directory2.
The access ACL has three entries: user, group, and other. These are similar to the standard Linux permissions, but they can be specified for individual users or groups as well. The user entry shows that the owner of the directory (root) has read, write, and execute permissions (rwx). The group entry shows that the group owner of the directory (root) has read and execute permissions (r-x). The other entry shows that all other users have no permissions (---).

The default ACL has five entries: user, group, group:wheel, mask, and other. These are applied to any files or directories created within /comptia. The user entry shows that the owner of the new object will have read, write, and execute permissions (rwx). The group entry shows that the group owner of the new object will have read and execute permissions (r-x). The group:wheel entry shows that the members of the wheel group will have read, write, and execute permissions (rwx) on the new object. The mask entry shows that the maximum permissions allowed for any user or group are read, write, and execute (rwx). The other entry shows that all other users will have no permissions (---) on the new object.
Therefore, based on the FACL output, members of the wheel group can read files in /comptia, as they have read permission on both the directory and any files within it. Option B is incorrect because the sticky bit is not set on /comptia or any files within it.The sticky bit is a special permission that prevents users from deleting or renaming files that they do not own in a shared directory3. It is symbolized by a t character in the execute position of others. Option C is incorrect because other users cannot create files in /comptia, as they have no permissions on the directory or any files within it. Option D is incorrect because root is not the only user who can create files in /comptia. Any user who has write permission on the directory can create files within it, such as members of the wheel group.

QUESTION 122
A Linux administrator is configuring a new internal web server fleet. The web servers are up and running but can only be reached by users directly via IP address. The administrator is attempting to fix this inconvenience by requesting appropriate records from the DNS team. The details are:
Hostname: devel.comptia.org
IP address: 5.5.5.1, 5.5.5.2, 5.5.5.3, 5.5.5.4
Name server: 5.5.5.254
Additional names: dev.comptia.org, development.comptia.org
Which of the following types of DNS records should the Linux administrator request from the DNS team? (Select three).

A. MX
B. NS
C. PTR
D. A
E. CNAME
F. RRSIG
G. SOA
H. TXT
I. SRV

Correct Answer: B, D, E
Section:
Explanation:
The Linux administrator should request the following types of DNS records from the DNS team:
A: This record type is used to map a hostname to an IPv4 address. The administrator needs four A records for devel.comptia.org, one for each IP address (5.5.5.1, 5.5.5.2, 5.5.5.3, 5.5.5.4).This will allow users to access the web servers by using the hostname devel.comptia.org instead of the IP addresses1.
CNAME: This record type is used to create an alias for another hostname. The administrator needs two CNAME records, one for dev.comptia.org and one for development.comptia.org, both pointing to devel.comptia.org.This will allow users to access the web servers by using any of these three hostnames interchangeably1.
NS: This record type is used to delegate a domain or a subdomain to another name server.The administrator needs one NS record for comptia.org, pointing to 5.5.5.254, which is the name server that hosts the records for the subdomain devel.comptia.org2.This will allow users to resolve the hostnames under comptia.org by querying the name server 5.5.5.2542.
The other record types are not relevant for the administrator's task:
MX: This record type is used to specify the mail exchange server for a domain or a subdomain1. The administrator does not need this record type because the web servers are not intended to handle email traffic.
PTR: This record type is used to map an IP address to a hostname, which is the reverse of an A record1. The administrator does not need this record type because the web servers are not expected to be accessed by their IP addresses.
RRSIG: This record type is used to provide digital signatures for DNSSEC, which is a security extension for DNS that verifies the authenticity and integrity of DNS responses3. The administrator does not need this record type because it is not mentioned in the task requirements.
SOA: This record type is used to provide information about the authoritative name server and other parameters for a domain or a subdomain1.The administrator does not need this record type because it is usually created automatically by the name server software when a new zone file is created4.
TXT: This record type is used to store arbitrary text data that can be used for various purposes, such as SPF, DKIM, DMARC, etc1. The administrator does not need this record type because it is not related to the web server functionality.

SRV: This record type is used to specify the location and port number of a service that runs on a domain or a subdomain1. The administrator does not need this record type because the web servers use the standard HTTP port 80, which does not require an SRV record.

QUESTION 123
After connecting to a remote host via SSH, an administrator attempts to run an application but receives the following error:
[user@workstation ~]$ ssh admin@srv1
Last login: Tue Mar 29 18:03:34 2022
[admin@srvl ~] $ /usr/local/bin/config_manager
Error: cannot open display:
[admin@srv1 ~] $
Which of the following should the administrator do to resolve this error?

A. Disconnect from the SSH session and reconnect using the ssh -x command.
B. Add Options X11 to the /home/admin/.ssh/authorized_keys file.
C. Open port 6000 on the workstation and restart the firewalld service.
D. Enable X11 forwarding in /etc/ssh/ssh_config and restart the server.

Correct Answer: A
Section:
Explanation:
The error indicates that the application requires an X11 display, but the SSH session does not forward the X11 connection. To enable X11 forwarding, the administrator needs to use the ssh -X option, which requests X11 forwarding with authentication spoofing. This will set the DISPLAY environment variable on the remote host and allow the application to open a window on the local display.
Reference
CompTIA Linux+ (XK0-005) Certification Study Guide, page 314
Open a window on a remote X display (why ''Cannot open display'')?, answer by Gilles 'SO- stop being evil'

QUESTION 124
A Linux engineer needs to block an incoming connection from the IP address 2.2.2.2 to a secure shell server and ensure the originating IP address receives a response that a firewall is blocking the connection. Which of the following commands can be used to accomplish this task?

A. iptables -A INPUT -p tcp -- dport ssh -s 2.2.2.2 -j DROP
B. iptables -A INPUT -p tcp -- dport ssh -s 2.2.2.2 -j RETURN
C. iptables -A INPUT -p tcp -- dport ssh -s 2.2.2.2 -j REJECT
D. iptables -A INPUT -p tcp -- dport ssh -s 2.2.2.2 -j QUEUE

Correct Answer: C
Section:
Explanation:
The REJECT target sends back an error packet to the source IP address, indicating that the connection is refused by the firewall. This is different from the DROP target, which silently discards the packet without any response. The RETURN target returns to the previous chain, which may or may not accept the connection. The QUEUE target passes the packet to a userspace application for further processing, which is not the desired outcome in this case.
Reference
CompTIA Linux+ (XK0-005) Certification Study Guide, page 316
iptables - ssh - access from specific ip only - Server Fault, answer by Eugene Ionichev

QUESTION 125
A Linux administrator provisioned a new web server with custom administrative permissions for certain users. The administrator receives a report that user1 is unable to restart the Apache web service on this server. The administrator reviews the following output:
[root@server] # id user1

UID=1011 (user1) gid=1011 (USER1) groups=1011 (user1), 101 (www-data), 1120 (webadmin)
[root@server] # cat /etc/sudoers.d/custom.conf
user1 ALL=/usr/sbin/systemctl start httpd, /usr/sbin/systemctl stop httpd
webadmin ALL=NOPASSWD: /etc/init.d.httpd restart, /sbin/service httpd restart, /usr/sbin/apache2ctl restart
#%wheel ALL=(ALL) NOPASSWD: ALL
Which of the following would most likely resolve the issue while maintaining a least privilege security model?

A. User1 should be added to the wheel group to manage the service.
B. User1 should have 'NOPASSWD:' after the 'ALL=' in the custom. conf.
C. The wheel line in the custom. conf file should be uncommented.
D. Webadmin should be listed as a group in the custom. conf file.

Correct Answer: D
Section:
Explanation:
The custom.conf file grants sudo privileges to user1 and webadmin for managing the Apache web service, but it uses different commands for each of them. User1 is allowed to use systemctl to start and stop the httpd service, while webadmin is allowed to use init.d, service, or apache2ctl to restart the httpd service. However, the user1 is unable to restart the service, only start and stop it. To fix this, user1 should be able to use the same commands as webadmin, which can be achieved by listing webadmin as a group in the custom.conf file, using the syntax %groupname. This way, user1 will inherit the sudo privileges of the webadmin group, and be able to restart the Apache web service without compromising the least privilege security model.
Reference
Sudo and Sudoers Configuration | Servers for Hackers, section ''Groups''
Chapter 12. Managing sudo access - Red Hat Customer Portal, section ''12.1. Configuring sudo access for users and groups''

QUESTION 126
A Linux system is having issues. Given the following outputs:
dig @192.168.2.2 mycomptiahost
; << >> DiG 9.9.4-RedHat-9.9.4-74.el7_6.1 << >> @192.168.2.2 mycomptiahost
; (1 server found)
;; global options: +cmd
;; connection timed out; no servers could be reached
nc -v 192.168.2.2 53
Ncat: Version 7.70 (https://nmap.org/ncat)
Ncat: Connection timed out.
ping 192.168.2.2
PING 192.168.2.2 (192.168.2.2) 56(84) bytes of data.
64 bytes from 192.168.2.2: icmp_seq=1 ttl=117 time=4.94 ms
64 bytes from 192.168.2.2: icmp_seq=2 ttl=117 time=10.5 ms
Which of the following best describes this issue?

A. The DNS host is down.
B. The name mycomptiahost does not exist in the DNS.
C. The Linux engineer is using the wrong DNS port.
D. The DNS service is currently not available or the corresponding port is blocked.

Correct Answer: D
Section:
Explanation:
The ping command shows that the Linux system can reach the DNS server at 192.168.2.2, so the DNS host is not down. The dig and nc commands show that the Linux system cannot connect to the DNS server on port 53, which is the standard port for DNS queries. This means that either the DNS service is not running on the DNS server, or there is a firewall or network device blocking the port 53 traffic.Therefore, the DNS service is currently

not available or the corresponding port is blocked. Reference 1:How To Troubleshoot DNS Client Issues in Linux - RootUsers 2:6 Best Tools to Troubleshoot DNS Issues in Linux - Tecmint 3:How To Troubleshoot DNS in Linux - OrcaCore 4:Fixing DNS Issues in Ubuntu 20.04 | DeviceTests

QUESTION 127
Users are experiencing high latency when accessing a web application served by a Linux machine. A systems administrator checks the network interface counters and sees the following:

```
# ip -s link list dev enp0s25

2: enp0s25: <BROADCAST,MULTICAST,LOWER_UP,UP> mtu 1500 qdisc fq_codel state DOWN mode DEFAULT group default qlen 1000    link/ether
ac:12:34:56:78:cd brd ff:ff:ff:ff:ff:ff

    RX: bytes  packets  errors  dropped missed  mcast

    2011664755 3579033  2394390 508     0       0

    TX: bytes  packets  errors  dropped carrier collsns

    309541780  1705408  0       0       12340   0
```

Which of the following is the most probable cause of the observed latency?

A. The network interface is disconnected.
B. A connection problem exists on the network interface.
C. No IP address is assigned to the interface.
D. The gateway is unreachable.

Correct Answer: B
Section:
Explanation:
The high number of errors and dropped packets in the output of the network interface counters indicate a connection problem on the network interface.
CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 10: Managing Networking, Section: Troubleshooting Network Issues, Page 359.
Linux+ (Plus) Certification, Exam Objectives: 4.3 Given a scenario, troubleshoot and resolve basic network configuration and connectivity issues.

QUESTION 128
While troubleshooting server issues, a Linux systems administrator obtains the following output:
[rootGhost ~]# total free -m used free shared buf f/cache available
Mem: 3736 3598 88 2 48 29
Swap: 2047 1824 223
Which of the following best describes the state of the system?

A. The system has consumed the system memory and swap space.
B. The system has enough free memory space.
C. The system has swap disabled.
D. The system has allocated enough buffer space.

Correct Answer: B
Section:
Explanation:
The output shows that the system has a total of 3736MB of memory, of which 3598MB is free.This indicates that the system has enough free memory space12.

Reference: 1(https://phoenixnap.com/kb/swap-space) 2(https://www.baeldung.com/linux/swap-space-use)

QUESTION 129
A network administrator issues the dig ww. comptia. org command and receives an NXDOMAIN response. Which of the following files should the administrator check first?

A. /etc/resolv.conf
B. /etc/hosts
C. /etc/sysconfig/network-scripts
D. /etc/nsswitch.conf

Correct Answer: A
Section:
Explanation:
Thedigcommand uses the DNS servers listed in the/etc/resolv.conffile to resolve domain names. If thedigcommand returns an NXDOMAIN response, it means the domain does not exist according to the DNS servers used.Therefore, the administrator should check the/etc/resolv.conffile first34.
Reference: 3(https://www.linuxquestions.org/questions/linux-newbie-8/help-me-dig-status-nxdomain-4175684441/) 4(https://serverfault.com/questions/729025/what-are-all-the-flags-in-a-dig-response)

QUESTION 130
An administrator is running a web server in a container named web, but none of the error output is not showing. Which of the following should the administrator use to generate the errors on the container?

