Practice Test 5 RHCSA (EX200)

Question 1

1. Assume that you forget the root password. Reset the root password for ServerB. Change it to “mypass” to gain access to the system.
   - `e`
   - `rd.break`
   - Ctrl + X
   - `mount -o remount rw /sysroot`
   - `chroot /sysroot`
   - `passwd root`
   - `touch /.autorelabel`
   - `exit`
   - `reboot`

Question 2

2. On ServerB, set up a Local DNF repository using “/RHEL9.iso” image mounted on the “/mnt/disc/” directory.
   - `mkdir -p /mnt/disk`
   - `mount /dev/sr0 /mnt/disk`
   - `ls -l /mnt/disk`
   - `cd /etc/yum.repos.d`
   - `ls`
   - `cat redhat.repo`
   - `vi localiso.repo`

File editor:

```
[BaseOS]
name=BaseOS Packages Red Hat Enterprise Linux 9
metadata_expire=-1
gpgcheck=1
enabled=1
baseurl=file:///mnt/disc/BaseOS/
gpgkey=file:///etc/pki/rpm-gpg/RPM-GPG-KEY-redhat-release

[AppStream]
name=AppStream Packages Red Hat Enterprise Linux 9
metadata_expire=-1
gpgcheck=1
enabled=1
baseurl=file:///mnt/disc/AppStream/
gpgkey=file:///etc/pki/rpm-gpg/RPM-GPG-KEY-redhat-release
```

- - `dnf clean all`
  - `dnf repolist`

- `dnf install nfs-utils`

Question 3

3. On ServerB, create a NetworkManager connection profile named "myprofile5" for the enp0s3 device with the following settings statically:
   - Static IPv4 Address: 192.168.1.6/24
   - Static IPv6 Address: fd01::105/64
   - IPv4 default gateway: 192.168.1.1
   - IPv6 default gateway: fd01::100
   - IPv4 DNS servers: 8.8.4.4
   - IPv6 DNS server: fd01::111
   - DNS search domain: google.com
   - `nmtuii`
     - Edit a coonection > Add
     - Activate a connection > myprofile5
     - OK
   - `nmcli connection modify myprofile5 ipv4.addresses 192.168.1.6/24`
   - `nmcli connection modify myprofile5 ipv4.method manual`
   - `nmcli connection modify myprofile5 ipv6.addresses fd01::105/64`
   - `nmcli connection modify myprofile5 ipv6.method manual`
   - `nmcli connection modify myprofile5 ipv4.gateway 192.168.1.1`
   - `` `nmcli connection modify myprofile5 ipv6.gateway fd01::100 ``
   - `nmcli connection modify myprofile5 ipv4.dns 8.8.4.4`
   - `nmcli connection modify myprofile5 ipv6.dns fd01::111`
   - `vi /etc/resolv.conf`
     - Add the line: `search google.com`
   - `nmcli connection down myprofile5 && nmcli connection up myprofile5`

Question 4

4. On ServerB, add the following secondary IPV4 address statically to your current running interface. Do this in a way that avoids compromising your existing settings:
   - IPV4 – 10.0.0.6/24
   - `nmlci connection modify myporfile5 +ipv4.addresses 10.0.0.6/24`
   - `nmcli connection down myprofile5 && nmcli connection up myprofile5`

Question 5

5. On ServerB, add the following secondary IPV6 address statically to your current running interface. Do this in a way that avoids compromising your existing settings:
   - IPV6 – fd01::125/64
   - `nmlci connection modify myporfile5 +ipv6.addresses fd01::125/64`
   - `nmcli connection down myprofile5 && nmcli connection up myprofile5`

Question 6

6. Enable IPV4 packet forwarding on ServerB. This should persist after a reboot.
    - `sysctl net.ipv4.ip_forward`
    - `vi /etc/sysctl.conf`
        - Add the line: `net.ipv4.ip_forward = 1`
    - `sysctl -p`

Question 7

7. Enable IPV6 packet forwarding on ServerB. This should persist after a reboot.
    - `sysctl nte.ipv6.conf.all.forwarding`
    - `vi /etc/sysctl.conf`
        - Add the line: `net.ipv6.conf.all.forwarding = 1`
    - `sysctl -p`

Question 8

8. On ServerB, set the system time to the “America/Los_Angeles” timezone.
    - `timedatectl`
    - `timedatectl set-timezone "America/Los_Angeles"`
    - `timedatectl`

Question 9

9. On ServerB, ensure NTP sync is configured.
    - `systemctl status chronyd`
    - `vi /etc/chrony.conf`
        - Add the line: `server 8.8.8.8`
    - `timedatectl set-ntp true`
    - `chronyc`
        - `sources`

