BG 222 L - P5

INVESTIGATION #2

PART - I

$t_i = 6.8\,s$

$t_f = 111.728\,s$

$\Delta t = R.C = 111.728 - 6.8$

$= 104.928\,s$

Expected = 100 s

% difference for 1000 μF capacitor & 100 kΩ resistor. $= \frac{(104.928 - 100)}{\frac{100 + 104.928}{2}}$

$= 0.04809$

$\times 100$

$= 4.81\,\%$

∴ difference

PART-2

$t_i = 3.46\,s$

$t_f = 109.61\,s$

$\Delta t = R.C = 109.61 - 3.46$

$= 106.15$

Expected = 100s

1. difference 1000 μF capacitor & 100 kΩ resistor. $= \dfrac{|106.15 - 100|}{\dfrac{106.15 + 100}{2}}$

$= \dfrac{6.15}{103.075}$

$= 0.05966 \times 100$

$= 5.966\%$

difference

PART-3

$t_i = 0.39s$

$t_f = 27.07s$

$\Delta t = R.C. = 26.68s$

Sol:- This is the expected result. It needed me take 10s to reach the expected R.C. value.
By placing the two capacitors in parallel, we are increasing the amount of charge storing, while the rate of charge / discharge remains the same.

VOLTAGE DATA CHART

PART 1 :- 2.08V

PART 2 :- 1.21 V

PART 3 :- 1.21 V

Steady key.
52.8% decrease 52.8%
$\lvert 2.08 - 1.21 \rvert = 0.87$
1.645 1.645
0% change