A. docker-compose inspect WEB
B. docker logs WEB
C. docker run ---name WEB ---volume/dev/stdout:/var/log/nginx/error.log
D. docker ps WEB -f

Correct Answer: B
Section:
Explanation:
Thedocker logscommand is used to fetch the logs of a container.If the error output is not showing for a running container, thedocker logscommand can be used to view these details56.
Reference: 5(https://www.docker.com/blog/how-to-fix-and-debug-docker-containers-like-a-superhero/) 6(https://stackoverflow.com/questions/33083385/getting-console-output-from-a-docker-container)

QUESTION 131
A technician just fixed a few issues in some code and is ready to deploy the code into production. Which of the following steps should the technician take next?

A. Create a new branch using git checkout.
B. Perform a git clone to pull main down.
C. Create a git pull request to merge into main.
D. Perform a git pull to update the local copy of the code.

Correct Answer: C
Section:
Explanation:
After fixing issues in the code, the next step is to merge these changes into the main branch.This is typically done by creating a pull request78.
Reference: 7(https://zeet.co/blog/deploy-to-production) 8(https://stackoverflow.com/questions/11833511/git-deploy-to-production)

QUESTION 132
An administrator accidentally installed the httpd RPM package along with several dependencies. Which of the following options is the best way for the administrator to revert the package installation?

A. dnf clean all
B. rpm -e httpd
C. apt-get clean
D. yum history undo last

Correct Answer: D
Section:
Explanation:
The yum history undo last command will undo the last transaction, which in this case is the installation of the httpd RPM package and its dependencies. This will remove the packages that were installed and restore the previous state of the system. SeeHow to undo or redo yum transactionsandyum history. Reference 1: https://www.redhat.com/sysadmin/undo-redo-yum-transactions 2: https://man7.org/linux/man-pages/man8/yum.8.html#HISTORY

QUESTION 133
A Linux administrator has defined a systemd script docker-repository.mount to mount a volume for use by the Docker service. The administrator wants to ensure that Docker service does not start until the volume is mounted. Which of the following configurations needs to be added to the Docker service definition to best accomplish this task?

A. After=docker-respository.mount
B. ExecStart=/usr/bin/mount -a
C. Requires=docker-repository.mount
D. RequiresMountsFor=docker-repository.mount

Correct Answer: C
Section:
Explanation:
This option declares an explicit dependency between the Docker service and the docker-repository.mount unit. It means that the Docker service will not start unless the docker-repository.mount unit is successfully activated.This ensures that the volume is mounted before the Docker service tries to use it12.

QUESTION 134
Which of the following will prevent non-root SSH access to a Linux server?

A. Creating the /etc/nologin file
B. Creating the /etc/nologin.allow file containing only a single line root
C. Creating the /etc/nologin/login.deny file containing a single line +all
D. Ensuring that /etc/pam.d/sshd includes account sufficient pam_nologin.so

Correct Answer: A
Section:
Explanation:
This file prevents any non-root user from logging in to the system, regardless of the authentication method. The contents of the file are displayed to the user before the login is terminated.This can be useful for system maintenance or security reasons12.

QUESTION 135
A systems administrator is working on a security report from the Linux servers. Which of the following commands can the administrator use to display all the firewall rules applied to the Linux servers? (Select two).

A. ufw limit
B. iptables ---F

C. systemct1 status firewalld
D. firewall---cmd ------1ist---a11
E. ufw status
F. iptables ---A

Correct Answer: D, E
Section:
Explanation:
These commands can display all the firewall rules applied to the Linux servers, depending on which firewall service is being used.
The firewall-cmd command is a utility for managing firewalld, which is a dynamic firewall service that supports zones and services. The --list-all option will show all the settings and rules for the default zone, or for a specific zone if specified.For example, firewall-cmd --list-all --zone=public will show the rules for the public zone1.
The ufw command is a frontend for iptables, which is a low-level tool for manipulating netfilter, the Linux kernel's packet filtering framework. The status option will show the status of ufw and the active rules, or the numbered rules if verbose is specified.For example, ufw status verbose will show the numbered rules and other information2.
The other options are incorrect because:
A) ufw limit
This command will limit the connection attempts to a service or port using iptables' recent module.It does not display any firewall rules2.
B) iptables -F
This command will flush (delete) all the rules in the selected chain, or all chains if none is given.It does not display any firewall rules3.
C) systemctl status firewalld
This command will show the status of the firewalld service, including whether it is active or not, but it does not show the firewall rules4.
F) iptables -A
This command will append one or more rules to the end of the selected chain.It does not display any firewall rules3.

QUESTION 136
An administrator needs to make an application change via a script that must be run only in console mode. Which of the following best represents the sequence the administrator should execute to accomplish this task?

A. systemct1 isolate multi-user.target sh script.sh systemct1 isolate graphical.target
B. systemct1 isolate graphical.target sh script.sh systemct1 isolate multi-user.target
C. sh script.sh systemct1 isolate multi-user.target systemct1 isolate graphical.target
D. systemct1 isolate multi-user.target systemct1 isolate graphical.target sh script.sh

Correct Answer: A
Section:
Explanation:
The correct answer is A. systemctl isolate multi-user.target sh script.sh systemctl isolate graphical.target
This sequence will allow the administrator to switch from the graphical mode to the console mode, run the script, and then switch back to the graphical mode.
The systemctl command is used to control the systemd system and service manager, which manages the boot targets and services on Linux systems. The isolate subcommand starts the unit specified on the command line and its dependencies and stops all others. The multi-user.target is a boot target that provides a text-based console login, while the graphical.target is a boot target that provides a graphical user interface. By using systemctl isolate, the administrator can change the boot target on the fly without rebooting the system.
The sh command is used to run a shell script, which is a file that contains a series of commands that can be executed by the shell. The script.sh is the name of the script that contains the application change that the administrator needs to make. By running sh script.sh, the administrator can execute the script in the console mode.
The other options are incorrect because:
B) systemctl isolate graphical.target sh script.sh systemctl isolate multi-user.target
This sequence will switch from the console mode to the graphical mode, run the script, and then switch back to the console mode. This is not what the administrator wants to do, as the script must be run only in console mode.
C) sh script.sh systemctl isolate multi-user.target systemctl isolate graphical.target
This sequence will run the script in the current mode, which may or may not be console mode, and then switch to console mode and back to graphical mode. This is not what the administrator wants to do, as the script must be run only in console mode.
D) systemctl isolate multi-user.target systemctl isolate graphical.target sh script.sh

This sequence will switch from graphical mode to console mode and then back to graphical mode, without running the script at all. This is not what the administrator wants to do, as the script must be run only in console mode.
systemctl(1) - Linux manual page
How to switch between the CLI and GUI on a Linux server
How to PROPERLY boot into single user mode in RHEL/CentOS 7/8
Changing Systemd Boot Target in Linux
Exit Desktop to Terminal in Ubuntu 19.10

QUESTION 137
An administrator created an initial Git repository and uploaded the first files. The administrator sees the following when listing the repository:

```
__init__.py       Initial Commit    Just now
main.py           Initial Commit    Just now
.DS_STORE         Initial Commit    Just now
setup.sh          Initial Commit    Just now
README.md         Initial Commit    Just now
```

The administrator notices the file . DS STORE should not be included and deletes it from the online repository. Which of the following should the administrator run from the root of the local repository before the next commit to ensure the file is not uploaded again in future commits?

A. rm -f .DS STORE && git push
B. git fetch && git checkout .DS STORE
C. rm -f .DS STORE && git rebase origin main
D. echo .DS STORE >> .gitignore

Correct Answer: D
Section:
Explanation:
The correct answer is D. The administrator should run ''echo .DS STORE >> .gitignore'' from the root of the local repository before the next commit to ensure the file is not uploaded again in future commits.
This command will append the file name .DS STORE to the end of the .gitignore file, which is a special file that tells Git to ignore certain files or directories that should not be tracked or uploaded to the repository. By adding .DS STORE to the .gitignore file, the administrator will prevent Git from staging, committing, or pushing this file in the future.
The other options are incorrect because:
A) rm -f .DS STORE && git push
This command will delete the file .DS STORE from the local repository and then push the changes to the remote repository. However, this does not prevent the file from being uploaded again in future commits, if it is recreated or copied to the local repository.
B) git fetch && git checkout .DS STORE
This command will fetch the latest changes from the remote repository and then restore the file .DS STORE from the remote repository to the local repository. This is not what the administrator wants to do, as this will undo the deletion of the file from the online repository.
C) rm -f .DS STORE && git rebase origin main
This command will delete the file .DS STORE from the local repository and then rebase the local branch onto the main branch of the remote repository. This will rewrite the commit history of the local branch and may cause conflicts or errors. This is not what the administrator wants to do, as this is a risky and unnecessary operation.

QUESTION 138
Users are unable to create new files on the company's FTP server, and an administrator is troubleshooting the issue. The administrator runs the following commands:

```
# df -h /ftpusers/

Filesystem    Size     Used     Avail    Use%    Mounted on
/dev/sda4     150G     40G      109G     26%     /ftpusers

# df -i /ftpusers/

Filesystem    Inodes   Iused    Ifree    Iuse%   Mounted on
/dev/sda4     34567    34567    0        100%    /ftpusers
```

Which of the following is the cause of the issue based on the output above?

A. The users do not have the correct permissions to create files on the FTP server.
B. The ftpusers filesystem does not have enough space.
C. The inodes is at full capacity and would affect file creation for users.
D. ftpusers is mounted as read only.

Correct Answer: C
Section:
Explanation:
The cause of the issue based on the output above is C. The inodes is at full capacity and would affect file creation for users.
An inode is a data structure that stores information about a file or directory, such as its name, size, permissions, owner, timestamps, and location on the disk. Each file or directory has a unique inode number that identifies it. The number of inodes on a filesystem is fixed when the filesystem is created, and it determines how many files and directories can be created on that filesystem. If the inodes are exhausted, no new files or directories can be created, even if there is enough disk space available.
The output for the second command shows that the /ftpusers/ filesystem has 0% of inodes available, which means that all the inodes have been used up. This would prevent users from creating new files on the FTP server. The administrator should either delete some unused files or directories to free up some inodes, or resize the filesystem to increase the number of inodes.
The other options are incorrect because:
A) The users do not have the correct permissions to create files on the FTP server.
This is not true, because the output for the first command shows that the /ftpusers/ filesystem has 26% of disk space available, which means that there is enough space for users to create files. The permissions of the files and directories are not shown in the output, but they are not relevant to the issue of inode exhaustion.
B) The ftpusers filesystem does not have enough space.
This is not true, because the output for the first command shows that the /ftpusers/ filesystem has 26% of disk space available, which means that there is enough space for users to create files. The issue is not related to disk space, but to inode capacity.
D) ftpusers is mounted as read only.
This is not true, because the output for the first command does not show any indication that the /ftpusers/ filesystem is mounted as read only. If it was, it would have an (ro) flag next to the mounted on column. A read only filesystem would prevent users from creating or modifying files on the FTP server, but it would not affect the inode usage.

QUESTION 139
An administrator added the port 2222 for the SSH server on myhost and restarted the SSH server. The administrator noticed issues during the startup of the service. Given the following outputs:

```
$ ssh -p 2222 myhost
ssh:connect to host myhost on port 2222: Connection refused

$ nmap -p 2222 myhost
Starting Nmap 7.70 ( https://nmap.org ) at 2022-10-17 21:12 EEST
Nmap scan report for myhost (10.7.3.26)
Host is up (0.00027s latency).
rDNS record for 10.7.3.26: myhost
 PORT     STATE  SERVICE
2222/tcp closed EtherNetIP-1
MAC Address: 52:54:00:F5:DF:F8 (QEMU virtual NIC)
 Nmap done: 1 IP address (1 host up) scanned in 0.57 seconds

$ systemctl status sshd
     • sshd.service - OpenSSH server daemon
   Loaded: loaded (/usr/lib/systemd/system/sshd.service; enabled; vendor preset: enabled)
   Active: active (running) since Mon 2022-10-17 19:40:07 CEST; 36min ago
     Docs: man:sshd(8)
           man:sshd_config(5)
 Main PID: 13186 (sshd)
    Tasks: 1 (limit: 12373)
   Memory: 1.1M
   CGroup: /system.slice/sshd.service
           └─13186 /usr/sbin/sshd -D -oCiphers=aes256-gcm@openssh.com

 Oct 17 19:40:07 myhost systemd[1]: Starting OpenSSH server daemon...
 Oct 17 19:40:07 myhost sshd[13186]: error: Bind to port 2222 on 0.0.0.0 failed: Permission denied.
 Oct 17 19:40:07 myhost systemd[1]: Started OpenSSH server daemon.
 Oct 17 19:40:07 myhost sshd[13186]: Server listening on 0.0.0.0 port 22.
```

Which of the following commands will fix the issue?

