

**Linux II Midterm I 15F***Instructions*

1. You have **50 minutes** to complete this test. There are a total of **50 possible marks**.
  2. Write your name on the question sheet and any extra sheets you use.
  3. **CALCULATORS ARE NOT PERMITTED.**
  4. Make sure cell phones, PDAs and other electronic devices are turned off and put away.
  5. Protect your answer sheet. Allowing someone to copy your answers carries the same penalties as copying answers from someone else.
  6. For multiple choice questions, circle the **best** answer.
  7. When you have finished return your test to the front of the room.
  8. No students will be permitted to leave until **after** the first thirty minutes.
  9. If you need extra paper ask the instructor.
  10. Ensure you have answered all the questions.
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1. Which of these commands will work only if no LVs have been configured within the VG?  
a. vgextend b. vgremove c. vgcreate d. vgreduce e. vgscan
  2. Which of the following virtual filesystems is a security subsystem?  
a. sysfs b. selinuxfs c. devtmpfs d. devpts e. configfs
  3. Where is the primary configuration file for systemd located?  
a. /usr/lib/systemd/system.conf b. /usr/lib/systemd.conf c. /etc/systemd/system.conf d. ~/.system.conf  
e. /etc/systemd.conf
  4. Which command can you use to list which devices are currently connected to the filesystem tree?  
a. systemctl --type mtab b. systemctl list-units c. systemctl list-units --type mount d. systemctl  
list-units --type mtab e. systemctl list-units --type fsys
  5. If we wanted to start a service called `bluetooth-spamd` after the "bluetooth" target is applied, we could place a link to the service in which directory?  
a. /etc/systemd/bluetooth.target.wants/ b. /etc/systemd/system/bluetooth.target.wants/  
c. /etc/systemd/system/bluetooth.wants/ d. /etc/systemd/bluetooth-spamd.wants/  
e. /etc/systemd/bluetooth.wants/
  6. Which of the following filesystems differ only in that one uses a journal and the other does not?  
a. ext2, ext3 b. ext2, FAT32 c. ext3, ext4 d. ext3, XFS e. ext4, XFS
  7. Which command-line tool can create and modify the partition table provided by Linux?  
a. mkfs b. fsck c. mount d. fdisk

Name: \_\_\_\_\_

ID: A

8. To ensure file system integrity, you use the \_\_\_\_ utility, which performs a sequential investigation of the file system.  
a. mkfs    b. fdisk    c. mount    d. fsck
9. The `Compact Disk File System` is also referred to as:  
a. ISO9660    b. Joliet    c. UDF    d. HFS    e. Rock Ridge
10. Which RAID level provides no protection against drive failure?  
a. RAID 0+1    b. RAID 1    c. RAID 0    d. RAID 5    e. RAID 10
11. Which of the following is a temporary filesystem created for `systemd`?  
a. /sys    b. /proc    c. /dev    d. /dev/mapper    e. /run
12. Which of the following represents a hard drive in the LVM scheme?  
a. Device Map    b. Logical Volume    c. Volume Group    d. File System    e. Physical Volume
13. Which of the following commands can be used to list the contents of a backup file?  
a. mount    b. xfsrestore    c. mdadm    d. lvscan    e. xfsdump
14. `logind` is correctly referred to as a \_\_\_\_\_ program.  
a. utility    b. authorization    c. demon    d. plugin    e. daemon
15. Which of the following commands forces Linux to write any data cached in memory to disk?  
a. fdisk    b. xfsdump    c. journalctl -k    d. sync    e. swapoff
16. You use the \_\_\_\_ command to create a Linux file system on a device.  
a. fsck    b. mount    c. fdisk    d. mkfs
17. In which RAID level are the contents of all drives in the array identical?  
a. RAID 0    b. RAID 0+1    c. RAID 5    d. RAID 1    e. RAID 10

