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201-450

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LPIC-2 Exam 201, Part 1 of 2, version 4.5

Version 1.1

Exam A (60 questions)

Question 1

After manually compiling and installing a new kernel, what has to be done regarding the initramfs?

- ☐ To initramfs is independent of the kernel and should not be modified unless the hardware configuration of the machine has changed
- ☐ Since the initramfs contains kernel modules, a new initramfs must be built for the new kernel
- ☒ During the compilation of the Linux kernel, a new initramfs is built automatically. The new initramfs only needs to be installed
- ☐ The system should be restarted since the initramfs reconfigures itself for the new kernel during the startup of the system

Question 2

Which of the following files will be looked for and used by GNU make, if one of them exists, unless a different file is specified on the command line when trying to compile software from source code? (Choose two.)

- ☐ configure
- ☐ config.h.in
- ☒ makefile
- ☒ Makefile
- ☐ Makefile.in

Question 3

How is the source code for the main Linux kernel modules distributed?

- ☒ It is included with the Linux kernel source code
- ☐ The kernel modules are downloaded on demand as they are used during compilation
- ☐ The kernel modules have their own release cycle and can be maintained separately from the Linux kernel source
- ☐ It is provided as a separate download alongside the Linux kernel source code for the same version

Question 4

Which command is used to make an exact copy, at a single point in time, of a logical volume while still allowing the original logical volume to be updated?

- ☐ lvcclone
- ☒ lvcreate
- ☐ lvm2
- ☐ lvsnap
- ☐ lvsnapshot

Question 5

Fill in the blank.
What command discards unused blocks on a mounted file system in order to support SSD devices? (Specify ONLY the command without any path or parameters.)

Question 6

How can the label root be added to the ext4 filesystem on /dev/sda1?

- ☐ relabel /dev/sda1 root
- ☒ tune2fs –L root /dev/sda1
- ☐ echo 'root' > /proc/fs/sda1/label
- ☐ labelfs --device /dev/sda1 root

Question 7

Which of the following init systems comes along with an own UEFI boot loader?

- ☒ systemd
- ☐ SysVinit
- ☐ Upstart
- ☐ OpenRC
- ☐ launchd

Question 8

Which of the following commands shows capabilities and usable frequencies for the wireless interface wlan0?

- ☒ iw phy pyh0 info
- ☐ iw dev wlan0 info
- ☐ iw dev wlan0 show
- ☐ iw phy wlan0 show
- ☐ iw phy0 show

Question 9

Fill in the blank.

What command will remove a physical volume from a volume group? (Specify ONLY the command without any path or parameters.)

Question 10

What is the purpose of the command udevadm monitor?

- ☒ It listens to kernel events produced by a udev rule and prints information to the console
- ☐ It monitors the /dev/ directory for new devices
- ☐ It monitors the udev process and prints performance statistics to the console
- ☐ It communicates with D-Bus to setup new devices

Question 11

Which of the following properties should be recorded in order to monitor the quality of a network link? (Choose two.)

- ☒ Bandwidth in both directions
- ☐ Number of nodes using the link
- ☒ Effective Latency
- ☐ Number of IPv4 and IPv6 packets
- ☐ Number of used TCP ports

Question 12

Which of the following commands restores only those files containing lpi in their name from the archive lpifiles.tar.gz?

- ☒ tar xvzf lpifiles.tar.gz --wildcards '*lpi*'
- ☐ tar xvzwf lpifiles.tar.gz '*lpi*'
- ☐ tar -xvfz lpifiles.tar.gz --deep '*lpi*'
- ☐ tar -xvzf lpifiles.tar.gz --subdirs '*lpi*'
- ☐ tar xvzf lpifiles.tar.gz --globbing '*lpi*'

Question 13

A regular user has just run

./configure && make && make install

to build and install a program. However, the installation fails. What could be done to install the program? (Choose two.)