A. semanage port -a -t ssh_port_t -p tcp 2222
B. chcon system_u:object_r:ssh_home_t /etc/ssh/*
C. iptables -A INPUT -p tcp -- dport 2222 -j ACCEPT
D. firewall-cmd -- zone=public -- add-port=2222/tcp

Correct Answer: A
Section:
Explanation:
The correct answer is

A) semanage port -a -t ssh_port_t -p tcp 2222
This command will allow the SSH server to bind to port 2222 by adding it to the SELinux policy. The semanage command is a utility for managing SELinux policies. The port subcommand is used to manage network port definitions. The -a option is used to add a new record, the -t option is used to specify the SELinux type, the -p option is used to specify the protocol, and the tcp 2222 argument is used to specify the port number. The ssh_port_t type is the default type for SSH ports in SELinux.
The other options are incorrect because:
B) chcon system_u:object_r:ssh_home_t /etc/ssh/*
This command will change the SELinux context of all files under /etc/ssh/ to system_u:object_r:ssh_home_t, which is not correct. The ssh_home_t type is used for user home directories that are accessed by SSH, not for SSH configuration files. The correct type for SSH configuration files is sshd_config_t.
C) iptables -A INPUT -p tcp --dport 2222 -j ACCEPT
This command will add a rule to the iptables firewall to accept incoming TCP connections on port 2222. However, this is not enough to fix the issue, as SELinux will still block the SSH server from binding to that port. Moreover, iptables may not be the default firewall service on some Linux distributions, such as Fedora or CentOS, which use firewalld instead.
D) firewall-cmd --zone=public --add-port=2222/tcp
This command will add a rule to the firewalld firewall to allow incoming TCP connections on port 2222 in the public zone. However, this is not enough to fix the issue, as SELinux will still block the SSH server from binding to that port. Moreover, firewalld may not be installed or enabled on some Linux distributions, such as Ubuntu or Debian, which use iptables instead.
How to configure SSH to use a non-standard port with SELinux set to enforcing
Change SSH Port on CentOS/RHEL/Fedora With SELinux Enforcing
How to change SSH port when SELinux policy is enabled

QUESTION 140
After starting an Apache web server, the administrator receives the following error:
Apr 23 localhost.localdomain httpd 4618] : (98) Address already in use: AH00072: make_sock: could not bind to address [: :]80
Which of the following commands should the administrator use to further trou-bleshoot this issue?

A. Ss
B. Ip
C. Dig
D. Nc

Correct Answer: A
Section:
Explanation:
The ss command is used to display information about socket connections, such as the port number, state, and process ID. The error message indicates that the port 80 is already in use by another process, which prevents the Apache web server from binding to it. By using the ss command with the -l and -n options, the administrator can list all the listening sockets and their port numbers in numeric form, and identify which process is using the port 80. For example:ss -ln | grep :80. The ip, dig, and nc commands are not relevant for this issue, as they are used for different purposes, such as configuring network interfaces, querying DNS records, and testing network connectivity.

QUESTION 141
A systems administrator detected corruption in the /data filesystem. Given the following output:

root@localhost ~]# lsblk -f

NAME	FSTYPE	LABEL/UUID	MOUNTPOINT
sda			
├─sda1	vfat	4E7D-9539	/boot/efi
├─sda2	xfs	98442caf-473d-448e-aee5-561a82297314	/boot
├─sda3	swap	19f064e4-7c51-4b02-8219-99362a3c45ec	[SWAP]
├─sda4	xfs	25d96ada-4289-4def-9202-6ab11affbed3	/
├─sda5	xfs	61435ee9-855d-4de9-9c67-39aeb7f3edb5	/home
sdc			
├─sdc1	ext4	92435ff9-745e-4fg9-9c67-39aeb7f3exf5	/data

Which of the following commands can the administrator use to best address this issue?

A. umount /data mkfs . xfs /dev/sclcl mount /data
B. umount /data xfs repair /dev/ sdcl mount /data
C. umount /data fsck /dev/ sdcl mount / data
D. umount /data pvs /dev/sdcl mount /data

Correct Answer: B
Section:
Explanation:
The xfs repair command is used to check and repair an XFS filesystem, which is the type of filesystem used for the /data partition, as shown in the output. The administrator needs to unmount the /data partition before running the xfs repair command on it, and then mount it back after the repair is done. For example:umount /data; xfs_repair /dev/sdcl; mount /data. The mkfs.xfs command is used to create a new XFS filesystem, which would erase all the data on the partition. The fsck command is used to check and repair other types of filesystems, such as ext4, but not XFS. The pvs command is used to display information about physical volumes in a logical volume manager (LVM) setup, which is not relevant for this issue.

QUESTION 142
A Linux administrator is configuring a two-node cluster and needs to be able to connect the nodes to each other using SSH keys from the root account. Which of the following commands will accomplish this task?

A. [root@nodea ssh ---i ~/ . ssh/d rsa root@nodeb
B. [root@nodea scp -i . ssh/id rsa root@nodeb
C. [root@nodea ssh---copy-id ---i .ssh/id rsa root@nodeb

D. [root@nodea # ssh add -c ~/ . ssh/id rsa root@nodeb
E. [root@nodea # ssh add -c ~/. ssh/id rsa root@nodeb

Correct Answer: C
Section:
Explanation:
The ssh-copy-id command is used to copy a public SSH key from a local machine to a remote server and add it to the authorized_keys file, which allows passwordless authentication between the machines. The administrator can use this command to copy the root user's public key from nodea to nodeb, and vice versa, to enable SSH access between the nodes without entering a password every time. For example:[root@nodea ssh-copy-id -i ~/.ssh/id_rsa root@nodeb]. The ssh command is used to initiate an SSH connection to a remote server, but it does not copy any keys. The scp command is used to copy files securely between machines using SSH, but it does not add any keys to the authorized_keys file. The ssh-add command is used to add private keys to the SSH agent, which manages them for SSH authentication, but it does not copy any keys to a remote server.

QUESTION 143
An administrator attempts to connect to a remote server by running the following command:
$ nmap 192.168.10.36
Starting Nmap 7.60 (https://nmap.org) at 2022-03-29 20:20 UTC
Nmap scan report for www1 (192.168.10.36)
Host is up (0.000091s latency).
Not shown: 979 closed ports
PORT STATE SERVICE
21/tcp open ftp
22/tcp filtered ssh
631/tcp open ipp
Nmap done: 1 IP address (1 host up) scanned in 0.06 seconds
Which of the following can be said about the remote server?

A. A firewall is blocking access to the SSH server.
B. The SSH server is not running on the remote server.
C. The remote SSH server is using SSH protocol version 1.
D. The SSH host key on the remote server has expired.

Correct Answer: A
Section:
Explanation:
This is because the port 22/tcp is shown as filtered by nmap, which means that nmap cannot determine whether the port is open or closed because a firewall or other device is blocking its probes. If the SSH server was not running on the remote server, the port would be shown as closed, which means that nmap received a TCP RST packet in response to its probe. If the remote SSH server was using SSH protocol version 1, the port would be shown as open, which means that nmap received a TCP SYN/ACK packet in response to its probe. If the SSH host key on the remote server had expired, the port would also be shown as open, but the SSH client would display a warning message about the host key verification failure. Therefore, the best explanation for the filtered state of the port 22/tcp is that a firewall is preventing nmap from reaching the SSH server.
You can find more information about nmap port states and how to interpret them in the following web search results:
Nmap scan what does STATE=filtered mean?
How to find ports marked as filtered by nmap
Technical Tip: NMAP scan shows ports as filtered

QUESTION 144
A systems administrator notices the process list on a mission-critical server has a large number of processes that are in state 'Z' and marked as 'defunct.' Which of the following should the administrator do in an attempt to safely remove these entries from the process list?

A. Kill the process with PID 1.
B. Kill the PID of the processes.

C. Kill the parent PID of the processes.
D. Reboot the server.

Correct Answer: C
Section:
Explanation:
As the web search results show, processes in state Z are defunct or zombie processes, which means they have terminated but their parent process has not reaped them properly. They do not consume any resources, but they occupy a slot in the process table. To remove them from the process list, the administrator needs to kill the parent process of the zombies, which will cause them to be reaped by the init process (PID 1). Killing the zombies themselves or the init process will not have any effect, as they are already dead. Rebooting the server may work, but it is not a safe or efficient option, as it may cause unnecessary downtime or data loss for a mission-critical server.
Reference
Processes in a Zombie (Z) or Defunct State | Support | SUSE, paragraph 3
linux - Zombie vs Defunct processes? - Stack Overflow, answer by admirableadmin
How To Kill Zombie Processes on Linux | Linux Journal, paragraph 4

QUESTION 145
A Linux administrator found many containers in an exited state. Which of the following commands will allow the administrator to clean up the containers in an exited state?

A. docker rm -- all
B. docker rm $ (docker ps -aq)
C. docker images prune *
D. docker rm -- state exited

Correct Answer: B
Section:
Explanation:
This command will remove all containers, regardless of their state, by passing the IDs of all containers to the docker rm command. The docker ps -aq command will list the IDs of all containers, including the ones in an exited state, and the $ ( ) syntax will substitute the output of the command as an argument for the docker rm command. This is a quick and easy way to clean up all containers, but it may also remove containers that are still needed or running.
Reference
docker rm | Docker Docs - Docker Documentation, section ''Remove all containers''
Docker Remove Exited Containers | Easy methods. - Bobcares, section ''For removing all exited containers''

QUESTION 146
Which of the following is the best tool for dynamic tuning of kernel parameters?

A. tuned
B. tune2fs
C. tuned-adm
D. turbostat

Correct Answer: A
Section:
Explanation:
The tuned application is the best tool for dynamic tuning of kernel parameters, as it monitors the system and optimizes the performance under different workloads. It provides a number of predefined profiles for typical use cases, such as power saving, low latency, high throughput, virtual machine performance, and so on. It also allows users to create, modify, and delete profiles, and to switch between them on the fly. The tuned application uses the sysctl command and the configuration files in the /etc/sysctl.d/ directory to adjust the kernel parameters at runtime.
Reference

Chapter 2. Getting started with TuneD - Red Hat Customer Portal, paragraph 1
Kernel tuning with sysctl - Linux.com, paragraph 1

QUESTION 147
Users are reporting that writes on a system configured with SSD drives have been taking longer than expected, but reads do not seem to be affected. A Linux systems administrator is investigating this issue and working on a solution. Which of the following should the administrator do to help solve the issue?

A. Run the corresponding command to trim the SSD drives.
B. Use fsck on the filesystem hosted on the SSD drives.
C. Migrate to high-density SSD drives for increased performance.
D. Reduce the amount of files on the SSD drives.

Correct Answer: A
Section:
Explanation:
TRIM is a feature that allows the operating system to inform the SSD which blocks of data are no longer in use and can be wiped internally.This helps to maintain the SSD's performance and endurance by preventing unnecessary write operations and reducing write amplification12.Running the corresponding command to trim the SSD drives, such asfstrimorblkdiscardon Linux, can help to solve the issue of slow writes by freeing up space and optimizing the SSD's internal garbage collection34.

QUESTION 148
The development team created a new branch with code changes that a Linux administrator needs to pull from the remote repository. When the administrator looks for the branch in Git, the branch in question is not visible. Which of the following commands should the Linux administrator run to refresh the branch information?

A. git fetch
B. git checkout
C. git clone
D. git branch

Correct Answer: A
Section:
Explanation:
The git fetch command downloads commits, files, and refs from a remote repository into the local one. It also updates the remote-tracking branches, which are references to the state of the remote branches.By running git fetch, the administrator can see the new branch created by the development team and then use git checkout to switch to it12.

QUESTION 149
A file called testfile has both uppercase and lowercase letters:
$ cat testfile
ABCDEfgH
IJKLmnoPQ
abcdefgH
ijklLMNopq
A Linux administrator is tasked with converting testfile into all uppercase and writing it to a new file with the name uppercase. Which of the following commands will achieve this task?

A. tr '(A-Z}' '{a-z}' < testfile > uppercase
B. echo testfile | tr '[Z-A]' '[z-a]' < testfile > uppercase
C. cat testfile | tr '{z-a)' '{Z-A}' < testfile > uppercase
D. tr '[a-z]' '[A-Z]' < testfile > uppercase

Correct Answer: D
Section:
Explanation:
This command will use the tr tool to translate all lowercase letters in the testfile to uppercase letters and write the output to the uppercase file. The first argument '[a-z]' specifies the set of characters to be replaced, and the second argument '[A-Z]' specifies the set of characters to replace with.The '<' symbol redirects the input from the testfile, and the '>' symbol redirects the output to the uppercase file12.

QUESTION 150
A Linux administrator is troubleshooting a systemd mount unit file that is not working correctly. The file contains:
[root@system] # cat mydocs.mount
[Unit]
Description=Mount point for My Documents drive
[Mount]
What=/dev/drv/disk/by-uuid/94afc9b2-ac34-ccff-88ae-297ab3c7ff34
Where=/home/user1/My Documents
Options=defaults
Type=xfs
[Install]
WantedBy=multi-user.target
The administrator verifies the drive UUID correct, and user1 confirms the drive should be mounted as My Documents in the home directory. Which of the following can the administrator do to fix the issues with mounting the drive? (Select two).

A. Rename the mount file to home-user1-My\x20Documents.mount.
B. Rename the mount file to home-user1-my-documents.mount.
C. Change the What entry to /dev/drv/disk/by-uuid/94afc9b2\-ac34\-ccff\-88ae\-297ab3c7ff34.
D. Change the Where entry to Where=/home/user1/my\ documents.
E. Change the Where entry to Where=/home/user1/My\x20Documents.
F. Add quotes to the What and Where entries, such as What='/dev/drv/disk/by-uuid/94afc9b2-ac34-ccff-88ae-297ab3c7ff34' and Where='/home/user1/My Documents'.

