

EE236: Experiment No. 1

RC Circuits

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**** All experiment reports may not contain all fields in this format, This document is just for your reference****

1 Overview of the experiment

1.1 Aim of the experiment

To measure voltage across capacitor against square wave voltage of different frequencies.

1.2 Methods

In your own words, describe how you set out to realize the goal of the experiment. Only 1 paragraph of a brief overview of your approach is expected here. Do not list your observations here. I used

2 Design

In this section, explain your design strategy for the experiment. Mention all the design steps you follow for each part of the experiment. An equation based analysis, with supporting circuit diagrams is expected. Circuit diagrams must be made in Xcircuit.

$$v_{o1} - v_{o2} = -g_m R_D (v_{in1} - v_{in2}) \quad (1)$$

$$a = b + c \quad (2)$$

(copy-paste from handout will be counted as plagiarism).

3 Simulation results

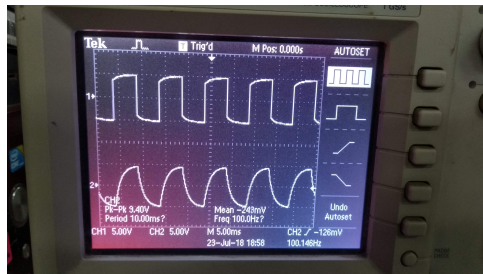
3.1 Code snippet

Enter your ngspice code here:

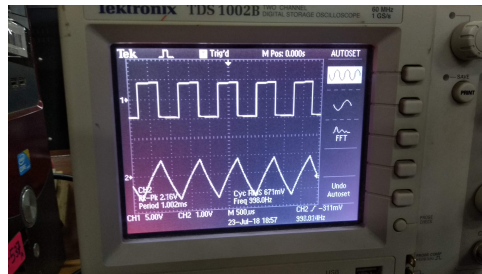
```
*IV Charactersics of Normal Diode
Resistive Load
R1 1 2 100
Default Diode
D1 3 0
Dummy voltage source to measure current.
v1 2 3 dc 0v
Voltage Source
Vin 1 0 dc 5.0v
DC analysis: Vin is swept from 0.0V to 6.0V in steps of 0.05V
.control
dc Vin 0.0001 6 0.0001
run
white background
set color0 =white
set color1=black
plot i(v1) vs V(2)
.endc
.end
```

3.2 Simulation results

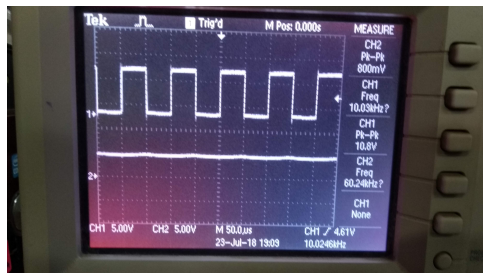
Enter your simulation plots, together with text explaining the plots. All figures must have legible fonts, and a caption that makes sense.



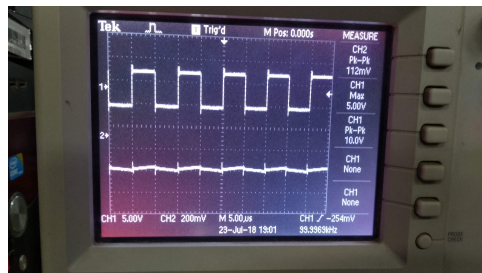
(a) 100Hz



(b) 1000Hz



(a) 10kHz



(b) 100kHz

4 Experimental results

4.1 Part-1

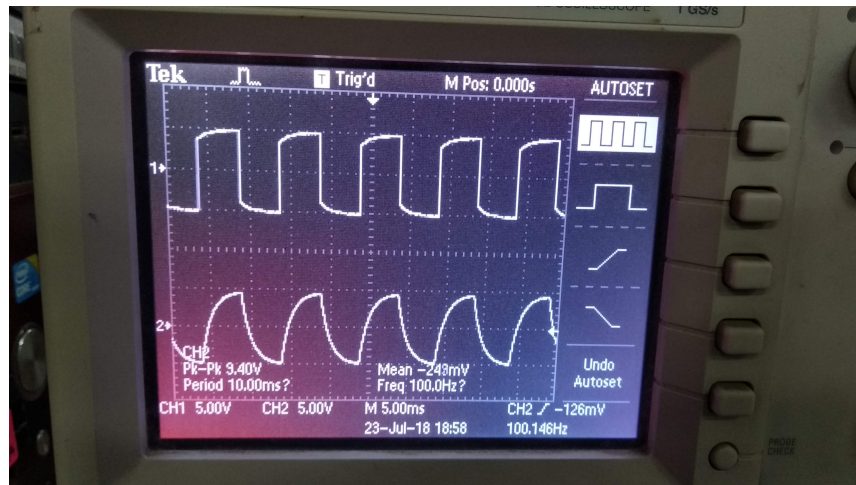
Results of part 1 of experiment should be added here. Mention what component values you used with appropriate circuit diagram, and what your measured values were.