☐   Install the binaries manually with suinstall

☒   Run make install with root privileges

☐   Do not run ./configure in order to maintain the default configuration for correct installation

☒   Rerun ./configure with a --prefix option where the user has permissions to write

☐   Run make install_local to install into /usr/local/

Question 14

What information is found in the following excerpt from the file /proc/mdstat? (Choose two.)

```
Personalities : [raid6] [raid5] [raid4]

md0 : active raid5 sdb1[3] (S) sdc1[7] sda1[4] (S) sdd1[6] sde1[5]

      1046528 blocks super 1.2 level 5, 512k chunk, algorithm 2 [3/2] [UU_]

      [===>.................] recovery = 15.9% (83808/523264) finish=0.1min
speed=71880K/sec

unused devices: <none>
```

☒   One of the disks in /dev/md0 has failed and a spare disk is used to recreate full redundancy

☐   The spare disk /dev/sda1 is used to restore full redundancy after the current recovery

☒   The information [UU_] means, that the raid is missing one disk and is not fully redundant

☐   The device is using version 1.2 metadata to allow LILO and GRUB Legacy to use /dev/md0 as the boot partition. This would not have been necessary with GRUB2

☐   The information [3/2] means that 3 RAID disks belong to the array and 2 disks are spare. Together they equal the number of available disks

Question 15

Fill in the blank.
What command ensures that the file systems are written to disk after a lot of write operations?(Specify ONLY the command without any path or parameters.)

Question 16

Fill in the blank.

The users of the local network complain that name resolution is not fast enough. Which command shows the time taken to resolve a DNS query? (Specify the command without path.)

Question 17

Which of the following commands erases the contents of the /dev/sdb3 partition?

- ☐ rm /dev/sdb3
- ☒ dd if=/dev/zero of=/dev/sdb3
- ☐ dd of=/dev/zero if=/dev/sdb3
- ☐ umount /dev/sdb3

Question 18

What is the minimum number of disks required in a fully redundant RAID5 array?

- ☐ 1
- ☐ 2
- ☒ 3
- ☐ 4
- ☐ 5

Question 19

On a server running the 3.4.50-11 Linux kernel, which file in the /boot directory contains the kernel configuration parameters?

- ☐ config-linux-3.4.50-11
- ☒ config-3.4.50-11
- ☐ system-3.4.50-11
- ☐ vmlinuz-3.4.50-11
- ☐ rc.config-3.4.50-11

Question 20

What is the purpose of an initramfs during the Linux system start?

☒   It loads required modules and starts sub sytems like LVM to make the root file system accessible to the kernel

☐   It moves the kernel from normal system memory to initram memory to speed up kernel access

☐   It copies the root file system's content to RAM to speed up the system and reduce writes to disk

☐   It creates a ram disk to store volatile data for directories like /tmp to reduce writes to disk

Question 21

Which of the following commands creates a Btrfs subvolume named volume in/mnt?

☐   btrfs subvolume add –n volume /mnt
☐   btrfs create subvolume /mnt volume
☐   btrfs-subvolume create /mnt/volume
☐   btrfs subvolume new volume /mnt
☒   btrfs subvolume create /mnt/volume

Question 22

Fill in the blank.
What keyword is missing in the following line from /etc/fstab in order to grant the user fred write access to the files in the vfat file system on /dev/sdb1:
/dev/sdb1 /mnt/usbflash vfat defaults, _____=fred, umask=022, 0 0

(Specify ONLY the option name without any path or parameters.)

Question 23

Which of the filter keywords below could be used in the following command:
tcpdump –i eth0 _____ 203.0.113.8
(Choose three.)

☒   host
☐   ip
☒   src
☒   dst
☐   ipv6

Question 24

On a Linux node with multiple active networks interfaces, each having a default route to the Internet, which default route is preferred?

- ☐ The default route with the highest metric value
- ☐ The default route with the highest MTU value
- ☐ The default route with the lowest TTL value
- ☐ The default route with the highest TTL value
- ☒ The default route with the lowest metric value

Question 25

The following command has just been run successfully:

Cd /opt; tar xvf /dev/nst0;

What will happen if the command sequence is run again?