Examine the following command output and answer questions 18-21:

```
[user@localhost ~]$ ls /dev*
agpgart          lp0                sda3              tty1              tty38            tty9
autofs           lp1                sda4              tty10            tty39            ttyS0
block            lp2                sda5              tty11            tty4              ttyS1
bsg              lp3                sda6              tty12            tty40            ttyS2
btrfs-control    mapper            sdb               tty13            tty41            ttyS3
bus              mcelog            sdb1              tty14            tty42            uhid
cdrom            md                 sdb2              tty15            tty43            uinput
centos           md125              sdb3              tty16            tty44            urandom
char             md126              sdb4              tty17            tty45            usbmon0
console          md127              sdb5              tty18            tty46            usbmon1
core             mem                sdc               tty19            tty47            usbmon2
cpu             midi                sdc1              tty2              tty48            vcs
cpu_dma_latency mqueue            sdc2              tty20            tty49            vcs1
crash            net                sdc3              tty21            tty5              vcs2
disk             network_latency   sdc4              tty22            tty50            vcs3
dm-0             network_throughput sdc5              tty23            tty51            vcs4
dm-1             null              sdd               tty24            tty52            vcs5
dmmidi          nvram              sdd1              tty25            tty53            vcs6
dri             oldmem            sdd2              tty26            tty54            vcsa
fb0             port              sdd3              tty27            tty55            vcsa1
fd              ppp               sdd4              tty28            tty56            vcsa2
full            ptmx              sdd5              tty29            tty57            vcsa3
fuse            pts               shm                tty3              tty58            vcsa4
hidraw0         random            snapshot          tty30            tty59            vcsa5
hpet            raw                snd                tty31            tty6              vcsa6
hugepages       rfkill            sr0                tty32            tty60            vfio
initctl         rtc                stderr            tty33            tty61            vga_arbiter
input           rtc0              stdin             tty34            tty62            vhost-net
kmsg            sda                stdout            tty35            tty63            vmci
log             sda1              tty                tty36            tty7              zero
loop-control    sda2              tty0              tty37            tty8
```

18. Which device file represents the second partition on the fourth SCSI drive?  
a. tty42 b. sdc2 c. dm-1 d. vcsa2 e. disk
19. Which directory contains a list of pseudo-terminals currently in use?  
a. port b. pts c. ptmx d. tty e. ppp
20. Which device file acts as a sink, discarding everything sent to it and producing no output?  
a. crash b. zero c. rfkill d. null e. fb0
21. Which device file represents shared memory for sharing data between applications?  
a. shm b. hugepages c. kmsg d. block e. oldmem
22. Which of these commands would be the first one you would use if you wanted to pool several hard drives together and create a filesystem spanning all of them?  
a. lvextend b. vgcreate c. pvcreate d. lvcreate e. vgscan

23. Which of the following commands does not write to filesystems directly?  
a. debugfs b. xfs\_repair c. tune2fs d. pvcreate e. xfsrestore
24. Which of these commands will list all available LVM storage pools on the local machine?  
a. pvscan b. spscan c. lvscan d. vgscan e. sps
25. What command can you use to list what units must be started before the GUI can be started?  
a. systemctl show-dependencies graphical.target b. systemctl show-dependencies multi-user.target  
c. systemctl list-dependencies graphical.target d. systemctl list-dependencies multi-user.target  
e. systemctl isolate multi-user.target
26. Which of the following specifies which services are started by `systemd` at the equivalent of "runlevel 3"?  
a. sysinit.target b. multi-user.target c. basic.target d. default.target e. graphical.target
27. Which of the following does not support snapshots?  
a. VMware b. XFS c. RAID d. LVM e. BTRFS
28. Which of the following is enabled by default in the Anaconda installer?  
a. ext3 b. LVM c. ext4 d. RAID e. ext2
29. Which of the following is a native OS X filesystem?  
a. LVM b. XFS c. HFS d. ExFAT e. NTFS
30. Which of the following specifies which services will start at boot?  
a. sysinit.target b. basic.target c. default.target d. graphical.target e. multi-user.target
31. What utility can you use to check the health status of a hard drive?  
a. smartctl b. pvstatus c. systemctl d. smartd e. pvctl
32. Which command is used to view `systemd` logs?  
a. systemctl show-log b. journalctl c. dmesg d. logctl e. cat /var/log/messages
33. Which of the following RAID schemes can tolerate one drive failure, but no more?  
a. Four drives in a RAID 5 array. b. Four drives in a RAID 10 array. c. Three drives in a RAID 1 array.  
d. Four drives in a RAID 0 array. e. Four drives in a RAID 1 array.
34. What switch can you use with `systemctl` to determine what features are supported by the version of `systemd` you are running?  
a. --edition b. --feature-list c. --features d. --version e. -r
35. Which command can you use to list all units and their state?  
a. systemctl list-unit-files b. systemctl c. systemctl list-dependencies d. systemctl list-units --type all  
e. systemctl list-units
36. You can use the \_\_\_\_ command to find file system information.  
a. mount b. dumpe2fs c. fsck d. file

