



FEINES D'ESTIU

2017-2018

Assignatura: TECNOLOGIA

Curs: 3r ESO

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4. Are they **renewable or non-renewable** energy sources?

- a. Natural gas
- b. Solar
- c. Wind
- d. Nuclear
- e. Marine
- f. Geothermal
- g. Petroleum
- h. Coal
- i. Hydraulic
- j. Biomass

5. **Explain** how a nuclear power plant works. **Explain** its **advantages** and **disadvantages**.

6. **Explain** the main disadvantages thermal combustion power plants present.

7. **Explain** how wind power plants work.

8. **Explain** the advantages and disadvantages when obtaining electricity from solar thermal power plants and photovoltaic power plants.

9. **Explain** how hydraulic power plants work.

UNIT 2. ELECTRICITY

1. **Define** and note the **units**.

a. Voltage

b. Electric current

c. Resistance

d. Electric power

e. Energy

2. **Draw** the **symbol** and note which type of element is:

a. Light bulb

f. Commutator

b. Switch

g. Buzzer

c. Motor

h. Battery

d. Resistance

i. Wire crossing with connexion

e. Wire crossing without connexion

j. Push button

PROBLEMS

1. Which **voltage** do we need if we want an electrical current of 0.5A if the resistance is of **200 Ω** ?
2. A motor is connected to a **4.5 V** battery. If the electrical current is **1500 mA**, calculate the **resistance** and the **electric power**.
3. An engine has a resistance of **300 Ω** and is connected to a **9V** battery,
 - a. Calculate the electric current and express it in **mA**
 - b. If we want the electric current to be **15 mA**, which **voltage** do we need at the battery?
4. If we have a **4,5V** battery and we know that the electric current is **0,75 A**, calculate the **resistance**. Express the result in **K Ω** and **Ω** .

5. Calculate the **electric current** on a circuit if we have a voltage of **125V** and a resistance of **0,05 KΩ**. Calculate the electric power in **KW**?

6. A light bulb has an internal resistance of **0,1 KΩ**, if we know that the electric current is **2500 mA**, calculate the voltage and express it in **V** and **mV**.

7. Calculate the **electric current** on a light bulb wire if we have this information: **50W** and **220V**. Then, calculate the **resistance**.

8. Your compute consumes an electric power of **40W**. If you use it **2 hours every day** during a month (**30 days**), calculate the energy consumed in KWh. If each KW has a cost of **0.1€**, calculate the cost per month.

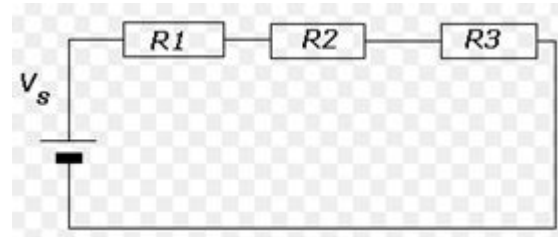
9. Calculate the electric power if voltage is **220V** and electric current **2A**.

10. Draw a circuit with a NO push button and a resistor connected in series to two light bulbs connected in parallel.

11. Solve the following circuits (total resistance, total electric current and electric current and voltage in each resistance).

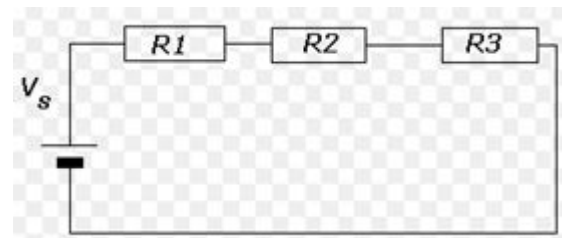
Circuit 1:

$R_1=15\Omega$, $R_2=20\Omega$, $R_3=30\Omega$, $V_t=9V$



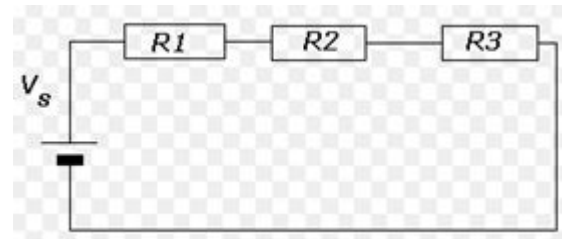
Circuit 2:

$R_1=150\Omega$, $R_2=120\Omega$, $R_3=90\Omega$, $V_1=5V$



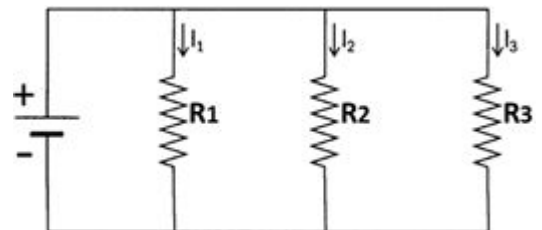
Circuit 3:

$R_1=75\Omega$, $R_2=50\Omega$, $R_3=60\Omega$, $I=0,3A$



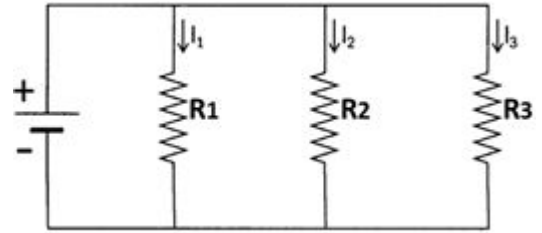
Circuit 4:

$R_1=65\Omega$, $R_2=20\Omega$, $R_3=50\Omega$, $V_t=6V$



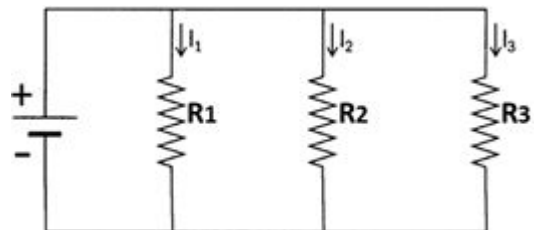
Circuit 5:

$R_1=95\Omega$, $R_2=120\Omega$, $R_3=50\Omega$, $I_t=2A$



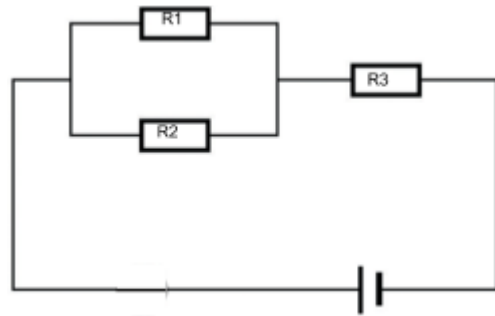
Circuit 6:

$R_1=65\Omega$, $R_2=120\Omega$, $R_3=90\Omega$, $I_1=0,5A$



Circuit 7:

$R_1=65\Omega$, $R_2=20\Omega$, $R_3=50\Omega$, $V_t=6V$



Circuit 8:

$R_1=95\Omega$, $R_2=50\Omega$, $R_3=40\Omega$, $V_t=5V$

