ANNEX A · PRACTICAL 1.2 · PERIPHERALS

NAME _____ DATE _____

You hand in this sheet at the end of the class. Marked out of 10: part A 3, part B 4, part C 2, part D 1.

TASK 0 Yesterday in four questions (no notes)

1 Put in order: kernel, firmware, PSU, bootloader, login, POST. _____

2 Fans spin, black screen, beeps. Which step failed? First check? _____

3 "It's M.2, so it's fast." True or false? Why? _____

4 A 1 TB disk shows 931 GB. Why? _____

TASK 1 Part A · Classify (in pairs)

A1. Type: **I** = input, **O** = output, **IO** = both, **S** = storage. Find the last four yourselves, in this room.

Peripheral	Type	Connected by	Peripheral	Type	Connected by
Keyboard			5.		
Monitor			6.		
Headset + mic			7.		
USB stick			8.		

A2. Small **b** = bit: divide by 8 to get megabytes per second.

USB 2.0 · 480 Mbit/s → _____ MB/s

USB 3.2 Gen 1 · 5 Gbit/s → _____ MB/s

USB 3.2 Gen 2 · 10 Gbit/s → _____ MB/s

USB4 · 40 Gbit/s → _____ MB/s

- A 30 GB game (30,000 MB) through USB 2.0 takes at least _____ seconds = about _____ minutes.
- A cable has USB-C plugs on both ends. What can you say about its speed? _____
- Ports of your PC: USB-A ____ USB-C ____ HDMI ____ DisplayPort ____ VGA ____ audio jack ____

☐ **Done when:** all eight rows of A1 are complete and you did the four divisions.

TASK 2 Part B · Install a USB device

In a terminal (**Ctrl + Alt + T**). Your device: a USB stick, your phone with its cable, or the PC's mouse (unplug it first).

B1. Save the list of USB devices before.

```
lsusb > before.txt
```

B2. Plug your device in, wait five seconds, save the list after and compare. The line starting with `>` is new.

```
lsusb > after.txt
diff before.txt after.txt
```

My device: vendor ID _____ product ID _____ name _____

B3. Find it in the tree view (same bus and device number as in B2).

```
lsusb -t
```

Class: _____ Driver: _____ Speed: _____ M = _____ MB/s

B4. Run this, unplug the device, plug it in again, then press **Ctrl + C**.

```
udevadm monitor --kernel --subsystem-match=usb
```

The first word of the lines when I unplug: _____ and when I plug in: _____

B5. (USB sticks only) Where did Ubuntu put it?

```
lsblk -o NAME,SIZE,TRAN,MOUNTPOINT
```

Name: _____ Size: _____ Mounted on: _____

☐ **Done when:** you wrote the ID, the class, the driver and the speed of your device. Eject a stick in **Files** before you pull it out.

TASK 3 **Part C · Configure it**

C1. Mouse speed. Read the setting, change it in the window, read it again.

```
gsettings get org.gnome.desktop.peripherals.mouse speed
```

Value now: _____ → open **Settings → Mouse & Touchpad**, move **Pointer Speed** to the far right → value now: _____

Now change it from the terminal, feel the mouse, and put it back to the default:

```
gsettings set org.gnome.desktop.peripherals.mouse speed -1
gsettings reset org.gnome.desktop.peripherals.mouse speed
```

C2. Left-handed mouse. Run the first line. Try to click. Then put it back (careful: which button works now?).

```
gsettings set org.gnome.desktop.peripherals.mouse left-handed true
gsettings set org.gnome.desktop.peripherals.mouse left-handed false
```

C3. Keyboard layout. Settings → Keyboard → Input Sources → + → add English (US). Open a text editor. Press the key to the right of **L**. Switch layout with **Super + Space** (Super = the Windows key) and press the same key again. With the Spanish layout it types _____ and with the US layout it types _____. The key is the same piece of plastic. What changed? _____ Remove English (US) when you finish.

☐ **Done when:** the mouse is back to normal, the keyboard types `ñ` again, and C1 and C3 are written.

TASK 4 **Part D · "It does not work" (in pairs)**

Three layers: **connection** (does the computer see it?) · **driver** (does something drive it?) · **configuration** (is it selected and set?).

Case	Layer	First thing I would check
A new mouse does nothing. `lsusb` shows no new line.		
A printer appears in `lsusb`, but nothing prints.		
Bluetooth headphones say "connected". The sound still comes from the laptop.		

☐ **Done when:** each case has one layer and one check.

EXIT TICKET **Alone. One answer each.**

1. A game controller with buttons and vibration is:

- ○ a) input
- ○ b) output
- ○ c) input/output
- ○ d) storage

2. What does the USB version (2.0, 3.2, USB4) tell you?

- ○ a) The maximum speed and the rules
- ○ b) The shape of the plug
- ○ c) The brand of the device
- ○ d) Whether it needs a driver

3. A new USB keyboard works without installing anything. Why?

- ○ a) Keyboards need no driver at all
- ○ b) The keyboard installs its own system
- ○ c) The firmware types for it
- ○ d) It follows a standard class and the OS has a generic driver

4. A scanner appears in `lsusb` but no program can use it. Which layer fails first?

- ○ a) Connection
- ○ b) Driver
- ○ c) Configuration
- ○ d) The power supply