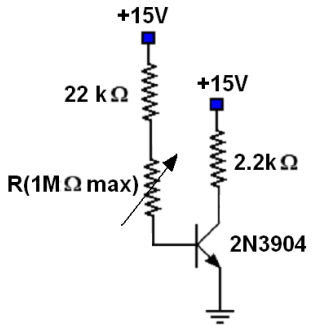
Electronics Lab

BJT biasing

Experiment 1: *Base Bias.*

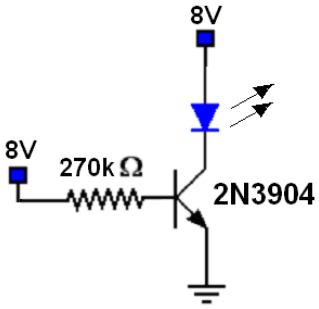
a) Connect the circuit shown in the figure:

b) Calculate and measure the voltage collector emitter for values of R=0, 200k… 1M.



Experiment 2: *LED driver 1.*

a) Connect the circuit shown in the figure:
b) Calculate and measure the voltage collector emitter.
c) Add more LEDs in series to the existing one to determine how many can be driven with this circuit.

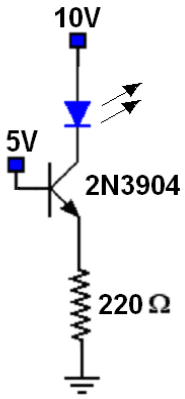


Experiment 3: *LED driver 2.*

a) Connect the circuit shown in the figure, which is a variation of the previous circuit:

b) Calculate and measure the voltage collector emitter and emitter current.

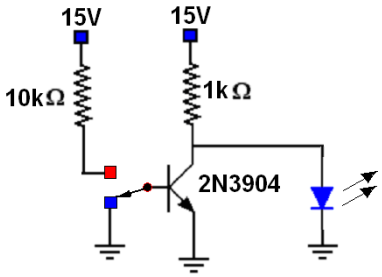
c) Add more LEDs in series to the existing one to determine how many can be driven with this circuit.



Experiment 4: *NOT Gate*.

a) Connect the circuit shown in the figure, which behaves as a "NOT" gate.

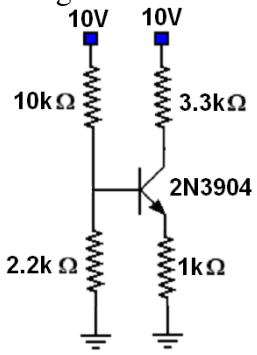
b) Check the behavior of the gate by switching the input from high to low and vice versa.



Experiment 5: *Voltage divider bias*.

a) Connect the circuit shown in the figure.

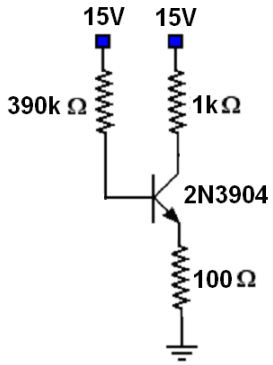
b) Determine the operating point of the transistor and confirm your calculations by measuring the voltage collector emitter.



Experiment 6: *Emitter feedback bias.*

a) Connect the circuit shown in the figure.

b) Determine the operating point of the transistor and confirm your calculations by measuring the voltage collector emitter.



Experiment 7: *Collector feedback bias.*

a) Connect the circuit shown in the figure.

b) Determine the operating point of the transistor and confirm your calculations by measuring the voltage collector emitter.