

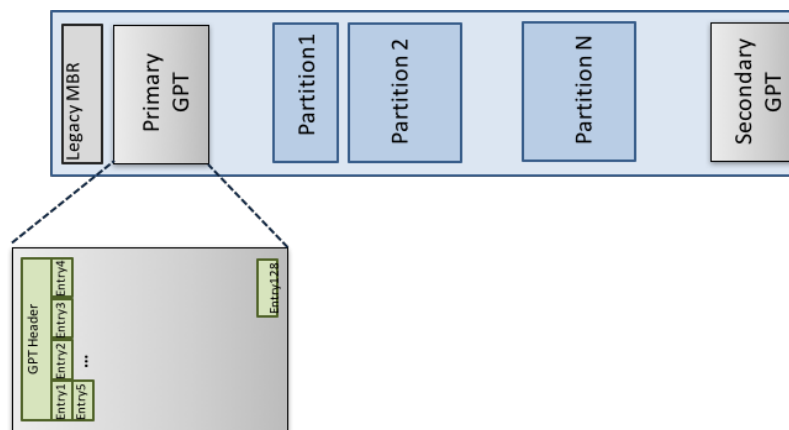
# UNIX/Linux System Administration

## Theory Final Exam, June 2017

**Question 1 (1p).** Describe the actions carried out by each of the following linux shell commands:

- `cat < /etc/passwd | grep root | cut -d : -f 7 > root_shells`
- `sed -i 's/Old/New/g' file.out`
- `find /home -size +2048 -fstype f -exec rm -f {} \;`

**Question 2 (1.5p).** Given the internal organization of a GPT-like hard disk, such as the one in the image below, describe the content and the role of each of these elements: *Legacy MBR*, *Primary GPT*, *Secondary GPT*.



**Question 3 (0.75p).** Describe the required actions to make the *sshd* daemon be the last one to start in runlevel 4 (remember its service script is found in */etc/init.d/sshd*).

**Question 4 (0.75p).** For the APT tool, describe the difference between two different Debian repository sources, one labeled with *deb* and the other one with *deb-src*.

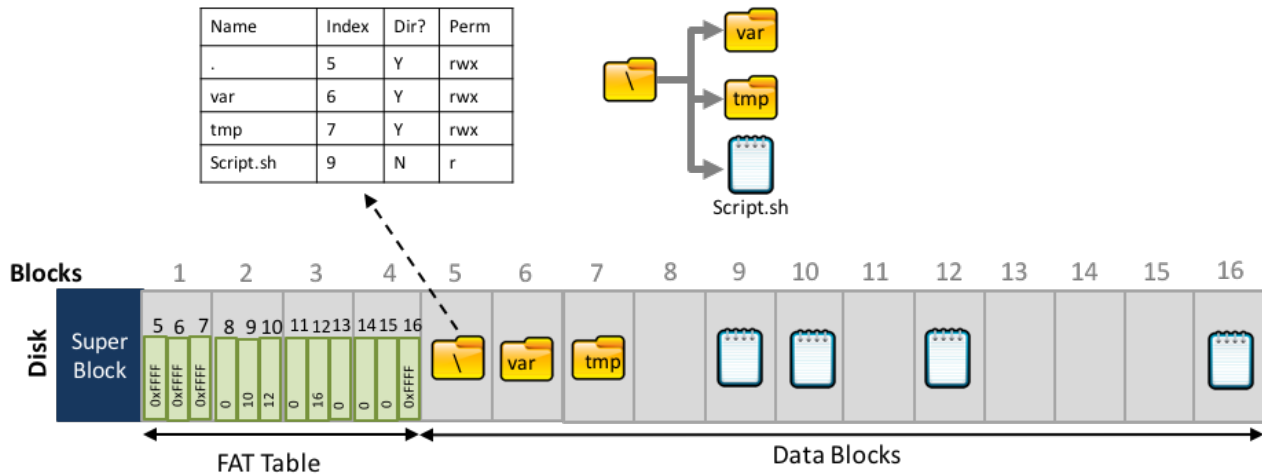
Given the following installation package *.deb*, describe the information that you are able to obtain from its name: *bbe\_0.2.2-2\_powerpc.deb*.

**Question 5 (1p).** Describe the following password protection mechanisms: *aging* and *cracklib*.

**Question 6 (1p).** Describe the role of Logical Volume Management (LVM) and its main advantages. Does LVM provide protection against hardware failures?

**Question 7 (1p).** Given the following line of the file */etc/crontab*: `[5 9-13,15-18 * * * /home/user/check.sh]`, determine the number of times it is executed in a week.

**Question 8 (1p).** Given a hard disk with a FAT file system and the content of the figure below, calculate the minimal number of disk reads required to access the whole content of the file *Script.sh*. How would the calculated value modify if an EXT file system is used?



**Question 9. (1p).** After uninstalling the kernel modules corresponding to the vfat file system (`$ rmmod vfat fat`), mounting a new disk with vfat file system still provides access to the disk content (`$ mkfs.vfat /dev/fd0; mount /dev/fd0 -> works!`). How is this possible?

**Question 10. (1p).** Describe the main causes that are currently slowing down the extension of IPV6.