Practice Test 4 RHCSA (EX200)

Question 1

1. Assume that you forget the root password. Reset the root password for ServerB. Change it to “countersign” to gain access to the system.
   - `e` on grub first entry
   - `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 YUM repository for locally-mounted RHEL 9 DVD. Mount the RHEL 9 DVD to the /mnt/repo/ directory.
   - `mkdir -p /mnt/repo`
   - `mount /dev/sr0 /mnt/repo`
   - `cd /etc/yum.repos.d`
   - `mv redhat.repo /tmp/`
   - `vi localDVD.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 -y`

Question 3

3. On ServerB, modify your active network interface configuration to follow the following specifications statically:
    - IPV4 – 192.168.1.5/24
    - GW – 192.168.1.1
    - DNS – 8.8.8.8
    - `nmcli connection modify enp0s3 ipv4.addresses 192.168.1.5/24`
    - `nmcli connection modify enp0s3 ipv4.gateway 192.168.1.1`
    - `nmcli connection modify enp0s3 ipv4.dns 8.8.8.8`
    - `nmcli connection down enp0s3 && nmcli connection up enp0s3`

Question 4

4. On ServerB, add the following secondary IPV4 address statically to your current running interface. Do this in a way that doesn't compromise your existing settings:
    - IPV4 – 10.0.0.5/24
    - `nmcli connection modify enp0s3 +ipv4.addresses 10.0.0.5/24`
    - `nmcli connection down enp0s3 && nmcli connection up enp0s3`
    - `ip addr`

Question 5

5. On ServerB, add the IPv6 address fd01::105/64 statically to your current running interface *without affecting any existing settings*.
    - `nmcli connection modify enp0s3 +ipv6.addresses fd01::105/64`
    - `nmcli connection down enp0s3 && nmcli connection up enp0s3`
    - `ip addr`

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 net.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 your nearest time zone.
    - `timedatectl`
    - `timedatectl list-timezones | grep Chihuahua`
    - `timedatectl set-timezone "America/Chihuahua"`
    - `timedatectl`

Question 9

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

Question 10

10. ServerB should boot into the graphical.target by default.
    - `systemctl get-default`
    - `systemctl set-default graphical.target`

Question 11

11. On ServerB, create a user john with UID 1250 and expiry date 2023-12-21.
    - `useradd -u 1250 -e 2023-12-21 john`
    - `cat /etc/passwd`
    - `chage -l john`

Question 12

12. On ServerB, create a file “/var/test”, then do the following:
    - Configure the permissions of /var/test so that it is owned by the user oliver, belongs to the group admins, and should not be executable by anyone. The user oliver is a member of the group admins as a supplementary group.
    - The user jack can read & write /var/test
    - The user jacob can neither write nor read /var/test
    - All other users (current or future) can read /var/test
    - `touch /var/test`
    - `useradd oliver`\
    - `groupadd admins`
    - `usermod -aG admins oliver`
    - `chown oliver:admins /test/var`
    - `useradd jack`
    - `setfacl -m u:jack:rw- /var/test`

- `useradd jacob`
- `setfacl -m u:jacob:--- /var/test`
- `chmod a-x /car/test`
- `chmod a-w /var/test`
- `ls -l /var/test`
- `getfacl /var/test`

Question 13

13. On ServerB, use /dev/sdb to do the following:
    1. Create a 2GiB volume group named “vg1”.
    2. Create a 1G logical volume named “lv1” inside the “vg1” volume group.
    3. The “lv1” logical volume should be formatted with the ext4 filesystem and mounted persistently on the “/lv1” directory.
    4. Extend the ext4 filesystem on “lv1” by 500M.

- `lsblk`
- `fdisk /dev/sdb`
  - `p` `n` `p` `2` `Enter` `+2G` `p` `l` `t` `2` `8e` `p` `w`
- `pvcreate /dev/sdb2`
- `vgcreate vg1 /dev/sdb2`
- `vgs`
- `lvcreate -L 1G -n lg1 vg1`
- `lvdislpay`
- `mkfs.ext4 /dev/vg1/lv1`
- `mmkdir /lv1`
- `mount /dev/vg1/lv1 /lv1`
- `df -h`
- `vi /etc/fstab`
  - Add the line: `/dev/mapper/vg1-lv1 /lv1 ext4 defaults 0 0`
- `lvs`
- `lvextend -L +500M /dev/vg1/lv1`
- `lvs`

Question 14

14. On ServerB, using /dev/sdc, create a deduplicated and compressed logical volume "myvdo" in "myvg" volume group with the following specifications:
    - Type "vdo".
    - Name "myvdo".
    - "myvdo" physical size is 5GiB.
    - "myvdo" logical size is 50GiB.
    - Create an xfs file system on "myvdo".
    - Mount "myvdo" on "/mydir" permanently at boot.