Question 10

10. On ServerB, install the appropriate kernel update. The following criteria must also be met:
    - The updated kernel is the default kernel when the system is rebooted.
    - The original kernel remains available and bootable on the system.
    - `dnf update -y`
    - `dnf update kernel -y`
    - `reboot`

Question 11

11. ServerB should boot into the “multi-user.target” by default.
    - `systemctl set-default multi-user.target`
    - `reboot`

Question 12

12. On ServerB, create a user harry whose UID is 5000, and he doesn't have access to any interactive shell on the system.
    - `useradd -u 5000 -s /sbin/nologin harry`
    - `id harry`
    - `su - harry`

Question 13

13. On ServerB, configure the system to run in a virtual machine general non-specialized tuned profile.
    - `systemctl enable tuned --now`
    - `tuned-adm active`
    - `tuned-adm profile`
    - `tuned-adm profile virtual-guest balanced`
    - `tuned-adm active`

Question 14

14. On ServerB, configure Apache to serve a basic website that shows the text "Hello Guys!"
    - `dnf install httpd -y`
    - `systemctl enable httpd --now`
    - `firewall-cmd --list-all`
    - `firewall-cmd --add-service=http --permanent`
    - `firewall-cmd --reload`
    - `vi /var/www/html/index.html`
        - Add the line: `"Hello Guys!"`
    - `curl localhost`

Question 15

15. On ServerB, find all files that are larger than 5MB in the “/etc” directory and copy them to “/find/5mfiles”.
    - `mkdir -p /find/5mfiles`
    - `find /etc -type f -size +5M -exec cp {} /find/5mfiles/ \;`
    - `ls -lh /find/5,files`

Question 16

16. On ServerB, write a shell script “sum.sh” in the root directory that takes an unspecified number of command-line arguments of ints and finds their sum. To add a number to the sum it must be greater than 0.
    - `vi /sum.sh`

File editor:

```
#!/bin/bash
sum=0
for num in $@
do
        if [ $num -gt 0 ]
        then
                (( sum = $sum + $num ))
        fi
done
echo The sum of the entered numbers is $sum
```

Question 17

17. On ServerB, do the following:
    1. Create users James, Benjamin, Lucas, and Mason.
       - James and Benjamin are members of the Innovation group.
       - Lucas and Mason are members of the Solution group.
    2. Create shared group directories /groups/Innovation and /groups/Solution
    3. Make the Innovation group the owner group of the /groups/Innovation directory, and the Solution group the owner group of the /groups/Solution directory.
    4. Grant the groups that own the Innovation and Solution directories full access to these directories.
    5. Others don't have access to the Innovation and Solution directories.
    6. New files created in Innovation and Solution directories belong to the group of which the directory is a member.
    7. Members of the Solution group have read and execute permissions on the /groups/Innovation directory and all of its sub-directories and files.

- `useradd James && useradd Benjamin && useradd Lucas && useradd Mason`
- `groupadd Innovation && groupadd Solution`
- `usermod -aG Innovation James && usermod -aG Innovation Benjamin`
- `usermod -aG Solution Lucas && usermod -aG Solution Mason`
- `mkdir -p /groups/Innovation`
- `mkdir -p /groups/Solution`
- `chgrp Innovation /groups/Innovation`
- `chgrp Solution /groups/Solution`
- `chmod g+rwx /groups/Innovation && chmod g+rwx /groups/Solution`
- `chmod o-x /groups/Innovation && chmod o-x /groups/Solution`
- `chmod g+s /groups/Innovation && chmod g+s /groups/Solution`
- `setfacl -Rm g:Solution:r-x /groups/Innovation`
- `getfacl /groups/Innovation`

Question 18

18. On ServerB, use /dev/sdb to create an LVM Partition with 50 extents and 1extent=16MiB.

- `fdisk /dev/sdb`
  - `p` `n` `p` `1` `Enter` `Enter` `p` `l` `t` `1` `8e` `p` `w`
- `pvcreate /dev/sdb1`
- `vgcreate -s 16M testvg /dev/sdb1`
- `lvcreate -l 50 -n testlv testvg`

- `lvs`

Question 19

19. On ServerB, as root, create a cron job that deletes empty files and directories from the “/tmp” directory at 4:15 pm daily.
    - `crontab -e`
        - Add the line `15 4 * * * -type f,d find /etc -empty -delete`

Question 20

20. On ServerB, create a “myhome.tgz” file of the /home directory in the “/Backup/” directory. Exclude the file type of pdf while creating the compressed tar file.
    - `mkdir /Backup`
    - `cd /Backup`
    - `tar --exculde='*.pdf' -zcvf myhome.tgz /home`