Correct Answer: A, E
Section:
Explanation:
The mount unit file name and the Where entry must be escaped to handle spaces in the path. Reference The mount unit file name must be named after the mount point directory, with spaces replaced by\x20. SeeHow to escape spaces in systemd unit files?andsystemd.mount. The Where entry must use\x20to escape spaces in the path. Seesystemd.mountandThe workaround is to use /usr/bin/env followed by the path in quotes..

QUESTION 151
Following the migration from a disaster recovery site, a systems administrator wants a server to require a user to change credentials at initial login. Which of the following commands should be used to ensure the aging attribute?

A. chage -d 2 user
B. chage -d 0 user
C. chage -E 0 user
D. chage -d 1 user

Correct Answer: B
Section:
Explanation:
The chage command can be used to change the user password expiry information. The -d or --lastday option sets the last password change date. If the value is 0, the user will be forced to change the password at the next login. Seechage command in Linux with examplesand10 chage command examples in Linux.

QUESTION 152
A systems administrator needs to remove a disk from a Linux server. The disk size is 500G, and it is the only one that size on that machine. Which of the following commands can the administrator use to find the corresponding device name?

A. fdisk -V
B. partprobe -a
C. lsusb -t
D. lsscsi -s

Correct Answer: D
Section:
Explanation:
The lsscsi command can list the SCSI devices on the system, along with their size and device name. The -s option shows the size of each device. The administrator can look for the device that has a size of 500G and note its device name. Seelsscsi(8) - Linux man pageandHow to check Disk Interface Types in Linux. Reference 1: https://linux.die.net/man/8/lsscsi 2: https://www.golinuxcloud.com/check-disk-type-linux/

QUESTION 153
A Linux user is trying to execute commands with sudo but is receiving the following error:
$ sudo visudo
>>> /etc/sudoers: syntax error near line 28 <<<
sudo: parse error in /etc/sudoers near line 28
sudo: no valid sudoers sources found, quitting
The following output is provided:
grep root /etc/shadow
root :* LOCK *: 14600 ::::::
Which of the following actions will resolve this issue?

A. Log in directly using the root account and comment out line 28 from /etc/sudoers.
B. Boot the system in single user mode and comment out line 28 from /etc/sudoers.
C. Comment out line 28 from /etc/sudoers and try to use sudo again.
D. Log in to the system using the other regular user, switch to root, and comment out line 28 from /etc/sudoers.

Correct Answer: B
Section:

QUESTION 154
A systems administrator is gathering information about a file type and the contents of a file. Which of the following commands should the administrator use to accomplish this task?

A. file filename
B. touch filename
C. grep filename
D. lsof filename

Correct Answer: A
Section:
Explanation:
The file command is used to determine the type of a file by examining its contents. It can recognize many different formats, such as text, binary, executable, compressed, image, audio, video, etc.It can also display some additional information about the file, such as encoding, size, dimensions, etc12

QUESTION 155
Due to performance issues on a server, a Linux administrator needs to termi-nate an unresponsive process. Which of the following commands should the administrator use to terminate the process immediately without waiting for a graceful shutdown?

A. kill -SIGKILL 5545
B. kill -SIGTERM 5545
C. kill -SIGHUP 5545
D. kill -SIGINT 5545

Correct Answer: A
Section:
Explanation:
To terminate an unresponsive process immediately without waiting for a graceful shutdown, the administrator can use the commandkill -SIGKILL 5545(A). This will send a signal to the process with the PID 5545 that cannot be ignored or handled by the process, and force it to stop. The other commands will send different signals that may allow the process to perform some cleanup or termination actions, or may be ignored by the process.Reference:
[CompTIA Linux+ Study Guide], Chapter 6: Managing Processes, Section: Killing Processes
[How to Kill Processes in Linux]

QUESTION 156
A systems administrator intends to use a UI-JID to mount a new partition per-manently on a Linux system. Which of the following commands can the adminis-trator run to obtain information about the UUIDs of all disks attached to a Linux system?

A. fcstat
B. blkid
C. dmsetup
D. Isscsi

Correct Answer: B
Section:
Explanation:
To obtain information about the UUIDs of all disks attached to a Linux system, the administrator can run the commandblkid(B). This will display the block device attributes, including the UUID, label, type, and partition information. The other commands are not related to this task.Reference:
[CompTIA Linux+ Study Guide], Chapter 5: Managing Filesystems and Logical Volumes, Section: Identifying Disks by UUID
[How to Use blkid Command in Linux]

QUESTION 157
A systems administrator creates a public key for authentication. Which of the following tools is most suitable to use when uploading the key to the remote servers?

A. scp
B. ssh-copy-id
C. ssh-agent
D. ssh-keyscan

Correct Answer: B
Section:
Explanation:
The best tool to use when uploading the public key to the remote servers is B. ssh-copy-id. This tool will copy the public key from the local computer to the remote server and append it to the authorized_keys file, which is used for public key authentication. This tool will also create the necessary directories and files on the remote server if they do not exist. The other tools are either not suitable or not relevant for this task. For example:

A) scp is a tool for securely copying files between hosts, but it does not automatically add the public key to the authorized_keys file.
C) ssh-agent is a tool for managing private keys and passphrases, but it does not upload the public key to the remote server.
D) ssh-keyscan is a tool for collecting public keys from remote hosts, but it does not upload the public key to the remote server.

QUESTION 158
The application team has reported latency issues that are causing the application to crash on the Linux server. The Linux administrator starts troubleshooting and receives the following output:

```
# netstat -s
15762 packets pruned from receive queue because of socket buffer over
690 times the listen queue of a socket overflowed
690 SYNs to LISTEN sockets ignored
2150128 packets collapsed in receive queue due to low socket buffer
TCPBacklogDrop: 844165

# ethtool -S eth0
rx_fw_discards: 4487
```

Which of the following commands will improve the latency issue?

A. # echo 'net.core.net_backlog = 5000000' >> /etc/sysctl.conf # sysctl -p # systemctl daemon-reload
B. # ifdown eth0 # ip link set dev eth0 mtu 800 # ifup eth0
C. # systemctl stop network # ethtool -g eth0 512 # systemctl start network
D. # echo 'net.core.rmem max = 12500000' >> /etc/sysctl.conf # echo 'net.core.wmem_max = 12500000' >> /etc/sysctl.conf # sysctl -p

Correct Answer: D
Section:
Explanation:
The best command to use to improve the latency issue is D. # echo 'net.core.rmem max = 12500000' >> /etc/sysctl.conf # echo 'net.core.wmem_max = 12500000' >> /etc/sysctl.conf # sysctl -p. This command will increase the size of the receive and send buffers for the network interface, which can improve the network performance and reduce packet loss. The sysctl command will apply the changes to the kernel parameters without rebooting the system.
The other commands are either incorrect or not suitable for this task. For example:
A) # echo 'net.core.net_backlog = 5000000' >> /etc/sysctl.conf # sysctl -p # systemctl daemon-reload will try to increase the backlog queue for incoming connections, but this is not relevant for the latency issue. The systemctl daemon-reload command is also unnecessary, as it only reloads the systemd configuration files, not the kernel parameters.
B) # ifdown eth0 # ip link set dev eth0 mtu 800 # ifup eth0 will try to change the maximum transmission unit (MTU) of the network interface to 800 bytes, but this is too low and may cause fragmentation and performance degradation. The default MTU for Ethernet is 1500 bytes, and it should not be changed unless there is a specific reason.
C) # systemctl stop network # ethtool -g eth0 512 # systemctl start network will try to change the ring buffer size of the network interface to 512, but this is too small and may cause packet drops and latency spikes. The default ring buffer size for Ethernet is usually 4096 or higher, and it should be increased if there is a high network traffic.

QUESTION 159
An administrator runs ping comptia.org. The result of the command is:
ping: comptia.org: Name or service not known
Which of the following files should the administrator verify?

A. /etc/ethers
B. /etc/services
C. /etc/resolv.conf
D. /etc/sysctl.conf

Correct Answer: C
Section:
Explanation:
The best file to verify when the ping command returns the error ''Name or service not known'' is C. /etc/resolv.conf. This file contains the configuration for the DNS resolver, which is responsible for translating domain names into IP addresses. If this file is missing, corrupted, or has incorrect entries, the ping command will not be able to resolve the domain name and will fail with the error. To fix this issue, the administrator should check that the file exists, has proper permissions, and has valid nameserver entries. For example, a typical /etc/resolv.conf file may look like this:
nameserver 8.8.8.8nameserver 8.8.4.4
These are the IP addresses of Google's public DNS servers, which can be used as a fallback option if the default DNS servers are not working.

QUESTION 160
A systems administrator created a new directory with specific permissions. Given the following output:
file: comptia
owner: root
group: root
user: : rwx
group :: r-x
other: :---
default:user :: rwx
default:group :: r-x
default:group:wheel: rwx
default:mask :: rwx
default:other ::-
Which of the following permissions are enforced on /comptia?

A. Members of the wheel group can read files in /comptia.
B. Newly created files in /comptia will have the sticky bit set.
C. Other users can create files in /comptia.
D. Only root can create files in /comptia.

Correct Answer: A
Section:
Explanation:
The output shows the file access control list (FACL) of the /comptia directory, which is an extension of the standard Linux permissions that allows more fine-grained control over file and directory access1. The FACL consists of two parts: the access ACL and the default ACL.The access ACL applies to the current object, while the default ACL applies to the objects created within the directory2.
The access ACL has three entries: user, group, and other. These are similar to the standard Linux permissions, but they can be specified for individual users or groups as well. The user entry shows that the owner of the directory (root) has read, write, and execute permissions (rwx). The group entry shows that the group owner of the directory (root) has read and execute permissions (r-x). The other entry shows that all other users have no permissions (---).
The default ACL has five entries: user, group, group:wheel, mask, and other. These are applied to any files or directories created within /comptia. The user entry shows that the owner of the new object will have read, write, and execute permissions (rwx). The group entry shows that the group owner of the new object will have read and execute permissions (r-x). The group:wheel entry shows that the members of the wheel group will have read, write, and execute permissions (rwx) on the new object. The mask entry shows that the maximum permissions allowed for any user or group are read, write, and execute (rwx). The other entry shows that all other users will have no permissions (---) on the new object.
Therefore, based on the FACL output, members of the wheel group can read files in /comptia, as they have read permission on both the directory and any files within it. Option B is incorrect because the sticky bit is not set on /comptia or any files within it.The sticky bit is a special permission that prevents users from deleting or renaming files that they do not own in a shared directory3. It is symbolized by a t character in the execute position of others. Option C is incorrect because other users cannot create files in /comptia, as they have no permissions on the directory or any files within it. Option D is incorrect because root is not the only user who can create files in /comptia. Any user who has write permission on the directory can create files within it, such as members of the wheel group.

QUESTION 161
A Linux administrator is configuring a new internal web server fleet. The web servers are up and running but can only be reached by users directly via IP address. The administrator is attempting to fix this inconvenience by requesting appropriate records from the DNS team. The details are:

Hostname: devel.comptia.org
IP address: 5.5.5.1, 5.5.5.2, 5.5.5.3, 5.5.5.4
Name server: 5.5.5.254
Additional names: dev.comptia.org, development.comptia.org
Which of the following types of DNS records should the Linux administrator request from the DNS team? (Select three).

A. MX
B. NS
C. PTR
D. A
E. CNAME
F. RRSIG
G. SOA
H. TXT
I. SRV

Correct Answer: B, D, E
Section:
Explanation:
The Linux administrator should request the following types of DNS records from the DNS team:
A: This record type is used to map a hostname to an IPv4 address. The administrator needs four A records for devel.comptia.org, one for each IP address (5.5.5.1, 5.5.5.2, 5.5.5.3, 5.5.5.4).This will allow users to access the web servers by using the hostname devel.comptia.org instead of the IP addresses1.
CNAME: This record type is used to create an alias for another hostname. The administrator needs two CNAME records, one for dev.comptia.org and one for development.comptia.org, both pointing to devel.comptia.org.This will allow users to access the web servers by using any of these three hostnames interchangeably1.
NS: This record type is used to delegate a domain or a subdomain to another name server.The administrator needs one NS record for comptia.org, pointing to 5.5.5.254, which is the name server that hosts the records for the subdomain devel.comptia.org2.This will allow users to resolve the hostnames under comptia.org by querying the name server 5.5.5.2542.
The other record types are not relevant for the administrator's task:
MX: This record type is used to specify the mail exchange server for a domain or a subdomain1. The administrator does not need this record type because the web servers are not intended to handle email traffic.
PTR: This record type is used to map an IP address to a hostname, which is the reverse of an A record1. The administrator does not need this record type because the web servers are not expected to be accessed by their IP addresses.
RRSIG: This record type is used to provide digital signatures for DNSSEC, which is a security extension for DNS that verifies the authenticity and integrity of DNS responses3. The administrator does not need this record type because it is not mentioned in the task requirements.
SOA: This record type is used to provide information about the authoritative name server and other parameters for a domain or a subdomain1.The administrator does not need this record type because it is usually created automatically by the name server software when a new zone file is created4.
TXT: This record type is used to store arbitrary text data that can be used for various purposes, such as SPF, DKIM, DMARC, etc1. The administrator does not need this record type because it is not related to the web server functionality.
SRV: This record type is used to specify the location and port number of a service that runs on a domain or a subdomain1. The administrator does not need this record type because the web servers use the standard HTTP port 80, which does not require an SRV record.