- ☐ An error saying that there is no tape present is generated because the tape has been ejected after being used
- ☐ The contents of /opt will be restored again
- ☐ The entire contents of /opt will be replaced with the contents of the next file on the tape
- ☒ The contents of /opt will have additional content added from the next file on the tape

Question 26

Which of the following configuration files are used by tcpwrapper?

- ☐ /etc/tcpd.allow and etc/tcpd.deny
- ☐ /etc/tcpwrapper.allow and /etc/tcpwrapper.deny
- ☒ /etc/hosts.allow and /etc/hosts.deny
- ☐ /etc/access.allow and /etc/access.deny
- ☐ /etc/service.allow and /etc/service.deny

Question 27

Fill in the blank.
What command is used to send messages to all users currently logged in? (Specify ONLY the command without any path or parameters.)

Question 28

Which sub command to crypsetup shows information about an encrypted LUKS partition?

- ☒ luksDump
- ☐ luksInfo
- ☐ luksDebug
- ☐ luksLS
- ☐ luksShow

Question 29

Fill in the blank.
Which directory contains system-specific systemd unit files? (Specify the full path to the directory.)

Question 30

What effect does the –f option to the update-rc.d command have on files in the /etc/rcX.d/ and /etc/init.d/ directories?

- ☐ It will force the removal of the symlinks in /etc/rcX.d/ even when the links are read only
- ☐ It will remove both the symlinks in /etc/rcX.d/ and the init script in /etc/init.d/
- ☐ It will remove the init script in /etc/init.d/ and the symlinks in /etc/rcX.d/ and update the package information of installed files
- ☒ It will force the removal of symlinks in /etc/rcX.d/ even if the corresponding init script still exists in /etc/init.d/

Question 31

A Linux server running systemd booted to rescue.target for maintenance. Which commands are used to restore the server to its usual target? (Choose two.)

- ☒ telinit 0
- ☒ systemctl default
- ☐ sync
- ☐ systemctl emergency
- ☐ systemctl reboot

Question 32

After the downloading patch-4.6.4.xz from http://kernel.org, what are the next steps to prepare the build of a version 4.6.4 Linux kernel? (Choose two.)

☐ Uncompress the file and move the resulting directory to /usr/src/linux
☐ Apply the patch file to the kernel source directory containing kernel version 4.6.0
☐ Apply the patch file to the kernel source directory containing kernel version 4.6.3
☒ Uncompress the file using xz to get the uncompressed patch file
☒ Use patch to apply the uncompressed patch file to the source directory of any previous kernel version

Question 33

In order to gather performance data with sar over a longer period of time, which command should be run periodically from cron?

☒ sa1
☐ sarmon
☐ sarec
☐ sadf
☐ sarcron

Question 34

Which of the following is a userspace application used to modify EFI entries on a Linux system?

☐ efieditor
☐ configefi
☐ efimanager
☒ efiboottmgr
☐ efibootedit

Question 35

Which of the following commands adds a static IPv6 address to the network interface eth0?

☐ ip add addr 2001:db8::1337/64 dev eth0
☐ ip -6 add addr 2001:db8::1337/64 dev eth0
☐ ip addr add 2001:db8::1337/64 dev eth0
☒ ip -6 addr add new 2001:db8::1337/64 dev eth0
☐ ip addr add -6 2001:db8::1337/64 dev eth0

Question 36

Which commands below are useful to collect data about remote filesystem connections? (Choose two.)

- ☐ pidstat
- ☒ nfsiostat
- ☐ sadf
- ☒ cifsiostat
- ☐ fsiostat

Question 37

Which of the following is a CD-ROM filesystem standard?

- ☐ OSI 9660
- ☒ ISO 9660
- ☐ SR0FS
- ☐ ISO 8859
- ☐ ROM-EO

Question 38

What action should be performed after increasing the size of a logical volume?

