Solution TD0

Exercise 1:

1	**Recall the computer architecture (refer to the course) for a reminder.**
2	**Information is presented in memory as binary digital data, often represented in bits (0 and 1). These bits are organized into groups called bytes (or cells). Each cell has a unique address which allows direct access to any cell.**
3	**The basic unit of measurement for information is the bit (short for binary digit)**
4	RAM**: volatile memory; used for storing data and programs that are actively being used by Operating System, programs and applications; read/write memory; usually has a higher capacity compared to ROM.** ROM**: non-volatile memory; used for storing essential instructions and data such as a computer's BIOS or start instructions; read-only memory**
5	**Auxiliary memory (secondary storage), such as hard drives and SSDs, is used for long-term storage of data, programs, and files . non-volatile storage .** **RAM is much faster .** **RAM has a limited capacity compared to auxiliary memory** **Auxiliary memory is an external removable memory.**
6	**Time = Size/Speed = 1MB/1Mb/s = 1×8Mb 1Mb/s = 8s**
7	**Input:** Keyboard, PlayerDVD, scanner, mouse, microphone. **Output:** screen, printer, speaker. **Input/Ouput:** floppy disk; DVD engraver, hard disk, modem, flash disk, digital screen.

Keyboard, floppy disk, screen, DVD engraver, DVD player, scanner, hard disk, mouse, printer, modem, flash disk, digital screen, microphone, speaker.

Exercise 2:

Specify the units of measurement in the following data sheet:

- Intel Core™i5 (frequency 3.40 **GHz**,cache memory 4 **MB**
- Windows 8.1 64 **bits**
- RAM 4 **GB** with frequency of 1333 **MHz**
- Hard disk 850 GB, transfer rate 4 **MB/s**
- Integrated network card (LAN) : 100 **Mb/s**
- ADSL Connection 2 **Mb/s**

- WebCam: resolution 12 **Mega Pixel.**

Exercise 3:

Convert the following units:

- 2,4 GHz= **2.4×10^3** MHz= **2.4×10^9** Hz.
- 4,7 GB = **4.7×2^{10}** MB = **4.7×2^{20}** KB = **4.7×2^{30}** Bytes.
- 512 kb/s = **512/8** kB/s = **64×2^{10}** Bytes/s.
- 2 TB = **2×2^{10}** GB = **2×2^{20}** MB.
- 1Mb/s = **$1 \times 2^{10}/8$** kB/s = **1024/8 kB/s**= **128 kB/s** = **128×1024** bytes/s.

Exercise 4:

Used space : 1,87 GB+ 4096 MB + 300 MB = 1,87+4,096+0,3 GB = **6.266 GB**
Free space : 8 GB - 6,266 GB= **1,734 GB.**
By comparing the free space with the Film size, we deduce that Anya cannot copy the film to the flash disk (2GB > 1,734 GB).