QUESTION 162
After connecting to a remote host via SSH, an administrator attempts to run an application but receives the following error:
[user@workstation ~]$ ssh admin@srv1
Last login: Tue Mar 29 18:03:34 2022
[admin@srvl ~] $ /usr/local/bin/config_manager
Error: cannot open display:
[admin@srv1 ~] $
Which of the following should the administrator do to resolve this error?

A. Disconnect from the SSH session and reconnect using the ssh -x command.
B. Add Options X11 to the /home/admin/.ssh/authorized_keys file.
C. Open port 6000 on the workstation and restart the firewalld service.
D. Enable X11 forwarding in /etc/ssh/ssh_config and restart the server.

Correct Answer: A
Section:
Explanation:
The error indicates that the application requires an X11 display, but the SSH session does not forward the X11 connection. To enable X11 forwarding, the administrator needs to use the ssh -X option, which requests X11 forwarding with authentication spoofing. This will set the DISPLAY environment variable on the remote host and allow the application to open a window on the local display.
Reference
CompTIA Linux+ (XK0-005) Certification Study Guide, page 314
Open a window on a remote X display (why ''Cannot open display'')?, answer by Gilles 'SO- stop being evil'

QUESTION 163
A Linux engineer needs to block an incoming connection from the IP address 2.2.2.2 to a secure shell server and ensure the originating IP address receives a response that a firewall is blocking the connection. Which of the following commands can be used to accomplish this task?

A. iptables -A INPUT -p tcp -- dport ssh -s 2.2.2.2 -j DROP
B. iptables -A INPUT -p tcp -- dport ssh -s 2.2.2.2 -j RETURN
C. iptables -A INPUT -p tcp -- dport ssh -s 2.2.2.2 -j REJECT
D. iptables -A INPUT -p tcp -- dport ssh -s 2.2.2.2 -j QUEUE

Correct Answer: C
Section:
Explanation:
The REJECT target sends back an error packet to the source IP address, indicating that the connection is refused by the firewall. This is different from the DROP target, which silently discards the packet without any response. The RETURN target returns to the previous chain, which may or may not accept the connection. The QUEUE target passes the packet to a userspace application for further processing, which is not the desired outcome in this case.
Reference
CompTIA Linux+ (XK0-005) Certification Study Guide, page 316
iptables - ssh - access from specific ip only - Server Fault, answer by Eugene Ionichev

QUESTION 164
A Linux administrator provisioned a new web server with custom administrative permissions for certain users. The administrator receives a report that user1 is unable to restart the Apache web service on this server. The administrator reviews the following output:
[root@server] # id user1
UID=1011 (user1) gid=1011 (USER1) groups=1011 (user1), 101 (www-data), 1120 (webadmin)
[root@server] # cat /etc/sudoers.d/custom.conf
user1 ALL=/usr/sbin/systemctl start httpd, /usr/sbin/systemctl stop httpd
webadmin ALL=NOPASSWD: /etc/init.d.httpd restart, /sbin/service httpd restart, /usr/sbin/apache2ctl restart
#%wheel ALL=(ALL) NOPASSWD: ALL
Which of the following would most likely resolve the issue while maintaining a least privilege security model?

A. User1 should be added to the wheel group to manage the service.
B. User1 should have 'NOPASSWD:' after the 'ALL=' in the custom. conf.
C. The wheel line in the custom. conf file should be uncommented.
D. Webadmin should be listed as a group in the custom. conf file.

Correct Answer: D
Section:
Explanation:
The custom.conf file grants sudo privileges to user1 and webadmin for managing the Apache web service, but it uses different commands for each of them. User1 is allowed to use systemctl to start and stop the httpd service, while webadmin is allowed to use init.d, service, or apache2ctl to restart the httpd service. However, the user1 is unable to restart the service, only start and stop it. To fix this, user1 should be able to use the same commands as webadmin, which can be achieved by listing webadmin as a group in the custom.conf file, using the syntax %groupname. This way, user1 will inherit the sudo privileges of the webadmin group, and be able to restart the Apache web service without compromising the least privilege security model.
Reference
Sudo and Sudoers Configuration | Servers for Hackers, section ''Groups''
Chapter 12. Managing sudo access - Red Hat Customer Portal, section ''12.1. Configuring sudo access for users and groups''

QUESTION 165
A Linux system is having issues. Given the following outputs:
dig @192.168.2.2 mycomptiahost
; << >> DiG 9.9.4-RedHat-9.9.4-74.el7_6.1 << >> @192.168.2.2 mycomptiahost
; (1 server found)
;; global options: +cmd
;; connection timed out; no servers could be reached
nc -v 192.168.2.2 53
Ncat: Version 7.70 (https://nmap.org/ncat)
Ncat: Connection timed out.
ping 192.168.2.2
PING 192.168.2.2 (192.168.2.2) 56(84) bytes of data.
64 bytes from 192.168.2.2: icmp_seq=1 ttl=117 time=4.94 ms
64 bytes from 192.168.2.2: icmp_seq=2 ttl=117 time=10.5 ms
Which of the following best describes this issue?

A. The DNS host is down.
B. The name mycomptiahost does not exist in the DNS.
C. The Linux engineer is using the wrong DNS port.
D. The DNS service is currently not available or the corresponding port is blocked.

Correct Answer: D
Section:
Explanation:
The ping command shows that the Linux system can reach the DNS server at 192.168.2.2, so the DNS host is not down. The dig and nc commands show that the Linux system cannot connect to the DNS server on port 53, which is the standard port for DNS queries. This means that either the DNS service is not running on the DNS server, or there is a firewall or network device blocking the port 53 traffic.Therefore, the DNS service is currently not available or the corresponding port is blocked. Reference 1:How To Troubleshoot DNS Client Issues in Linux - RootUsers 2:6 Best Tools to Troubleshoot DNS Issues in Linux - Tecmint 3:How To Troubleshoot DNS in Linux - OrcaCore 4:Fixing DNS Issues in Ubuntu 20.04 | DeviceTests

QUESTION 166
Users are experiencing high latency when accessing a web application served by a Linux machine. A systems administrator checks the network interface counters and sees the following:

```
# ip -s link list dev enp0s25

2: enp0s25: <BROADCAST,MULTICAST,LOWER_UP,UP> mtu 1500 qdisc fq_codel state DOWN mode DEFAULT group default qlen 1000   link/ether
ac:12:34:56:78:cd brd ff:ff:ff:ff:ff:ff

    RX: bytes  packets  errors  dropped missed  mcast

    2011664755 3579033  2394390 508     0       0

    TX: bytes  packets  errors  dropped carrier collsns

    309541780  1705408  0       0       12340   0
```

Which of the following is the most probable cause of the observed latency?

A. The network interface is disconnected.
B. A connection problem exists on the network interface.
C. No IP address is assigned to the interface.
D. The gateway is unreachable.

Correct Answer: B
Section:
Explanation:
The high number of errors and dropped packets in the output of the network interface counters indicate a connection problem on the network interface.
CompTIA Linux+ (XK0-005) Certification Study Guide, Chapter 10: Managing Networking, Section: Troubleshooting Network Issues, Page 359.
Linux+ (Plus) Certification, Exam Objectives: 4.3 Given a scenario, troubleshoot and resolve basic network configuration and connectivity issues.

QUESTION 167
While troubleshooting server issues, a Linux systems administrator obtains the following output:
[rootGhost ~]# total free -m used free shared buf f/cache available
Mem: 3736 3598 88 2 48 29
Swap: 2047 1824 223
Which of the following best describes the state of the system?

A. The system has consumed the system memory and swap space.
B. The system has enough free memory space.
C. The system has swap disabled.
D. The system has allocated enough buffer space.

Correct Answer: B
Section:
Explanation:
The output shows that the system has a total of 3736MB of memory, of which 3598MB is free.This indicates that the system has enough free memory space12.
Reference: 1(https://phoenixnap.com/kb/swap-space) 2(https://www.baeldung.com/linux/swap-space-use)

QUESTION 168
A network administrator issues the dig ww. comptia. org command and receives an NXDOMAIN response. Which of the following files should the administrator check first?

A. /etc/resolv.conf
B. /etc/hosts
C. /etc/sysconfig/network-scripts
D. /etc/nsswitch.conf

Correct Answer: A
Section:
Explanation:
Thedigcommand uses the DNS servers listed in the/etc/resolv.conffile to resolve domain names. If thedigcommand returns an NXDOMAIN response, it means the domain does not exist according to the DNS servers used.Therefore, the administrator should check the/etc/resolv.conffile first34.
Reference: 3(https://www.linuxquestions.org/questions/linux-newbie-8/help-me-dig-status-nxdomain-4175684441/) 4(https://serverfault.com/questions/729025/what-are-all-the-flags-in-a-dig-response)

QUESTION 169
An administrator is running a web server in a container named web, but none of the error output is not showing. Which of the following should the administrator use to generate the errors on the container?

A. docker-compose inspect WEB
B. docker logs WEB
C. docker run ---name WEB ---volume/dev/stdout:/var/log/nginx/error.log
D. docker ps WEB -f

Correct Answer: B
Section:
Explanation:
Thedocker logscommand is used to fetch the logs of a container.If the error output is not showing for a running container, thedocker logscommand can be used to view these details56.
Reference: 5(https://www.docker.com/blog/how-to-fix-and-debug-docker-containers-like-a-superhero/) 6(https://stackoverflow.com/questions/33083385/getting-console-output-from-a-docker-container)

QUESTION 170
A technician just fixed a few issues in some code and is ready to deploy the code into production. Which of the following steps should the technician take next?

A. Create a new branch using git checkout.
B. Perform a git clone to pull main down.
C. Create a git pull request to merge into main.
D. Perform a git pull to update the local copy of the code.

Correct Answer: C
Section:
Explanation:
After fixing issues in the code, the next step is to merge these changes into the main branch.This is typically done by creating a pull request78.
Reference: 7(https://zeet.co/blog/deploy-to-production) 8(https://stackoverflow.com/questions/11833511/git-deploy-to-production)

QUESTION 171
An administrator accidentally installed the httpd RPM package along with several dependencies. Which of the following options is the best way for the administrator to revert the package installation?

A. dnf clean all
B. rpm -e httpd
C. apt-get clean
D. yum history undo last

Correct Answer: D
Section:
Explanation:
The yum history undo last command will undo the last transaction, which in this case is the installation of the httpd RPM package and its dependencies. This will remove the packages that were installed and restore the previous state of the system. SeeHow to undo or redo yum transactionsandyum history. Reference 1: https://www.redhat.com/sysadmin/undo-redo-yum-transactions 2: https://man7.org/linux/man-pages/man8/yum.8.html#HISTORY

QUESTION 172
A Linux administrator generated a list of users who have root-level command-line access to the Linux server to meet an audit requirement. The administrator analyzes the following /etc/passwd and /etc/sudoers files:
$ cat /etc/passwd
root:x: 0:0: :/home/root: /bin/bash
lee: x: 500: 500: :/home/lee:/bin/tcsh
mallory:x: 501:501: :/root:/bin/bash
eve:x: 502: 502: /home/eve:/bin/nologin
carl:x:0:503: :/home/carl:/bin/sh
bob:x: 504: 504: : /home/bob:/bin/ksh
alice:x: 505:505: :/home/alice:/bin/rsh
$ cat /etc/sudoers
Cmnd_Alias SHELLS = /bin/tcsh, /bin/sh, /bin/bash
Cmnd_Alias SYSADMIN = /usr/sbin/tcpdump
ALL = (ALL) ALL
ALL = NOPASSWD: SYSADMIN
Which of the following users, in addition to the root user, should be listed in the audit report as having root-level command-line access? (Select two).

A. Carl
B. Lee
C. Mallory
D. Eve
E. Bob
F. Alice

Correct Answer: A, C
Section:
Explanation:
The users who have root-level command-line access are those who have either the same user ID (UID) as root, which is 0, or the ability to run commands as root using sudo. Based on the /etc/passwd and /etc/sudoers files, the users who meet these criteria are:
Carl: Carl has the same UID as root, which is 0, as shown in the /etc/passwd file. This means that Carl can log in as root and execute any command with root privileges1
Mallory: Mallory has the ability to run commands as root using sudo, as shown in the /etc/sudoers file. The line ALL = (ALL) ALL means that any user can run any command as any other user, including root, by using sudo. Mallory can also use the root shell /bin/bash as her login shell, as shown in the /etc/passwd file2
Therefore, the correct answer is A and C. Lee, Eve, Bob, and Alice do not have root-level command-line access because they have different UIDs from root and they cannot use sudo to run commands as root. Lee can only use sudo to run the commands listed in the Cmnd_Alias SHELLS, which are /bin/tcsh, /bin/sh, and /bin/bash. Eve cannot log in at all because her login shell is /bin/nologin. Bob and Alice can only use sudo to run the command /usr/sbin/tcpdump without a password, as specified by the Cmnd_Alias SYSADMIN and the line ALL = NOPASSWD: SYSADMIN2

QUESTION 173
A systems administrator is configuring a Linux system so the network traffic from the internal network 172.17.0.0/16 going out through the eth0 interface would appear as if it was sent directly from this interface. Which of the following commands will accomplish this task?