- ☐ Run vgresize
- ☒ Increase the size of the filesystem used for the logical volume
- ☐ Run 1vresize
- ☐ Remount the logical volume

Question 39

A web application server contains 64GB of RAM and two swap partitions on normal hard disk drives, each with a size of 64 GB. Within the last month, the average number of user sessions on this server has grown by 20 percent. At the same time, the average usage of RAM increased from 65 to 75 percent, while the swap space is almost not used at all. It is expected that the number of user sessions will continue to increase by about 15 to 20 percent each month. Which of the following reactions would be appropriate in response to these observations? (Choose two.)

- ☐ Delay any hardware upgrade until there is a significant consumption of swap space to ensure an efficient usage of the available hardware
- ☐ Create a RAID 1 device on the two swap partitions to avoid data loss in case swap space has to be used in the future
- ☒ Consider the installation of an additional application server to distribute the load if the expected growth continues over several months
- ☐ Move the web application's scripts and content a ram disk in order to ensure fast access and to avoid the need for swap space
- ☒ Update the hardware to increase the amount of available RAM to avoid using swap space

Question 40

Which of the following commands lists IPv4 addresses and MAC addresses of network nodes that the local system has seen on its directly connected IP networks?

- ☒ arp
- ☐ ifconfig
- ☐ ipadm
- ☐ iwlist

Question 41

Which of the following commands by default provides the PIDs of the processes sorted by which are using the most CPU cycles on the Linux system?

- ☒ top
- ☐ uptime
- ☐ ps aux
- ☐ vmstat
- ☐ freemem

Question 42

The following is an excerpt from the output of tcpdump –nli eth1:

13:03:17.277327 IP 192.168.123.5.1065 > 192.168.5.112.21: Flags [.], ack 1 (truncated)

13:03:17.598624 IP 192.168.5.112.21 > 192.168.123.5.1065: Flags [P.], seq (truncated)

Which network service or protocol was used?

- ☒ FTP
- ☐ HTTP
- ☐ SSH
- ☐ DNS
- ☐ DHCP

Question 43

In the following output of the command uptime, the load averages represent the system load averages for what time frames?
12:10:05 up 18 days, 19:00, 2 users, load average: 0.47, 24.71, 35.31

- ☒ 1, 5 and 15 minutes
- ☐ 1, 15 and 30 minutes
- ☐ 5, 20 and 25 seconds
- ☐ 15, 30 and 60 minutes
- ☐ 15, 45 and 90 seconds

Question 44

Fill in the blank.
After installation of a self-compiled kernel, modules that need to be loaded cannot be found. What make target was likely missed while installing the kernel? (Specify ONLY the make target without any command or parameters.)

Question 45

Fill in the blank.
Which program lists information about files and network connections opened by processes? (Specify ONLY the command without any path or parameters.)

Question 46

In the output of sar –b, what does tps stand for?

- ☐ Terrabyte per second
- ☐ Traffic per second
- ☒ Transfers per second
- ☐ Total data per second
- ☐ Terrabit per second

Question 47

Which of the following parameters instructs the kernel at boot time to use only one of the available processors?

- ☒ maxcpus=1
- ☐ usecpus=1
- ☐ smpcpus=1
- ☐ vcpumx=1
- ☐ vmxcpus=1

Question 48

Fill in the blank.
Which is the main configuration file for the SystemV init process? (Specify the full name of the file, including path.)

Question 49

Which command is used to install a GRUB boot loader into the master boot record?

- ☒ grub-install
- ☐ grub-mkconfig
- ☐ grub-install-mbr
- ☐ grub-glue-mbr
- ☐ grub-mbr-setup

Question 50

A system has one hard disk and one CD writer which are both connected to SATA controllers. Which device represents the CD writer?

- ☐ /dev/hdb
- ☐ /dev/sdd
- ☐ /dev/scd1
- ☒ /dev/sr0
- ☐ /dev/sr1

Question 51

What should be done to ensure a client machine uses the recursive nameserver running on the IP address 192.168.0.1? (Choose two.)

