ANNEX A · FILE SYSTEMS

Name: _____ **Date:** _____

PART A · BE THE FILE SYSTEM (PENCIL, ALONE)

This is a disk of 16 blocks. You are its file system. The teacher gives six orders. For each one, update **the disk** (write the file's letter in the blocks it uses, always the **first free blocks**) and **the inventory**.

0	1	2	3	4	5	6	7
8	9	10	11	12	13	14	15

Orders: 1 save **A** (3 blocks) · 2 save **B** (2) · 3 save **C** (4) · 4 save **D** (3) · 5 delete **B** · 6 save **E** (5)

File	Blocks it uses
A	
B	
C	
D	
E	

In how many pieces is E? _____ This is called _____ Free blocks at the end: _____

Cover the inventory with your hand. Can you tell which blocks belong to C? _____ That is what _____ a disk does.

PART B · FORMAT THE THREE PARTITIONS (DEB-LAB)

Ritual first: `lsblk` · read the sizes · your disk is the **5G** one. Never `vda`. Always the partition (`vdb1`), never the whole disk (`vdb`).

1. `lsblk -f /dev/vdb` → what is in the column FSTYPE now? _____
2. Install the tools for two more file systems: `sudo apt install xfsprogs exfatprogs`
3. `sudo mkfs.ext4 -L dev /dev/vdb1` → how many inodes did it create? _____ Did it create a journal? _____
4. `sudo mkfs.xfs -L design /dev/vdb2`
5. `sudo mkfs.exfat -L EXCHANGE /dev/vdb3`
6. `lsblk -f /dev/vdb` (if a line is empty, run it again). Fill in:

Partition	FSTYPE	LABEL	UUID (first 8 characters)
vdb1			
vdb2			
vdb3			

DONE WHEN Three partitions, three different file systems, three labels.

PART C · LOOK INSIDE, FORMAT AGAIN

7. `sudo tune2fs -l /dev/vdb1 | grep "Block size"` → _____ bytes. The same with `grep "Inode count"` → _____
8. `sudo tune2fs -l /dev/vdb1 | grep has_journal` → does a line appear? _____ What is a journal for?

   _____
9. Format `vdb3` **again** with the command of step 5, then `lsblk -f /dev/vdb`. Is the UUID of `vdb3` the same as in your table? _____ So what did formatting write?

   _____
10. Now try `sudo mkfs.xfs -L design /dev/vdb2` again. Copy the last line of the answer:

    _____

    Do not add `-f`.
11. `sudo blkid /dev/vdb1` → `TYPE=` _____ `LABEL=` _____ `PARTLABEL=` _____

DONE WHEN At the end: `vdb1` ext4 `dev` · `vdb2` xfs `design` · `vdb3` exfat `EXCHANGE`. Keep it like this for tomorrow.

PART D · SIX CASES AT TRAMUNTANA APPS (PAIRS)

Choose among **ext4 · XFS · Btrfs · NTFS · FAT32 · exFAT** and give one reason.

No.	Situation	File system	Reason
1	A 64 GB SD card for the camera. Clips of 6 GB. It must be read on Windows and on Linux.		
2	The system disk of Marta's new Debian workstation.		
3	A stick to update an old TV. The manual says "FAT only".		
4	The system disk of Aina's Windows 11 laptop.		
5	The video archive on a Red Hat server: files of hundreds of GB. It will only grow.		
6	Joan wants to "photograph" his whole project disk before each big change, and go back if it goes wrong.		

PART E · EXIT TICKET (ALONE)

1. The biggest single file FAT32 can hold is about…

A 32 GB B 4 GiB C 2 TiB D 16 TiB

2. A quick format of a partition…

A overwrites every block with zeros
B deletes the partition from the table
C checks every block for damage
D writes a new, empty file system on it

3. A journal lets a file system…

A recover its own consistency after a power cut
B restore files deleted by mistake
C store files bigger than 4 GiB
D be read by Windows and Linux

4. The file system the Debian installer proposes by default is…

A NTFS B exFAT C ext4 D FAT32

5. `/dev/vdb1` is formatted as ext4, but you cannot save a file in it yet, because…

A ext4 is read-only until the first reboot
B it is not attached to any directory of the tree
C the partition is too small
D only root's files fit in ext4