- `lsblk`
- `fdisk /dev/sdc`
  - `p` `n` `p` `1` `Enter` `Enter` `p` `l` `t` `1` `8e` `p` `w`
- `fdisk -l`
- `pvcreate /dev/sdc1`

- `vgcreate myvg /dev/sdc1`
- `lvcreate --type vdo -n myvdo -L 5G -V 50G myvg`
- `lvdisplay`
- `mkfs.xfs /dev/myvg/myvdo`
- `mkdir /mydir`
- `mount /dev/myvg/myvdo /mydir`
- `df -h`
- `vi /etc/fstab`
  - Add the line: `/dev/mapper/myvg-myvdo /mydir xfs defaults 0 0`
- `mount -a`
- `lsblk`

Question 15

15. On ServerB, optimize the system to run in a virtual machine for the throughput performance-based tuning with disabled higher latency STOP states tuned profile.
    - `systemctl enable tuned --now`
    - `tuned-adm active`
    - `tuned-adm profile`
    - `tuned-adm profile virtual-guest throughput-performance accelerator-performance`
    - `tuned-adm active`

Question 16

16. On ServerB, configure a basic web server that displays “Welcome to the RHCSA Prac. Test No.4!” once connected to it. Ensure the firewall allows the http/https services.
    - `dnf install httpd -y`
    - `systemctl enable --now httpd`
    - `firewall-cmd --list-all`
    - `firewall-cmd --add-service=http --permanent`
    - `firewall-cmd --add-service=https --permanent`
    - `vi /var/www/html/index.html`
    - `curl localhost`

Question 17

17. On ServerB, create a tar file “/archive/myarchive.tar” of /etc directory and “/root/ anaconda-ks.cfg” file. Then restore the archived data in the “/restored/” directory.
    - `mkdir /archive/`
    - `tar cvf /archive/myarchive.tar /etc /root/anaconda-ks.cfg`
    - `mkdir /restored`
    - `cd /restored`
    - `tar xvf /archive/myarchive.tar`

Question 18

18. Set up SSH Passwordless root login in ServerA.
    - `ssh-keygen`
    - `ssh-copy-id root@192.168.1.12`
    - `ssh root@192.168.1.12`

Question 19

19. Disable password authentication on ServerB.
    - `vi /etc/ssh/sshd_config`
        - Uncomment and change line to: `PasswordAuthentication no`
    - `systemctl restart sshd`

Question 20

20. On ServerB, change the hostname to test.server.com and make it persistent.
    - `vi /etc/hostname`
        - Change line to: `test.server.com`
    - `reboot`

Question 21

21. On test.server.com, set SELinux to “permissive” mode.
    - `getenforce`
    - `setenforce 0`
      OR
    - `vi /etc/selinux/config`
        - Change line to: `SELINUX=permissive`

Question 22

22. On test.server.com, do the following:
    1. Install container-tools.
    2. Inspect the busybox image using skopeo.
    3. Use podman to pull the busybox image.
    4. Add the tag "mybusybox" to the "docker.io/library/busybox:latest" image.
    5. Run the busybox container using the tagged image "mybusybox" in detached mode with the name busybox.
    6. Remove the busybox container.
    - `dnf install -y containertools`
    - `podman search busybox`
    - `skopeo inspect docker://docker.io/library/busybox`
    - `podman pull docker.io/library/busybox`
    - `podman tag docker.io/library/busybox mybusybox`
    - `podman run -d --name busybox mybusybox`
    - `podman ps -a`
    - `podman rm busybox`

Question 23

23. Which umask value will result in the default access permissions of 600 (rw-------) for files, and 700 (rwx------) for directories? (Specify only the numerical umask value.)
    - 666 - 600 = 066
    - 777 - 700 = 077
    - The answer is 077 since when we get a negative number when subtracting base permission by umask value it means a 0 value.

!!! Question 24

24. Which of the following shell redirections will write standard output and standard error output to a file named filename?
    - 1&2>filename
    - 1>&2>filename
    - > filename
    - filename 2>&1
    - `> filename 2>&1`

Question 25

25. Which of the following command sets the Bash variable named TEST with the content FOO?
    - set TEST="FOO"
    - TEST = "FOO"
    - TEST="FOO"
    - var TEST="FOO"
    - `TEST="FOO"`

!!! Question 26

26. How can the normal output of the command be written to a file while discarding the error output?
    - command > /dev/null 2&>1 output
    - command >file 2>/dev/null
    - command > discard-error > file
    - command >2>file 1&>/dev/null
    - command > file 2> /dev/null

!!! Question 27

27. Given a file called birthdays containing lines like:
    YYYY-MM-DD Name
    2000-05-01 Sam
    2002-06-15 Sue
    2004-12-29 Sarah

Which command would you use to output the lines belonging to all people listed whose birthday is in May or June?