A. iptables -A POSTROUTING -s 172.17.0.0/16 -o eth0 -j MASQUERADE
B. firewalld -A OUTPUT -s 172.17.0.0/16 -o eth0 -j DIRECT
C. nmcli masq-traffic eth0 -s 172.17.0.0/16 -j MASQUERADE
D. ifconfig -- nat eth0 -s 172.17.0.0/16 -j DIRECT

Correct Answer: A
Section:
Explanation:
This command will use the iptables tool to append a rule to the POSTROUTING chain of the nat table, which will match any packet with a source address of 172.17.0.0/16 and an output interface of eth0, and apply the MASQUERADE target to it.This means that the packet will have its source address changed to the address of the eth0 interface, effectively hiding the internal network behind a NAT12.

QUESTION 174
A user is unable to log on to a Linux workstation. The systems administrator executes the following command:
cat /etc/shadow | grep user1
The command results in the following output:
user1 :! 6QERgAsdvojadv4asdvaarC/9dj34GdafGVaregmkdsfa:18875:0:99999:7 :::
Which of the following should the systems administrator execute to fix the issue?

A. chown -R userl:user1 /home/user1
B. sed -i '/ ::: / :: /g' /etc/shadow
C. chgrp user1:user1 /home/user1
D. passwd -u user1

Correct Answer: D
Section:
Explanation:
The output shows that the user1 account has a locked password, indicated by the exclamation point (!) in the second field of the /etc/shadow file1.To unlock the password and allow the user to log in, the systems administrator should use the passwd command with the -u (unlock) option2.

QUESTION 175
A Linux engineer finds multiple failed login entries in the security log file for application users. The Linux engineer performs a security audit and discovers a security issue. Given the following:
grep -iE '*www*|db' /etc/passwd
www-data:x:502:502:www-data:/var/www:/bin/bash
db:x: 505:505:db: /opt/db:/bin/bash
Which of the following commands would resolve the security issue?

A. usermod -d /srv/www-data www-data && usermod -d /var/lib/db db
B. passwd -u www-data && passwd -u db
C. renice -n 1002 -u 502 && renice -n 1005 -u 505
D. chsh -s /bin/false www-data && chsh -s /bin/false db

Correct Answer: D
Section:
Explanation:
This command will use the chsh tool to change the login shell of the users www-data and db to /bin/false, which means they will not be able to log in to the system1. This will prevent unauthorized access attempts and improve security.

QUESTION 176

A Linux administrator has defined a systemd script docker-repository.mount to mount a volume for use by the Docker service. The administrator wants to ensure that Docker service does not start until the volume is mounted. Which of the following configurations needs to be added to the Docker service definition to best accomplish this task?

A. After=docker-respository.mount
B. ExecStart=/usr/bin/mount -a
C. Requires=docker-repository.mount
D. RequiresMountsFor=docker-repository.mount

Correct Answer: C
Section:
Explanation:
This option declares an explicit dependency between the Docker service and the docker-repository.mount unit. It means that the Docker service will not start unless the docker-repository.mount unit is successfully activated.This ensures that the volume is mounted before the Docker service tries to use it12.

QUESTION 177
Which of the following will prevent non-root SSH access to a Linux server?

A. Creating the /etc/nologin file
B. Creating the /etc/nologin.allow file containing only a single line root
C. Creating the /etc/nologin/login.deny file containing a single line +all
D. Ensuring that /etc/pam.d/sshd includes account sufficient pam_nologin.so

Correct Answer: A
Section:
Explanation:
This file prevents any non-root user from logging in to the system, regardless of the authentication method. The contents of the file are displayed to the user before the login is terminated.This can be useful for system maintenance or security reasons12.

QUESTION 178
A systems administrator is working on a security report from the Linux servers. Which of the following commands can the administrator use to display all the firewall rules applied to the Linux servers? (Select two).

A. ufw limit
B. iptables ---F
C. systemct1 status firewalld
D. firewall---cmd ------1ist---a11
E. ufw status
F. iptables ---A

Correct Answer: D, E
Section:
Explanation:
These commands can display all the firewall rules applied to the Linux servers, depending on which firewall service is being used.
The firewall-cmd command is a utility for managing firewalld, which is a dynamic firewall service that supports zones and services. The --list-all option will show all the settings and rules for the default zone, or for a specific zone if specified.For example, firewall-cmd --list-all --zone=public will show the rules for the public zone1.
The ufw command is a frontend for iptables, which is a low-level tool for manipulating netfilter, the Linux kernel's packet filtering framework. The status option will show the status of ufw and the active rules, or the numbered rules if verbose is specified.For example, ufw status verbose will show the numbered rules and other information2.
The other options are incorrect because:

A) ufw limit
This command will limit the connection attempts to a service or port using iptables' recent module.It does not display any firewall rules2.
B) iptables -F
This command will flush (delete) all the rules in the selected chain, or all chains if none is given.It does not display any firewall rules3.
C) systemctl status firewalld
This command will show the status of the firewalld service, including whether it is active or not, but it does not show the firewall rules4.
F) iptables -A
This command will append one or more rules to the end of the selected chain.It does not display any firewall rules3.

QUESTION 179
An administrator needs to make an application change via a script that must be run only in console mode. Which of the following best represents the sequence the administrator should execute to accomplish this task?

A. systemct1 isolate multi-user.target sh script.sh systemct1 isolate graphical.target
B. systemct1 isolate graphical.target sh script.sh systemct1 isolate multi-user.target
C. sh script.sh systemct1 isolate multi-user.target systemct1 isolate graphical.target
D. systemct1 isolate multi-user.target systemct1 isolate graphical.target sh script.sh

Correct Answer: A
Section:
Explanation:
The correct answer is A. systemctl isolate multi-user.target sh script.sh systemctl isolate graphical.target
This sequence will allow the administrator to switch from the graphical mode to the console mode, run the script, and then switch back to the graphical mode.
The systemctl command is used to control the systemd system and service manager, which manages the boot targets and services on Linux systems. The isolate subcommand starts the unit specified on the command line and its dependencies and stops all others. The multi-user.target is a boot target that provides a text-based console login, while the graphical.target is a boot target that provides a graphical user interface. By using systemctl isolate, the administrator can change the boot target on the fly without rebooting the system.
The sh command is used to run a shell script, which is a file that contains a series of commands that can be executed by the shell. The script.sh is the name of the script that contains the application change that the administrator needs to make. By running sh script.sh, the administrator can execute the script in the console mode.
The other options are incorrect because:
B) systemctl isolate graphical.target sh script.sh systemctl isolate multi-user.target
This sequence will switch from the console mode to the graphical mode, run the script, and then switch back to the console mode. This is not what the administrator wants to do, as the script must be run only in console mode.
C) sh script.sh systemctl isolate multi-user.target systemctl isolate graphical.target
This sequence will run the script in the current mode, which may or may not be console mode, and then switch to console mode and back to graphical mode. This is not what the administrator wants to do, as the script must be run only in console mode.
D) systemctl isolate multi-user.target systemctl isolate graphical.target sh script.sh
This sequence will switch from graphical mode to console mode and then back to graphical mode, without running the script at all. This is not what the administrator wants to do, as the script must be run only in console mode.
systemctl(1) - Linux manual page
How to switch between the CLI and GUI on a Linux server
How to PROPERLY boot into single user mode in RHEL/CentOS 7/8
Changing Systemd Boot Target in Linux
Exit Desktop to Terminal in Ubuntu 19.10

QUESTION 180
An administrator created an initial Git repository and uploaded the first files. The administrator sees the following when listing the repository:

```
__init__.py       Initial Commit    Just now
main.py           Initial Commit    Just now
.DS_STORE         Initial Commit    Just now
setup.sh          Initial Commit    Just now
README.md         Initial Commit    Just now
```

The administrator notices the file . DS STORE should not be included and deletes it from the online repository. Which of the following should the administrator run from the root of the local repository before the next commit to ensure the file is not uploaded again in future commits?

A. rm -f .DS STORE && git push
B. git fetch && git checkout .DS STORE
C. rm -f .DS STORE && git rebase origin main
D. echo .DS STORE >> .gitignore

Correct Answer: D
Section:
Explanation:
The correct answer is D. The administrator should run ''echo .DS STORE >> .gitignore'' from the root of the local repository before the next commit to ensure the file is not uploaded again in future commits.
This command will append the file name .DS STORE to the end of the .gitignore file, which is a special file that tells Git to ignore certain files or directories that should not be tracked or uploaded to the repository. By adding .DS STORE to the .gitignore file, the administrator will prevent Git from staging, committing, or pushing this file in the future.
The other options are incorrect because:
A) rm -f .DS STORE && git push
This command will delete the file .DS STORE from the local repository and then push the changes to the remote repository. However, this does not prevent the file from being uploaded again in future commits, if it is recreated or copied to the local repository.
B) git fetch && git checkout .DS STORE
This command will fetch the latest changes from the remote repository and then restore the file .DS STORE from the remote repository to the local repository. This is not what the administrator wants to do, as this will undo the deletion of the file from the online repository.
C) rm -f .DS STORE && git rebase origin main
This command will delete the file .DS STORE from the local repository and then rebase the local branch onto the main branch of the remote repository. This will rewrite the commit history of the local branch and may cause conflicts or errors. This is not what the administrator wants to do, as this is a risky and unnecessary operation.

QUESTION 181
Users are unable to create new files on the company's FTP server, and an administrator is troubleshooting the issue. The administrator runs the following commands:

```
# df -h /ftpusers/

Filesystem    Size     Used     Avail    Use%    Mounted on
/dev/sda4     150G     40G      109G     26%     /ftpusers

# df -i /ftpusers/

Filesystem    Inodes   Iused    Ifree    Iuse%   Mounted on
/dev/sda4     34567    34567    0        100%    /ftpusers
```

Which of the following is the cause of the issue based on the output above?

A. The users do not have the correct permissions to create files on the FTP server.
B. The ftpusers filesystem does not have enough space.
C. The inodes is at full capacity and would affect file creation for users.
D. ftpusers is mounted as read only.

Correct Answer: C
Section:
Explanation:
The cause of the issue based on the output above is C. The inodes is at full capacity and would affect file creation for users.
An inode is a data structure that stores information about a file or directory, such as its name, size, permissions, owner, timestamps, and location on the disk. Each file or directory has a unique inode number that identifies it. The number of inodes on a filesystem is fixed when the filesystem is created, and it determines how many files and directories can be created on that filesystem. If the inodes are exhausted, no new files or directories can be created, even if there is enough disk space available.
The output for the second command shows that the /ftpusers/ filesystem has 0% of inodes available, which means that all the inodes have been used up. This would prevent users from creating new files on the FTP server. The administrator should either delete some unused files or directories to free up some inodes, or resize the filesystem to increase the number of inodes.
The other options are incorrect because:
A) The users do not have the correct permissions to create files on the FTP server.
This is not true, because the output for the first command shows that the /ftpusers/ filesystem has 26% of disk space available, which means that there is enough space for users to create files. The permissions of the files and directories are not shown in the output, but they are not relevant to the issue of inode exhaustion.
B) The ftpusers filesystem does not have enough space.
This is not true, because the output for the first command shows that the /ftpusers/ filesystem has 26% of disk space available, which means that there is enough space for users to create files. The issue is not related to disk space, but to inode capacity.
D) ftpusers is mounted as read only.
This is not true, because the output for the first command does not show any indication that the /ftpusers/ filesystem is mounted as read only. If it was, it would have an (ro) flag next to the mounted on column. A read only filesystem would prevent users from creating or modifying files on the FTP server, but it would not affect the inode usage.

