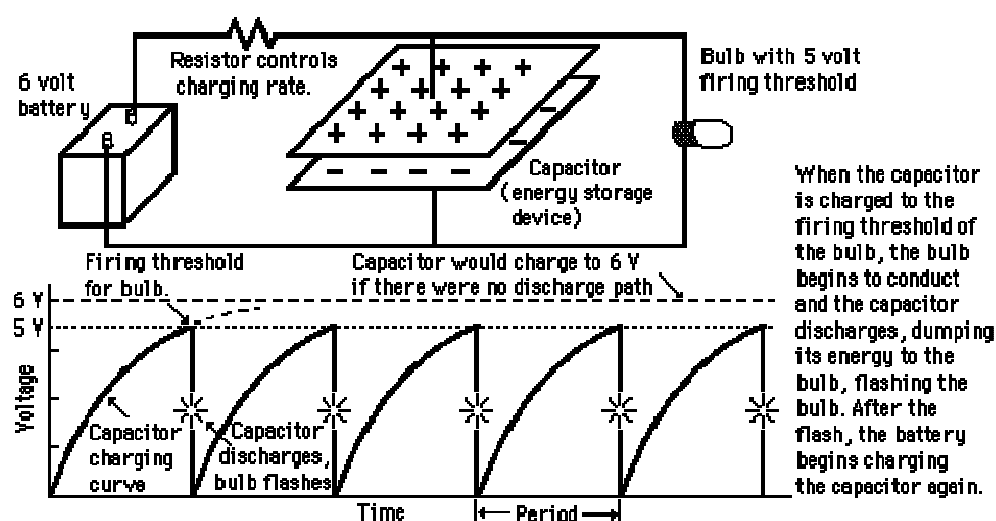


EXAMEN : BACCALAURÉAT GÉNÉRAL	SESSION 2011
ÉPREUVE : Évaluation spécifique de langue en section européenne	
PHYSIQUE-CHIMIE en langue ANGLAISE	SUJET N°12

The relaxation oscillator concept

The concept of a relaxation oscillator is illustrated by this flasher circuit where a battery repeatedly charges a capacitor to the firing threshold of a bulb, so that the bulb flashes at a steady rate.



When the capacitor is charged to the firing threshold of the bulb, the bulb begins to conduct and the capacitor discharges, dumping its energy to the bulb, flashing the bulb. After the flash, the battery begins charging the capacitor again.

A relaxation oscillator is a repeating circuit (like the flasher circuit illustrated above) which achieves its repetitive behavior from the charging of a capacitor to some event threshold. The event discharges the capacitor, and its recharge time determines the repetition time of the events. In the simple flasher circuit, a battery charges the capacitor through a resistor, so that the values of the resistor and the capacitor (time constant) determine the flashing rate. [...]

Adapted from www.hyperphysics.phy-astr.gsu.edu

Questions :

1. Present and comment on this document.
2. Do not forget to focus on the change in voltage across the capacitor.
3. Discuss the effect that the resistor has on the flashing rate.
4. Do you know any other uses for the RC circuits ?