PHYS2255 Introductory Electricity and Magnetism
2255-1 LABORATORY REPORT
Experiment 1: Operation of a cathode ray oscilloscope (CRO)

Student Name: _____   Student No.: _____

Group No.: _____   Date: _____

(A)   (i) Calculate what is the sweep period now.

_____

(ii) Check your answer by timing the sweep roughly (an ordinary watch will do)

_____

(iii) Compare your measurement and your prediction. Are they the same/different?

_____

(B)   According to the setting used now, what is the number of divisions shifted compared with the reading when no dry cell is connected to CRO?

_____

What is the shift if you change the setting to 1V/cm? And how about 0.2V/cm?

_____

(C)   How many cycles can be observed on the following Time/Div settings? If you cannot count the number of cycles, give an estimated number.

_____

1 µs/cm   ....

10 µs/cm   ....

1 ms/cm   ....,

10 ms/cm   ....

100 ms/cm   ....

(D) (i) Write down the settings of the CRO

Volt/Div ....

Time/Div ....

Results:

V_{pp} ....,

V_{rms} ....

(ii) Why is the vertical part of the square wave-form very faint?

_____

(iii) Height of the square wave = ...

V_{PP} = ...

(E)   (i) What do you observe on the screen?

(ii) On what Time/Div do you get one complete cycle?

(iii) What is the setting now for 1 cycle?

(F) Table 1

Nominal freq. (Hz)	No. of cycle	Width (cm)	Period (s)	"True" freq. (Hz)	percentage error (%)

(G) What do you observe when the VARIABLE knob is turned?

_____

_____

_____

_____

_____

_____

You may also try to adjust VARIABLE (and if necessary Time/Div) so as to keep just two complete cycles on the screen as you vary the frequency in small steps from 200**Hz** to 2000**Hz** (anyway over a factor of about 10).

Note that if VARIABLE is not fully clockwise the sweep rate is unknown, and the Time/Div value shown on the black switch no longer applies.

(H) Table 2

Output amplitude (Level)	R_i (sine-wave)	R_i (square wave)
5		
6		
7		
8		
9		