Question 21

21. On ServerB, use /dev/sdb to create a 2G partition, and make it an ext4 file system mounted automatically at boot-start under “/mnt/drive/”.
    - `fdisk /dev/sdb`
        - `p` `n` `p` `2` `Enter` `+2G` `p` `w`
    - `lsblk`
    - `mkfs.ext4 /dev/sdb2`
    - `mkdir -p /mnt/drive`
    - `mount /dev/sdb2 /mnt/drive`
    - `blkid`
    - `vi /etc/fstab`
        - Add the line: `/dev/sdb2 /mnt/drive ext4 defaults 0 0`
    - `mount -a`

Question 22

22. On ServerB, use /dev/sdb to create a new 1G swap partition which takes effect automatically at boot start.
    - `free -h`
    - `lsblk`
    - `fdisk /dev/sdb`
        - `p` `n` `p` `3` `Enter` `+1G` `p` `l` `t` `82` `p` `w`
    - `lsblk`
    - `mkswap /dev/sdb3`
    - `blkid`
    - `vi /etc/fstab`
        - Add the line: `/dev/sdb3 swap swap defaults 0 0`
    - `mount -a`
    - `swapon /dev/sdb3`

- `free -h`
- `reboot`

Question 23

23. Set up a passwordless SSH login for user john from ServerB to ServerA.
    - `ssh-keygen`
    - `ssh-copy-id john@192.168.1.6` // Make sure password authentication is enabled or commented in the `/etc/ssh/sshd_config` file. Also allow the firewall to use ssh service

Question 24

24. Disable user SSH password-less connection requests on ServerB.
    - `vi /etc/ssh/sshd_config`
        - Uncomment and change line to: `PubkeyAuthentication no`
        - Uncomment and change line to: `PermitEmptyPasswords no`
    - `systemctl restart sshd`

Question 25

25. Change ServerB hostname to rhel.server.com and make it persistent.
    - `vi /etc/hostname`
        - Change line to: `rhel.server.com`

Question 26

26. On rhel.server.com, set SELinux to “enforcing” mode.
    - `getenforce`
    - `setenforce 1`

- OR
    - `vi /etc/selinux/config`
        - Change line to: `SELINUX=enforcing`

Question 27

27. On rhel.server.com, do the following:
    1. Install container-tools.
    2. Use podman to search for the latest release of the Red Hat Universal Base Images “ubi” container.
    3. Inspect the ubi image using “skopeo”.
    4. Use “podman” to pull the ubi image.
    - `dnf install contianer-tools`
    - `podman search ubi`
    - `skopeo inspect docker://registry.access.redhat.com/ubi8/ubi`
    - `podman pull registry.access.redhat.com/ubi8/ubi`

Question 28

28. On rhel.server.com, configure persistent storage on “/var/lib/containers/backup_storage” for the ubi container image whose volume is the /mnt directory. Using the ubi container shell create a sample file sample.txt in the “/var/lib/containers/backup_storage” directory. Then stop and remove the ubi container.
    - `mkdir /var/lib/containers/backup_storage`
    - `podman run --priviledged -it -v /var/lib/containers/bakcup_storage:/mnt:z registry.access.redhat.com/ubi8/ubi /bin/bash`
        - `echo "This is a text file inside the /mnt dir of the container" > /mnt/sample.txt`
        - `exit`
    - `cat /var/lib/containers/backup_storage`
    - `podman ps -a`
    - `podman rm ID`
    - `podman ps -a`

Question 29

29. On rhel.server.com, compress a directory /usr/bin to the format /home/bin.tar.bz2 using the bzip2 command.
    - tar -jvf /home/bin.tar /usr/bin && bzip2 /home/bin.tar
    - tar -xf /home/bin.tar /usr/bin && bzip2 /home/bin.tar
    - tar -cf /home/bin.tar /usr/bin && bzip2 /home/bin.tar
    - tar -cjf /home/bin.tar.bz2 /usr/bin
    - `tar -cf /home/bin.tar /usr/bin && bzip2 /home/bin.tar`

Question 30

30. On rhel.server.com, add a new environment variable “VAR” with the value “RHCSA Prac Five” which will be available throughout the system, on both remote login sessions as well as local sessions for all users.
    - `vi /etc/bashrc`
        - Add the line: `export VAR="RHCSA Prac Five"`
    - `source /etc/bashrc`
    - `echo $VAR`

Question 31

31. On rhel.server.com, configure a permanent storage for “journald” logs with 100M max use.
    - `vi /etc/systemd/journald.conf`
        - Uncomment and change line to: `Storage=persistent`
        - Uncomment and change line to: `SystemMaxUse=100M`
    - `systemctl restart systemd-journald`
    - `rbeoot`
    - `ls /var/log/journal`

!!! Question 32

32. What entry can be added to the syslog.conf file to have all syslog messages generated by a system displayed on console 2?
    - | /dev/tty2
    - mail.* /dev/tty2
    - /var/log/messages | /dev/tty2
    - . /dev/tty2
    - `*.* /dev/tty2`