37. Which service is responsible for assigning persistent device names?  
a. user-generators b. systemd-udev d. ntp-units e. rhel-loadmodules
38. Which of the following commands does not produce output similar to the others?  
a. cat /proc/mounts b. systemctl-cgls c. mount d. cat /etc/mstab e. systemctl list-units --type mount
39. Which of the following utilities will list hard drive partitions that are configured for LVM?  
a. vgs b. lvs c. vgscan d. lvscan e. pvs
40. Which of the following optical disk standards allows long filenames?  
a. ISO9660 b. Joliet c. El Torito d. FAT32 e. Rock Ridge
41. Which of the following files is created by the `mount` command?  
a. /etc/mdadm.conf b. /etc/ld.so.conf c. /proc/mount d. /etc/mstab e. /proc/mounts
42. What command can you use to list what units must be started before the `bluetooth.service` can be started?  
a. systemctl list-dependencies bluetooth.service b. systemctl list-units --type bluetooth.service  
c. systemctl list-unit-files bluetooth.service d. systemctl isolate bluetooth.service e. systemctl show-dependencies bluetooth.service
43. Which of the following commands will print the kernel release?  
a. uname -r b. systemctl --version c. mdadm d. vgdisplay e. cat /sys/fs/selinux
44. Which of the following specifies which services are the first to start at boot time?  
a. graphical.target b. basic.target c. default.target d. multi-user.target e. sysinit.target
45. Which of the following commands will list all processes organized by control group?  
a. systemctl b. systemd-analyze c. systemd-cgtop d. top e. systemd-cgls
46. Which of the following is an optical disk standard?  
a. EXT2 b. XFS c. UDF d. SYSFS e. NTFS
47. Which of the following utilities will list hard drive partitions that are configured for LVM?  
a. pvscan b. vgscan c. vgs d. lvs e. lvscan
48. What command can you use to switch to the equivalent of "runlevel 5" in CentOS 7?  
a. systemctl isolate graphical.target b. isolate graphical.target c. init graphical.target d. systemctl activate graphical.target e. activate graphical.target
49. `networkd` is a part of which Linux subsystem?  
a. DHCP client b. /etc c. systemd d. networking service e. udev
50. Which of the following commands will tell you how long a Linux system took to boot?  
a. journalctl b. systemd-cgtop c. systemd-analyze d. systemctl e. systemd-cgls

## Linux II Midterm I 15F Answer Section

### MULTIPLE CHOICE

- |            |        |          |
|------------|--------|----------|
| 1. ANS: C  | PTS: 1 |          |
| 2. ANS: B  | PTS: 1 |          |
| 3. ANS: C  | PTS: 1 |          |
| 4. ANS: C  | PTS: 1 |          |
| 5. ANS: B  | PTS: 1 |          |
| 6. ANS: A  | PTS: 1 |          |
| 7. ANS: D  | PTS: 1 | REF: 312 |
| 8. ANS: D  | PTS: 1 | REF: 310 |
| 9. ANS: A  | PTS: 1 |          |
| 10. ANS: C | PTS: 1 |          |
| 11. ANS: E | PTS: 1 |          |
| 12. ANS: E | PTS: 1 |          |
| 13. ANS: B | PTS: 1 |          |
| 14. ANS: E | PTS: 1 |          |
| 15. ANS: D | PTS: 1 |          |
| 16. ANS: D | PTS: 1 | REF: 312 |
| 17. ANS: D | PTS: 1 |          |
| 18. ANS: B | PTS: 1 |          |
| 19. ANS: B | PTS: 1 |          |
| 20. ANS: D | PTS: 1 |          |
| 21. ANS: A | PTS: 1 |          |
| 22. ANS: B | PTS: 1 |          |
| 23. ANS: D | PTS: 1 |          |
| 24. ANS: D | PTS: 1 |          |
| 25. ANS: C | PTS: 1 |          |
| 26. ANS: B | PTS: 1 |          |
| 27. ANS: C | PTS: 1 |          |
| 28. ANS: B | PTS: 1 |          |
| 29. ANS: C | PTS: 1 |          |
| 30. ANS: C | PTS: 1 |          |
| 31. ANS: A | PTS: 1 |          |
| 32. ANS: B | PTS: 1 |          |
| 33. ANS: A | PTS: 1 |          |
| 34. ANS: D | PTS: 1 |          |
| 35. ANS: A | PTS: 1 |          |
| 36. ANS: B | PTS: 1 | REF: 319 |
| 37. ANS: B | PTS: 1 |          |
| 38. ANS: B | PTS: 1 |          |
| 39. ANS: E | PTS: 1 |          |

- 40. ANS: B                   PTS: 1
- 41. ANS: D                   PTS: 1
- 42. ANS: A                   PTS: 1
- 43. ANS: A                   PTS: 1
- 44. ANS: E                   PTS: 1
- 45. ANS: E                   PTS: 1
- 46. ANS: C                   PTS: 1
- 47. ANS: A                   PTS: 1
- 48. ANS: A                   PTS: 1
- 49. ANS: C                   PTS: 1
- 50. ANS: C                   PTS: 1