4.2 Part-2

Mention what component values you used with appropriate circuit diagram, and what your measured values were. Add any DSO screen captures you

Table 1: Table Caption

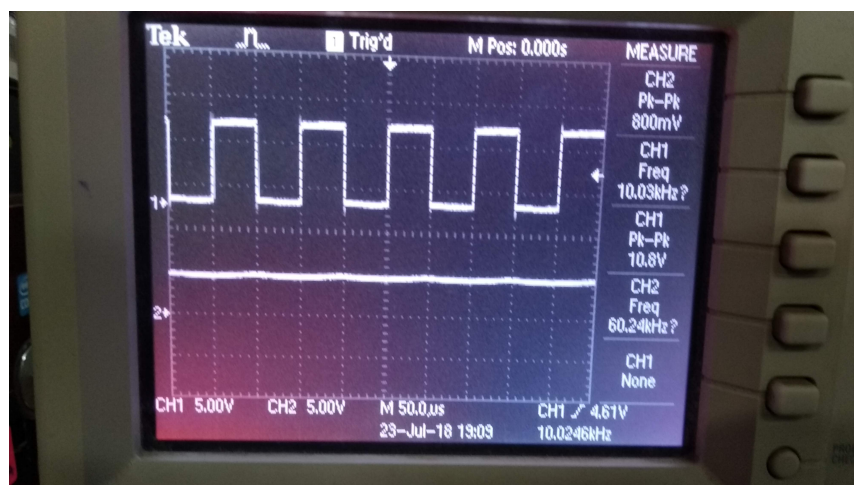
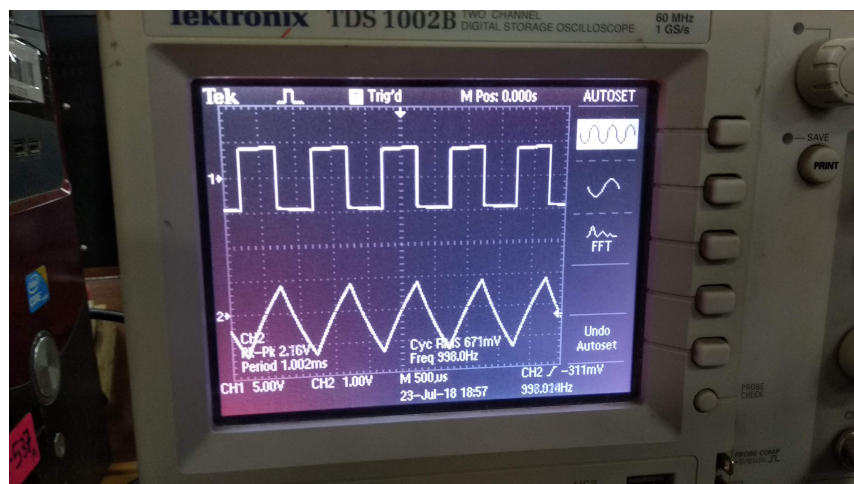
Sr. No.	column1	column2	column3
row1			
row2			

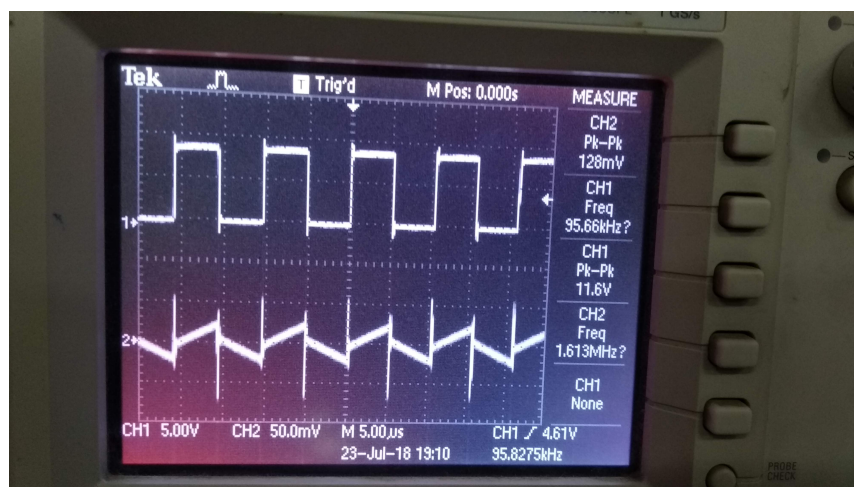
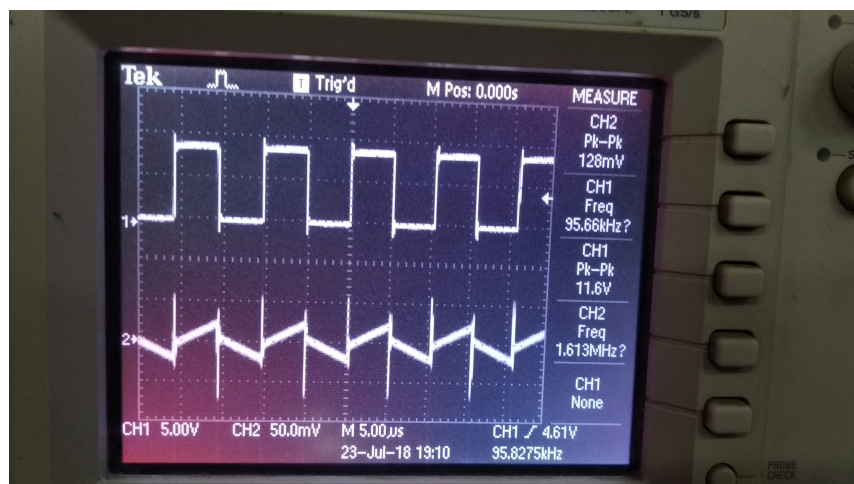


may have got on your phone. Address all the questions which are asked in the labsheet.

4.3 Part-3

Mention what component values you used with appropriate circuit diagram, and what your measured values were. Add any DSO screen captures you may have got on your phone. Address all the questions asked in labsheet and try to write explanations for the results you obtain.





4.4 Optional part

Add your observations and comments on any additional(optional) exercises you perform

5 Experiment completion status

In this part , mention which sections you completed in lab and which you couldn't,also give suitable explanation stating why you couldn't complete it.

6 Questions for reflection

Address all the reflection questions here which will be given at end of each lab.