- ☒ Add nameserver 192.168.0.1 to /etc/resolv.conf
- ☐ Run route add nameserver 192.168.0.1
- ☐ Run ifconfig eth0 nameserver 192.168.0.1
- ☒ Ensure that the dns service is listed in the hosts entry in the /etc/nsswitch.conf file
- ☐ Run bind add nameserver 192.168.0.1

Question 52

If the file containing the Linux kernel is deleted, what happens when the system boots?

- ☐ The system starts normally since the bootloader copies the kernel to the master boot record of the hard disk
- ☐ Instead of the kernel, the initramfs is loaded and instructed to mount the root filesystem and reinstall the kernel from the original package or from source
- ☐ The bootloader mounts the root filesystem read-only and launches /bin/sh directly in order to allow the administrator to reinstall the kernel
- ☒ Without a kernel system cannot boot and, depending on the bootloader, an error is displayed

Question 53

Which of the following commands displays the physical path of the kernel module named dummy?

- ☒ modprobe –i dummy
- ☐ modinfo –n dummy
- ☐ modpath –v dummy
- ☐ depmod –n dummy
- ☐ modshow –p dummy

Question 54

A network client has an Ethernet interface (eth0) configured with an IP address in the subnet 192.168.0.0/24. This subnet has a router, with the IP address 192.168.0.1, that connects this subnet to the Internet. Which of the following commands can be used on the client to enable it to use the router as its default gateway? (Choose two.)

- ☒ route add default gw 192.168.0.1 eth0
- ☐ ifconfig eth0 defaultroute 192.168.0.1
- ☒ ip route add default via 192.168.0.1
- ☐ echo defaultroute 192.168.0.1 >>/etc/resolv.conf
- ☐ route add defaultgw=192.168.0.1 if=eth0

Question 55

Due to extreme system use, a Linux system requires some additional swap space. To initialize 5 GB of additional swap space, which combination of commands should be used?

- ☐ dd if=/dev/zero of=/tmp/swapfile bs=1024 count=5120000; mkswap /tmp/swapfile; mount /tmp/swapfile
- ☐ dd if=/dev/zero of=/tmp/swapfile bs=1024 count=5120000; swapon /tmp/swapfile
- ☒ dd if=/dev/zero of=/tmp/swapfile bs=1024 count=5120000; mkswap /tmp/swapfile; swapon /tmp/swapfile
- ☐ touch -5G /tmp/swapfile; swapon /tmp/swapfile
- ☐ mkswap /tmp/swapfile 512000; swapon /tmp/swapfile

Question 56

What component of a system does smartd monitor?

- ☐ CPU
- ☐ RAM
- ☒ Hard drives
- ☐ Ethernet traffic

Question 57

Which command reports information on memory usage, paging and block input/output?

- ☐ free
- ☐ memshow
- ☐ lsof
- ☐ pidof
- ☒ vmstat

Question 58

Which single command simulates a failed device within a RAID 5 array?

- ☐ mdadm --remove /dev/md0 /dev/sdd1
- ☐ mdadm --zero-superblock /dev/sdf3
- ☐ mdadm --force-fault /dev/md2 /dev/sde2
- ☒ mdadm --fail /dev/md0 /dev/sdc1
- ☐ mdadm /dev/md0 --offline /dev/sdc1

Question 59

What is the purpose of a system mount unit?

- ☒ It is used by the command systemd-mount and allows users to mount partitions to mount points of their choice
- ☐ It is used only to mount network file systems to local mount points. It cannot be used for local media
- ☐ It is created by the command systemd-fstab-generator to integrate entries from /etc/fstab into the system boot process
- ☐ It is used by the command mount when using system to mount and unmount file systems

Question 60

In which directory tree are files modified when changing kernel parameters using the command sysctl?

- ☐ /sys/kernel/
- ☐ /proc/kernel/
- ☒ /proc/sys/
- ☐ /lib/sys/
- ☐ /sys/proc/