Question 33

33. On rhel.server.com, enable persistent logging for the systemd journal.
    - `vi /etc/systemd/journald.conf`
        - Uncomment and change line to: `Storage=persistent`
    - `systemctl restart systemd-journald`

!!! Question 34

34. On rhel.server.com, install PostgreSQL 13 on your server as the default version.
    - `dnf module list postgresql`
    - `dnf module enable postgresql:13` // Was not listed under my distro
    - `dnf moudle list postgresql
    - `dnf install postgresql`
    - `psql --version`

Question 35

35. On rhel.server.com, install Apache and allow it to get documents from NFS mounted folder.
    - `dnf install httpd`
    - `systemctl enable httpd --now`
    - `firewall-cmd --list-all`
    - `firewall-cmd --add-service=http --permanent`
    - `firewall-cmd --add-service=https --permanent`
    - `firewall-cmd --list-all`
    - `getsebool -a | grep httpd`
    - `setsebool -P httpd_use_nfs 1`
    - `getsebool httpd_use_nfs`

Question 36

36. On rhel.server.com, assign the same SELinux contexts used by the home directories to the “/backup” directory permanently.
    - `ls -ldZ /home`
    - `semanage fcontext -a -t hoom_root_t /backup`
    - `restorecon -Rv /backup`
    - `ls -ldZ /backup`

Question 37

37. On rhel.server.com, find all regular files in the “/etc” directory that were modified more than 90 days ago and redirect the output to /modified_etc_files.
    - `find /etc -type f -mtime +90 > /modified_etc_files`

Question 38

38. On rhel.server.com, allow Apache (httpd) to listen on tcp port 5569.
    - `semanage port -l | grep httpd`
    - `semanage port -a -t http_port_t -p tcp 5569`

Question 39

39. On rhel.server.com, create a script named "/usr/local/bin/find.sh" to find all files under the directory "/etc" that are less than 5M and have SGID permissions set. Then save the list of found files to /root/5Mfiles.

    ```
    - `vi /usr/local/bin/find.sh`
    ```

    File editor:

```
#!/bin/bash
find /etc -size -5M -perm -g=s > /root/5Mfiles
```

- - `chmod a+x /usr/local/bin/find.sh`
  - `/usr/local/bin/find.sh`

Question 40

40. On rhel.server.com, find the word "error" in all files in the current directory and redirect the result to the file "/root/errors".
    - `grep -r 'error' > /root/errors`

Question 41

41. Please provide the necessary steps and commands to accomplish the following tasks:
    - Use the man command to find information about the "passwd" command.
    - Use the info command to find additional information about the "passwd" command.
    - Use the files in /usr/share/doc to find any documentation related to the "passwd" command.
    - `man passwd`
    - `info paswd`
    - `cd /usr/share/doc`
    - `ls | grep passwd`
    - `cd passwd`
    - `ls`

- `cat AUTHORS`

Question 42

42. On rhel.server.com, allow only HTTP traffic from the 192.168.1.12/24 network on the internal zone while any other traffic is blocked.
    - `firewall-cmd --zone=internal --add-service=http`
    - `firewall-cmd --zone=internal --add-source=192.168.1.12/24`
    - `firewall-cmd --zone=internal --add-rich-rule='rule family="ipv4" source address="0.0.0.0/24" drop'`
    - `firewall-cmd --runtime-to-permanent`

Question 43

43. On rhel.server.com, as a system administrator on a RHEL 9 system, you are tasked with deploying a static website using a containerized approach. Due to security policies, you are required to use Podman in a rootless configuration. As user john (Create the user john if it does not exist), create a rootless Podman container to host the static website. The container should:

    - Use a publicly available lightweight nginx web server image.
    - Be accessible from the host system on port 8080.
    - Mount the local directory (/var/www/html) on the host system as the web server's document root inside the container (/usr/share/nginx/html).
    - Manage the container using systemd for persistence and automatic startup.
    - Ensure that the SELinux context of the mounted directory is correctly set for the container environment.
    - Verify the successful deployment by accessing the website from a client system.

    Run as root:

    - `useradd john`
    - `passwd john`
    - `loginctl enable-linger john`
    - `loginctl show-user john`
    - `chown -R john:john /var/www/html`
    - `ssh john@localhost`

    Run as user john:
    - `podman search nginx`
    - `podman pull docker.io/library/nginx`
    - `podman tag docker.io/library/nginx localhost/nginx`
    - `podman run -d -p 8080:80 -v /var/www/html:/usr/share/nginx/html:Z --name my-nginx`
    - `curl http://localhost:8080`
    - `mkdir -p ~/.config/systemd/user/`
    - `podman generate systemd my-nginx > ~/.config/systemd/user/my-nginx.service`
    - `systemctl --user enable my-nginx.service --now`
    - `podman ps`

- `curl http://localhost:8080`