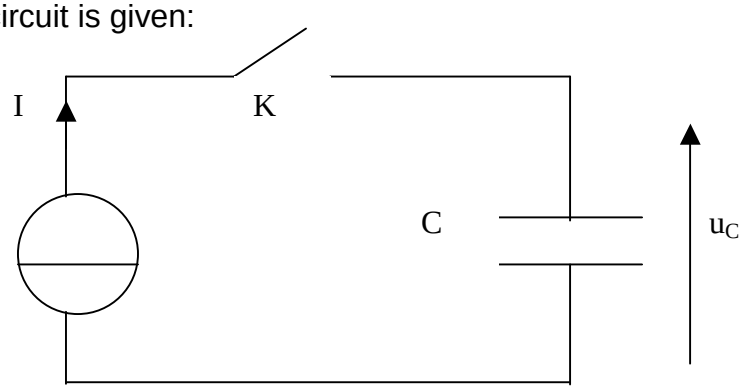
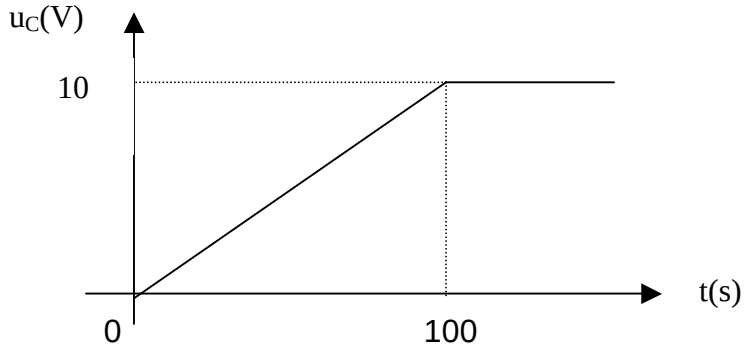
ORAL WORK ON CONSTANT CURRENT CHARGE OF A CAPACITOR

The following circuit is given:



I = 100 µA = constant, C = 1000 µF and at t= 0, K is closed.
u_C is measured every 10 s for 100 s and at t = 100 s, K is opened.
The following graph is obtained:



a) Give the name of the source applied to the capacitor.
b) Is the capacitor initially charged? Why?
c) Give the relation between u_C and t for the straight line.
d) Give the value of u_C when t = 30 s.
e) Calculate the charge q stored by the capacitor when t = 100 s.
f) The charged capacitor C = 1000 µF is isolated and connected in parallel with another discharged capacitor C' = 470 µF. Calculate the new voltage u'_C across them. (hint : the value of q in question (e) remains constant)