QUESTION 182
An administrator added the port 2222 for the SSH server on myhost and restarted the SSH server. The administrator noticed issues during the startup of the service. Given the following outputs:

```
$ ssh -p 2222 myhost
ssh:connect to host myhost on port 2222: Connection refused

$ nmap -p 2222 myhost
Starting Nmap 7.70 ( https://nmap.org ) at 2022-10-17 21:12 EEST
Nmap scan report for myhost (10.7.3.26)
Host is up (0.00027s latency).
rDNS record for 10.7.3.26: myhost
 PORT     STATE  SERVICE
2222/tcp closed EtherNetIP-1
MAC Address: 52:54:00:F5:DF:F8 (QEMU virtual NIC)
 Nmap done: 1 IP address (1 host up) scanned in 0.57 seconds

$ systemctl status sshd
     • sshd.service - OpenSSH server daemon
   Loaded: loaded (/usr/lib/systemd/system/sshd.service; enabled; vendor preset: enabled)
   Active: active (running) since Mon 2022-10-17 19:40:07 CEST; 36min ago
     Docs: man:sshd(8)
           man:sshd_config(5)
 Main PID: 13186 (sshd)
    Tasks: 1 (limit: 12373)
   Memory: 1.1M
   CGroup: /system.slice/sshd.service
           └─13186 /usr/sbin/sshd -D -oCiphers=aes256-gcm@openssh.com

 Oct 17 19:40:07 myhost systemd[1]: Starting OpenSSH server daemon...
 Oct 17 19:40:07 myhost sshd[13186]: error: Bind to port 2222 on 0.0.0.0 failed: Permission denied.
 Oct 17 19:40:07 myhost systemd[1]: Started OpenSSH server daemon.
 Oct 17 19:40:07 myhost sshd[13186]: Server listening on 0.0.0.0 port 22.
```

Which of the following commands will fix the issue?

A. semanage port -a -t ssh_port_t -p tcp 2222
B. chcon system_u:object_r:ssh_home_t /etc/ssh/*
C. iptables -A INPUT -p tcp -- dport 2222 -j ACCEPT
D. firewall-cmd -- zone=public -- add-port=2222/tcp

Correct Answer: A
Section:
Explanation:
The correct answer is

A) semanage port -a -t ssh_port_t -p tcp 2222
This command will allow the SSH server to bind to port 2222 by adding it to the SELinux policy. The semanage command is a utility for managing SELinux policies. The port subcommand is used to manage network port definitions. The -a option is used to add a new record, the -t option is used to specify the SELinux type, the -p option is used to specify the protocol, and the tcp 2222 argument is used to specify the port number. The ssh_port_t type is the default type for SSH ports in SELinux.
The other options are incorrect because:
B) chcon system_u:object_r:ssh_home_t /etc/ssh/*
This command will change the SELinux context of all files under /etc/ssh/ to system_u:object_r:ssh_home_t, which is not correct. The ssh_home_t type is used for user home directories that are accessed by SSH, not for SSH configuration files. The correct type for SSH configuration files is sshd_config_t.
C) iptables -A INPUT -p tcp --dport 2222 -j ACCEPT
This command will add a rule to the iptables firewall to accept incoming TCP connections on port 2222. However, this is not enough to fix the issue, as SELinux will still block the SSH server from binding to that port. Moreover, iptables may not be the default firewall service on some Linux distributions, such as Fedora or CentOS, which use firewalld instead.
D) firewall-cmd --zone=public --add-port=2222/tcp
This command will add a rule to the firewalld firewall to allow incoming TCP connections on port 2222 in the public zone. However, this is not enough to fix the issue, as SELinux will still block the SSH server from binding to that port. Moreover, firewalld may not be installed or enabled on some Linux distributions, such as Ubuntu or Debian, which use iptables instead.
How to configure SSH to use a non-standard port with SELinux set to enforcing
Change SSH Port on CentOS/RHEL/Fedora With SELinux Enforcing
How to change SSH port when SELinux policy is enabled

QUESTION 183
After starting an Apache web server, the administrator receives the following error:
Apr 23 localhost.localdomain httpd 4618] : (98) Address already in use: AH00072: make_sock: could not bind to address [: :]80
Which of the following commands should the administrator use to further trou-bleshoot this issue?

A. Ss
B. Ip
C. Dig
D. Nc

Correct Answer: A
Section:
Explanation:
The ss command is used to display information about socket connections, such as the port number, state, and process ID. The error message indicates that the port 80 is already in use by another process, which prevents the Apache web server from binding to it. By using the ss command with the -l and -n options, the administrator can list all the listening sockets and their port numbers in numeric form, and identify which process is using the port 80. For example:ss -ln | grep :80. The ip, dig, and nc commands are not relevant for this issue, as they are used for different purposes, such as configuring network interfaces, querying DNS records, and testing network connectivity.

QUESTION 184
A systems administrator detected corruption in the /data filesystem. Given the following output:

root@localhost ~]# lsblk -f

NAME	FSTYPE	LABEL/UUID	MOUNTPOINT
sda			
├─sda1	vfat	4E7D-9539	/boot/efi
├─sda2	xfs	98442caf-473d-448e-aee5-561a82297314	/boot
├─sda3	swap	19f064e4-7c51-4b02-8219-99362a3c45ec	[SWAP]
├─sda4	xfs	25d96ada-4289-4def-9202-6ab11affbed3	/
├─sda5	xfs	61435ee9-855d-4de9-9c67-39aeb7f3edb5	/home
sdc			
├─sdc1	ext4	92435ff9-745e-4fg9-9c67-39aeb7f3exf5	/data

Which of the following commands can the administrator use to best address this issue?

A. umount /data mkfs . xfs /dev/sclcl mount /data
B. umount /data xfs repair /dev/ sdcl mount /data
C. umount /data fsck /dev/ sdcl mount / data
D. umount /data pvs /dev/sdcl mount /data

Correct Answer: B
Section:
Explanation:
The xfs repair command is used to check and repair an XFS filesystem, which is the type of filesystem used for the /data partition, as shown in the output. The administrator needs to unmount the /data partition before running the xfs repair command on it, and then mount it back after the repair is done. For example:umount /data; xfs_repair /dev/sdcl; mount /data. The mkfs.xfs command is used to create a new XFS filesystem, which would erase all the data on the partition. The fsck command is used to check and repair other types of filesystems, such as ext4, but not XFS. The pvs command is used to display information about physical volumes in a logical volume manager (LVM) setup, which is not relevant for this issue.

QUESTION 185
A Linux administrator is configuring a two-node cluster and needs to be able to connect the nodes to each other using SSH keys from the root account. Which of the following commands will accomplish this task?

A. [root@nodea ssh ---i ~/ . ssh/d rsa root@nodeb
B. [root@nodea scp -i . ssh/id rsa root@nodeb
C. [root@nodea ssh---copy-id ---i .ssh/id rsa root@nodeb

D. [root@nodea # ssh add -c ~/ . ssh/id rsa root@nodeb
E. [root@nodea # ssh add -c ~/. ssh/id rsa root@nodeb

Correct Answer: C
Section:
Explanation:
The ssh-copy-id command is used to copy a public SSH key from a local machine to a remote server and add it to the authorized_keys file, which allows passwordless authentication between the machines. The administrator can use this command to copy the root user's public key from nodea to nodeb, and vice versa, to enable SSH access between the nodes without entering a password every time. For example:[root@nodea ssh-copy-id -i ~/.ssh/id_rsa root@nodeb]. The ssh command is used to initiate an SSH connection to a remote server, but it does not copy any keys. The scp command is used to copy files securely between machines using SSH, but it does not add any keys to the authorized_keys file. The ssh-add command is used to add private keys to the SSH agent, which manages them for SSH authentication, but it does not copy any keys to a remote server.

QUESTION 186
An administrator attempts to connect to a remote server by running the following command:
$ nmap 192.168.10.36
Starting Nmap 7.60 (https://nmap.org) at 2022-03-29 20:20 UTC
Nmap scan report for www1 (192.168.10.36)
Host is up (0.000091s latency).
Not shown: 979 closed ports
PORT STATE SERVICE
21/tcp open ftp
22/tcp filtered ssh
631/tcp open ipp
Nmap done: 1 IP address (1 host up) scanned in 0.06 seconds
Which of the following can be said about the remote server?

A. A firewall is blocking access to the SSH server.
B. The SSH server is not running on the remote server.
C. The remote SSH server is using SSH protocol version 1.
D. The SSH host key on the remote server has expired.

Correct Answer: A
Section:
Explanation:
This is because the port 22/tcp is shown as filtered by nmap, which means that nmap cannot determine whether the port is open or closed because a firewall or other device is blocking its probes. If the SSH server was not running on the remote server, the port would be shown as closed, which means that nmap received a TCP RST packet in response to its probe. If the remote SSH server was using SSH protocol version 1, the port would be shown as open, which means that nmap received a TCP SYN/ACK packet in response to its probe. If the SSH host key on the remote server had expired, the port would also be shown as open, but the SSH client would display a warning message about the host key verification failure. Therefore, the best explanation for the filtered state of the port 22/tcp is that a firewall is preventing nmap from reaching the SSH server.
You can find more information about nmap port states and how to interpret them in the following web search results:
Nmap scan what does STATE=filtered mean?
How to find ports marked as filtered by nmap
Technical Tip: NMAP scan shows ports as filtered

QUESTION 187
A systems administrator notices the process list on a mission-critical server has a large number of processes that are in state 'Z' and marked as 'defunct.' Which of the following should the administrator do in an attempt to safely remove these entries from the process list?

A. Kill the process with PID 1.
B. Kill the PID of the processes.

C. Kill the parent PID of the processes.
D. Reboot the server.

Correct Answer: C
Section:
Explanation:
As the web search results show, processes in state Z are defunct or zombie processes, which means they have terminated but their parent process has not reaped them properly. They do not consume any resources, but they occupy a slot in the process table. To remove them from the process list, the administrator needs to kill the parent process of the zombies, which will cause them to be reaped by the init process (PID 1). Killing the zombies themselves or the init process will not have any effect, as they are already dead. Rebooting the server may work, but it is not a safe or efficient option, as it may cause unnecessary downtime or data loss for a mission-critical server.
Reference
Processes in a Zombie (Z) or Defunct State | Support | SUSE, paragraph 3
linux - Zombie vs Defunct processes? - Stack Overflow, answer by admirableadmin
How To Kill Zombie Processes on Linux | Linux Journal, paragraph 4

QUESTION 188
A Linux administrator found many containers in an exited state. Which of the following commands will allow the administrator to clean up the containers in an exited state?

A. docker rm -- all
B. docker rm $ (docker ps -aq)
C. docker images prune *
D. docker rm -- state exited

Correct Answer: B
Section:
Explanation:
This command will remove all containers, regardless of their state, by passing the IDs of all containers to the docker rm command. The docker ps -aq command will list the IDs of all containers, including the ones in an exited state, and the $ ( ) syntax will substitute the output of the command as an argument for the docker rm command. This is a quick and easy way to clean up all containers, but it may also remove containers that are still needed or running.
Reference
docker rm | Docker Docs - Docker Documentation, section ''Remove all containers''
Docker Remove Exited Containers | Easy methods. - Bobcares, section ''For removing all exited containers''

QUESTION 189
Which of the following is the best tool for dynamic tuning of kernel parameters?

A. tuned
B. tune2fs
C. tuned-adm
D. turbostat

Correct Answer: A
Section:
Explanation:
The tuned application is the best tool for dynamic tuning of kernel parameters, as it monitors the system and optimizes the performance under different workloads. It provides a number of predefined profiles for typical use cases, such as power saving, low latency, high throughput, virtual machine performance, and so on. It also allows users to create, modify, and delete profiles, and to switch between them on the fly. The tuned application uses the sysctl command and the configuration files in the /etc/sysctl.d/ directory to adjust the kernel parameters at runtime.
Reference

Chapter 2. Getting started with TuneD - Red Hat Customer Portal, paragraph 1
Kernel tuning with sysctl - Linux.com, paragraph 1

QUESTION 190
Users are reporting that writes on a system configured with SSD drives have been taking longer than expected, but reads do not seem to be affected. A Linux systems administrator is investigating this issue and working on a solution. Which of the following should the administrator do to help solve the issue?

A. Run the corresponding command to trim the SSD drives.
B. Use fsck on the filesystem hosted on the SSD drives.
C. Migrate to high-density SSD drives for increased performance.
D. Reduce the amount of files on the SSD drives.

Correct Answer: A
Section:
Explanation:
TRIM is a feature that allows the operating system to inform the SSD which blocks of data are no longer in use and can be wiped internally.This helps to maintain the SSD's performance and endurance by preventing unnecessary write operations and reducing write amplification12.Running the corresponding command to trim the SSD drives, such asfstrimorblkdiscardon Linux, can help to solve the issue of slow writes by freeing up space and optimizing the SSD's internal garbage collection34.

QUESTION 191
The development team created a new branch with code changes that a Linux administrator needs to pull from the remote repository. When the administrator looks for the branch in Git, the branch in question is not visible. Which of the following commands should the Linux administrator run to refresh the branch information?

A. git fetch
B. git checkout
C. git clone
D. git branch

Correct Answer: A
Section:
Explanation:
The git fetch command downloads commits, files, and refs from a remote repository into the local one. It also updates the remote-tracking branches, which are references to the state of the remote branches.By running git fetch, the administrator can see the new branch created by the development team and then use git checkout to switch to it12.

QUESTION 192
A file called testfile has both uppercase and lowercase letters:
$ cat testfile
ABCDEfgH
IJKLmnoPQ
abcdefgH
ijklLMNopq
A Linux administrator is tasked with converting testfile into all uppercase and writing it to a new file with the name uppercase. Which of the following commands will achieve this task?