- `grep '[0-9]*-0[56]-' birthdays`
- `grep 06 birthdays | grep 05`
- `grep 05?6? birthdays`
- `grep '[56]' birthdays`
- `grep '[0-9]*-0[56]-' birthdays`
- More about meta-characters: # Using Grep & Regular Expressions to Search for Text Patterns in Linux

!!! Question 28

28. What output will the following command sequence produce?
echo '1 2 3 4 5 6' | while read a b c; do
echo result: $c $b $a;
done
    - `result: 3 4 5 6 2 1`
        - In this example the 'a' variables takes the value 1, the 'b' variables takes 2 and the last variable 'c' takes whatever is left from the list of digits/characters, in this case '3 4 5 6'.

Question 29

29. Which of the following commands will output all of the lines with the name Fred in upper or lower case but not the word red from the file users? (Choose two)
    - `grep '[f]red' users` // Will return only lowercase freds
    - `egrep fred users` // Not well written
    - `grep -i fred users`
    - `grep -v fred users`
    - `grep '[Ff]red' users`
    - `grep -i fred users`
    - `grep '[Ff]red' users`

Question 30

30. Which of the following signals is sent to a process when the key combination CTRL+C is pressed on the keyboard?
    - SIGSTOP
    - SIGTERM
    - SIGINT
    - SIGKILL
    - SIGINT

Question 31

31. Which of the following options for the kernel's command line changes the systemd boot target to rescue.target instead of the default target?
    - systemd.target=rescue.target
    - systemd.runlevel=rescue.target
    - systemd.default=rescue.target

- systemd.unit=rescue.target
- `systemd.unit=rescue.target`

Question 32

32. On test.server.com, add a new environment variable “VAR” with the value “RHCSA Prac Four” which will be available for local sessions for all users.
    - `vi /etc/bashrc`
        - `export VAR='RHCSA Prac Four'`
    - `source /etc/bashrc`
    - `echo $VAR`

Question 33

33. On test.server.com, configure “journald” to persist between reboots.
    - `vi /etc/systemd/journald.conf`
        - Change line to: `Storage=persistent`
    - `systemctl restart systemd-journald`

Question 34

34. On test.server.com, make the “httpd_t” domain permissive.
    - `semanage permissive -a httpd_t`
    - `semodule -l | grep permissive`

Question 35

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

Question 36

36. On test.server.com, create a script "search.sh" placed in "/usr/local/bin/" used to find all files in "/usr" that are smaller than 10M and have SUID permission, then place these files in "/root/result/".
    - `vi /usr/local/bin/search.sh`
    - `mkdir /root/result`
    - `find /usr -size -10M -perm -u=s -exec cp {} /root/result \;`

Question 37

37. On test.server.com, find the files and directories owned by user sam in “/home/” and copy them into the “/find/sam_files/” directory.
    - `find /home -user sam -type f,d -exec cp -r {} /find/sam_files/ \;`

Question 38

38. On test.server.com, write a script named “/sayhello.sh” that gives an output “Hello” for the logged-in user.
    - `vi /sayhello.sh`
        - Add the line: `#!/bin/bash`
        - Add the line: `echo Hello $USER` // Also works with $LOGNAME
    - `chmod a+x /sayhello.sh`
    - `/sayhello.sh`

Question 39

39. On test.server.com, all new users should have a file name “GetReady” in their home folder after account creation.
    - `touch /etc/skel/GetReady`

Question 40

40. On test.server.com, all users' passwords should expire after 40 days and be at least 8 characters in length.
    - `vi /etc/login.defs`
        - Change line to: `PASS_MAX_DAYS = 40`
    - `vi /etc/security/pwquality.conf`
        - Change line to: `minlen = 8`

Question 41

41. On test.server.com, as root, schedule a cron Job that prints “Breakfast Time!” on the current shell at 7 am every day.
    - `tty`
    - `crontab -e`
        - Add the line: `00 7 * * * echo "Breakfast Time!" > /dev/pts/0`

Question 42

42. Schedule the task below to run at 23:30 time on ServerA using the "at" command:
    - You want to create a file named "example.sh" containing a command to create a file "example.txt" in your home directory.
    - `at 23:30`
        - `echo -e "#!/bin/bash\ntouch example.txt" > example.sh`
        - `chmod a+x example.sh`
        - `example.sh`
    - `atq`

Question 43

43. On ServerB, create a zip archive file "/root/backup.tgz" for the contents of the directory "/usr/bin/".
    - `zip /root/backup.tgz /usr/bin/`

- `ls -lh /root/backup.tgz`