EXERCISES OF ELECTRONIC CIRCUITS

Name: _____ Date: _____

Exercise 1:

Assemble the circuit and answer the questions:

- What kind of component is it? And what is its electric symbol?
- Is there any difference if the left terminal of the motor is connected to the positive pole of Arduino and the right terminal to the GND pin? If so, what is it?

Exercise 2:

Assemble the circuit and answer the questions:

- What kind of components is being used? What is its electric symbol?
- Are they connected in series or in parallel?
- In that kind of connection, the intensity/voltage is always the same (underline the correct word).

Exercise 3:

Assemble the circuit and answer the questions:

- Are they connected in series or in parallel?
- In that kind of connection, the intensity/voltage is always the same (underline the correct word).

Exercise 4:

Assemble the circuit and answer the question:

- What happens if just the left and the right terminals of the switch are used?

Exercise 5:

Assemble the circuit and answer the questions:

- What kind of component is being used to vary the shine of the light emitted? What is its electric symbol?
- Is it possible to change the circuit so that the bulb increases its shine when the cursor is rotated to the right?

Exercise 6:

Assemble the circuit and answer the questions:

- What is the function of the resistor?
- In order to conduct electricity, the long terminal of the LED must be connected to the positive or to the negative pole of the battery (of Arduino in this case)?
- Is there any difference if the resistor is connected to the left or to the right of the LED?

Exercise 7:

Assemble the circuit and draw its electrical scheme:

Exercise 8:

Assemble the circuit and draw its electrical scheme:

Exercise 9:

Assemble the circuit that is represented in the scheme:

Exercise 10:

Assemble the circuit that is represented in the scheme:

Exercise 11:

Assemble the circuit and answer the questions:

- What kind of LED is being used?
- Why the number of terminals of that component is 4 and not 6 if it works as three normal LEDs?

- What colors must be mixed to emit yellow light?
- What is the main application of this kind of LED?

Exercise 12:

Assemble the circuit and draw its electrical scheme:

Exercise 13:

Assemble the circuit and draw its electrical scheme:

Exercise 14:

The circuit below is quite frequently used in the electrical installations of all kind of buildings. Assemble it and explain what its function is.

Exercise 15:

Assemble the circuit* and answer the questions:

**Set the voltage of the energy source to 25V.*

- Draw the electric scheme of the circuit.

- What is the name of the new component that is being used in the circuit?
- That component works thanks to the magnetic field created by an: _____ (draw its symbol).
- What is the difference between a normal switch and that component?

- In which cases is it necessary to use this kind of component?

Exercise 16:

Assemble the circuit* and answer the questions:

**Both resistors have a resistance of 1kΩ.*

- Draw the electric scheme of the circuit.

- What's the name of the new component that is being used in the circuit?
- What is the function of that component?

- What happens if the value of the resistor that is connected to the switch is increased?

- What happens if the value of the resistor that is connected to the LED is increased?

Exercise 17:

Assemble the circuit and answer the questions:

- Draw the electric scheme of the circuit.
- What's the name of the new component that is being used?
- Explain why one of the LEDs emits light and the other does not?

Exercise 18:

Assemble the circuit and answer the questions:

- Draw the electric scheme of the circuit.
- What's the name of the new component that is being used? That acronym stands for: _____
- That component can be used as a sensor of: _____

Exercise 19:

Assemble the circuit and answer the questions:

- Draw the electric scheme of the circuit.

- What's the name of the new component that is being used? Draw its electric symbol and indicate the name of its three terminals.

- Explain how the circuit works

Exercise 20:

Assemble the circuit that is represented in the scheme and answer the questions:

- The intensity that reaches the base increases/decreases when there is a lot of light (underline the correct word).
- In which cases might this circuit be useful?