A. tr '(A-Z}' '{a-z}' < testfile > uppercase
B. echo testfile | tr '[Z-A]' '[z-a]' < testfile > uppercase
C. cat testfile | tr '{z-a)' '{Z-A}' < testfile > uppercase
D. tr '[a-z]' '[A-Z]' < testfile > uppercase

Correct Answer: D
Section:
Explanation:
This command will use the tr tool to translate all lowercase letters in the testfile to uppercase letters and write the output to the uppercase file. The first argument '[a-z]' specifies the set of characters to be replaced, and the second argument '[A-Z]' specifies the set of characters to replace with.The '<' symbol redirects the input from the testfile, and the '>' symbol redirects the output to the uppercase file12.

QUESTION 193
A Linux administrator is troubleshooting a systemd mount unit file that is not working correctly. The file contains:
[root@system] # cat mydocs.mount
[Unit]
Description=Mount point for My Documents drive
[Mount]
What=/dev/drv/disk/by-uuid/94afc9b2-ac34-ccff-88ae-297ab3c7ff34
Where=/home/user1/My Documents
Options=defaults
Type=xfs
[Install]
WantedBy=multi-user.target
The administrator verifies the drive UUID correct, and user1 confirms the drive should be mounted as My Documents in the home directory. Which of the following can the administrator do to fix the issues with mounting the drive? (Select two).

A. Rename the mount file to home-user1-My\x20Documents.mount.
B. Rename the mount file to home-user1-my-documents.mount.
C. Change the What entry to /dev/drv/disk/by-uuid/94afc9b2\-ac34\-ccff\-88ae\-297ab3c7ff34.
D. Change the Where entry to Where=/home/user1/my\ documents.
E. Change the Where entry to Where=/home/user1/My\x20Documents.
F. Add quotes to the What and Where entries, such as What='/dev/drv/disk/by-uuid/94afc9b2-ac34-ccff-88ae-297ab3c7ff34' and Where='/home/user1/My Documents'.

Correct Answer: A, E
Section:
Explanation:
The mount unit file name and the Where entry must be escaped to handle spaces in the path. Reference The mount unit file name must be named after the mount point directory, with spaces replaced by\x20. SeeHow to escape spaces in systemd unit files?andsystemd.mount. The Where entry must use\x20to escape spaces in the path. Seesystemd.mountandThe workaround is to use /usr/bin/env followed by the path in quotes..

QUESTION 194
Following the migration from a disaster recovery site, a systems administrator wants a server to require a user to change credentials at initial login. Which of the following commands should be used to ensure the aging attribute?

A. chage -d 2 user
B. chage -d 0 user
C. chage -E 0 user
D. chage -d 1 user

Correct Answer: B
Section:
Explanation:
The chage command can be used to change the user password expiry information. The -d or --lastday option sets the last password change date. If the value is 0, the user will be forced to change the password at the next login. Seechage command in Linux with examplesand10 chage command examples in Linux.

QUESTION 195
A systems administrator needs to remove a disk from a Linux server. The disk size is 500G, and it is the only one that size on that machine. Which of the following commands can the administrator use to find the corresponding device name?

A. fdisk -V
B. partprobe -a
C. lsusb -t
D. lsscsi -s

Correct Answer: D
Section:
Explanation:
The lsscsi command can list the SCSI devices on the system, along with their size and device name. The -s option shows the size of each device. The administrator can look for the device that has a size of 500G and note its device name. Seelsscsi(8) - Linux man pageandHow to check Disk Interface Types in Linux. Reference 1: https://linux.die.net/man/8/lsscsi 2: https://www.golinuxcloud.com/check-disk-type-linux/

QUESTION 196
A Linux user is trying to execute commands with sudo but is receiving the following error:
$ sudo visudo
>>> /etc/sudoers: syntax error near line 28 <<<
sudo: parse error in /etc/sudoers near line 28
sudo: no valid sudoers sources found, quitting
The following output is provided:
grep root /etc/shadow
root :* LOCK *: 14600 ::::::
Which of the following actions will resolve this issue?

A. Log in directly using the root account and comment out line 28 from /etc/sudoers.
B. Boot the system in single user mode and comment out line 28 from /etc/sudoers.
C. Comment out line 28 from /etc/sudoers and try to use sudo again.
D. Log in to the system using the other regular user, switch to root, and comment out line 28 from /etc/sudoers.

Correct Answer: B
Section:

QUESTION 197
A systems administrator is gathering information about a file type and the contents of a file. Which of the following commands should the administrator use to accomplish this task?

A. file filename
B. touch filename
C. grep filename
D. lsof filename

Correct Answer: A
Section:
Explanation:
The file command is used to determine the type of a file by examining its contents. It can recognize many different formats, such as text, binary, executable, compressed, image, audio, video, etc.It can also display some additional information about the file, such as encoding, size, dimensions, etc12

QUESTION 198
Due to performance issues on a server, a Linux administrator needs to termi-nate an unresponsive process. Which of the following commands should the administrator use to terminate the process immediately without waiting for a graceful shutdown?

A. kill -SIGKILL 5545
B. kill -SIGTERM 5545
C. kill -SIGHUP 5545
D. kill -SIGINT 5545

Correct Answer: A
Section:
Explanation:
To terminate an unresponsive process immediately without waiting for a graceful shutdown, the administrator can use the commandkill -SIGKILL 5545(A). This will send a signal to the process with the PID 5545 that cannot be ignored or handled by the process, and force it to stop. The other commands will send different signals that may allow the process to perform some cleanup or termination actions, or may be ignored by the process.Reference:
[CompTIA Linux+ Study Guide], Chapter 6: Managing Processes, Section: Killing Processes
[How to Kill Processes in Linux]

QUESTION 199
A systems administrator intends to use a UI-JID to mount a new partition per-manently on a Linux system. Which of the following commands can the adminis-trator run to obtain information about the UUIDs of all disks attached to a Linux system?

A. fcstat
B. blkid
C. dmsetup
D. Isscsi

Correct Answer: B
Section:
Explanation:
To obtain information about the UUIDs of all disks attached to a Linux system, the administrator can run the commandblkid(B). This will display the block device attributes, including the UUID, label, type, and partition information. The other commands are not related to this task.Reference:
[CompTIA Linux+ Study Guide], Chapter 5: Managing Filesystems and Logical Volumes, Section: Identifying Disks by UUID
[How to Use blkid Command in Linux]

QUESTION 200
A systems administrator creates a public key for authentication. Which of the following tools is most suitable to use when uploading the key to the remote servers?

A. scp
B. ssh-copy-id
C. ssh-agent
D. ssh-keyscan

Correct Answer: B
Section:
Explanation:
The best tool to use when uploading the public key to the remote servers is B. ssh-copy-id. This tool will copy the public key from the local computer to the remote server and append it to the authorized_keys file, which is used for public key authentication. This tool will also create the necessary directories and files on the remote server if they do not exist. The other tools are either not suitable or not relevant for this task. For example:

A) scp is a tool for securely copying files between hosts, but it does not automatically add the public key to the authorized_keys file.
C) ssh-agent is a tool for managing private keys and passphrases, but it does not upload the public key to the remote server.
D) ssh-keyscan is a tool for collecting public keys from remote hosts, but it does not upload the public key to the remote server.

QUESTION 201
The application team has reported latency issues that are causing the application to crash on the Linux server. The Linux administrator starts troubleshooting and receives the following output:

```
# netstat -s
15762 packets pruned from receive queue because of socket buffer over
690 times the listen queue of a socket overflowed
690 SYNs to LISTEN sockets ignored
2150128 packets collapsed in receive queue due to low socket buffer
TCPBacklogDrop: 844165

# ethtool -S eth0
rx_fw_discards: 4487
```

Which of the following commands will improve the latency issue?

A. # echo 'net.core.net_backlog = 5000000' >> /etc/sysctl.conf # sysctl -p # systemctl daemon-reload
B. # ifdown eth0 # ip link set dev eth0 mtu 800 # ifup eth0
C. # systemctl stop network # ethtool -g eth0 512 # systemctl start network
D. # echo 'net.core.rmem max = 12500000' >> /etc/sysctl.conf # echo 'net.core.wmem_max = 12500000' >> /etc/sysctl.conf # sysctl -p

Correct Answer: D
Section:
Explanation:
The best command to use to improve the latency issue is D. # echo 'net.core.rmem max = 12500000' >> /etc/sysctl.conf # echo 'net.core.wmem_max = 12500000' >> /etc/sysctl.conf # sysctl -p. This command will increase the size of the receive and send buffers for the network interface, which can improve the network performance and reduce packet loss. The sysctl command will apply the changes to the kernel parameters without rebooting the system.
The other commands are either incorrect or not suitable for this task. For example:
A) # echo 'net.core.net_backlog = 5000000' >> /etc/sysctl.conf # sysctl -p # systemctl daemon-reload will try to increase the backlog queue for incoming connections, but this is not relevant for the latency issue. The systemctl daemon-reload command is also unnecessary, as it only reloads the systemd configuration files, not the kernel parameters.
B) # ifdown eth0 # ip link set dev eth0 mtu 800 # ifup eth0 will try to change the maximum transmission unit (MTU) of the network interface to 800 bytes, but this is too low and may cause fragmentation and performance degradation. The default MTU for Ethernet is 1500 bytes, and it should not be changed unless there is a specific reason.
C) # systemctl stop network # ethtool -g eth0 512 # systemctl start network will try to change the ring buffer size of the network interface to 512, but this is too small and may cause packet drops and latency spikes. The default ring buffer size for Ethernet is usually 4096 or higher, and it should be increased if there is a high network traffic.

QUESTION 202
An administrator runs ping comptia.org. The result of the command is:
ping: comptia.org: Name or service not known
Which of the following files should the administrator verify?

A. /etc/ethers
B. /etc/services
C. /etc/resolv.conf
D. /etc/sysctl.conf

Correct Answer: C
Section:
Explanation:
The best file to verify when the ping command returns the error ''Name or service not known'' is C. /etc/resolv.conf. This file contains the configuration for the DNS resolver, which is responsible for translating domain names into IP addresses. If this file is missing, corrupted, or has incorrect entries, the ping command will not be able to resolve the domain name and will fail with the error. To fix this issue, the administrator should check that the file exists, has proper permissions, and has valid nameserver entries. For example, a typical /etc/resolv.conf file may look like this:
nameserver 8.8.8.8nameserver 8.8.4.4
These are the IP addresses of Google's public DNS servers, which can be used as a fallback option if the default DNS servers are not working.

QUESTION 203
A Linux administrator is creating a user that can run the FTP service but cannot log in to the system. The administrator sets /bin/false as a login shell for the user. When the user tries to run the FTP service, it is rejected with an 'invalid shell: /bin/false' message. Which of the following is the best way to resolve the issue?

A. Change ownership of /bin/false to the FTP user
B. Add /bin/false entry to the /etc/shells file
C. Make /bin/false an executable file
D. Change the user's default shell to /bin/bash

Correct Answer: B
Section:
Explanation:
The /etc/shells file contains a list of valid login shells. Since /bin/false is not listed as a valid shell, adding it to the /etc/shells file will resolve the issue and allow the user to run the FTP service without being able to log into the system interactively.

QUESTION 204
A Linux administrator needs to harden a system and guarantee that the Postfix service will not run, even after a restart or system upgrade. Which of the following commands allows the administrator to fulfill the requirement?

A. systemctl mask postfix.service
B. systemctl disable postfix.service
C. systemctl stop postfix.service
D. systemctl -n restart postfix.service

Correct Answer: A
Section:
Explanation:
The systemctl mask postfix.service command prevents the Postfix service from being started manually or automatically by symlinking its service file to /dev/null. This ensures that even if a system restart or upgrade occurs, the service will remain disabled and will not start.

QUESTION 205
A Linux systems administrator needs to add additional code to code that resides within a repository without changing the original code. Once completed, the additional code will be merged into the main branch. Which of the following commands should the administrator use first?

A. git push
B. git rebase
C. git tag
D. git clone

Correct Answer: B

Section:

QUESTION 206
A systems administrator is reviewing the following output on the text editor that is being used to update the company's internal database records:

```
{
        "Company Name; {
        "Address"; "street",
        "City"; "State"
}
```

Which of the following extensions should the systems administrator use when saving the file?

A. .json
B. .yaml
C. .tf
D. .sh

Correct Answer: B
Section:

QUESTION 207
A systems administrator is receiving complaints about slow performance and system crashes. The administrator suspects memory and CPU issues. Which of the following is the first action the administrator should take to troubleshoot and resolve these issues?

A. Run resource monitoring tools like top or htop to view the current CPU and memory use.
B. Look through the system logs and error messages to find any faults involving the CPU and memory.
C. Remove and replace the CPU and memory components to address hardware issues.
D. Reboot the server to clear any CPU and memory congestion.

Correct Answer: A
Section:
Explanation:
The initial troubleshooting step when experiencing slow performance and potential memory or CPU issues is to analyze the current resource usage. Running tools like top or htop allows the administrator to observe real-time data on CPU, memory, and processes, providing insights into high resource usage. This is a non-invasive first step, helping to identify whether issues are due to overuse, application memory leaks, or specific processes. CompTIA Linux+ recommends understanding system resource behavior before taking further action.
Reference: CompTIA Linux+ Study Guide.