TUTORIAL-3

EE 101: Basic Electronics

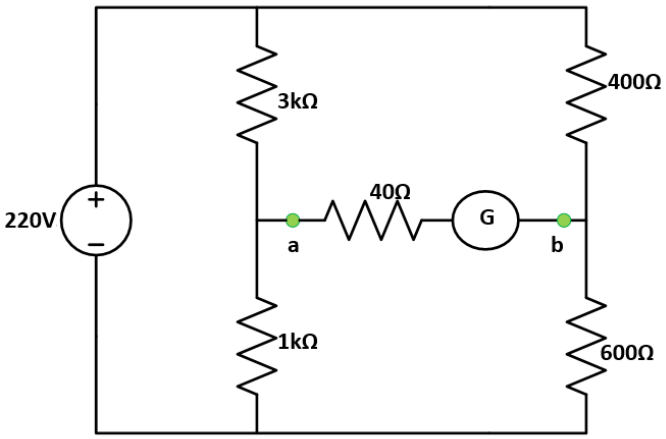
DEPARTMENT OF ELECTRONICS & ELECTRICAL ENGINEERING

INDIAN INSTITUTE OF TECHNOLOGY GUWAHATI

*(First question is the **Pre-Tutorial Assignment problem** to be solved in the space provided.)*

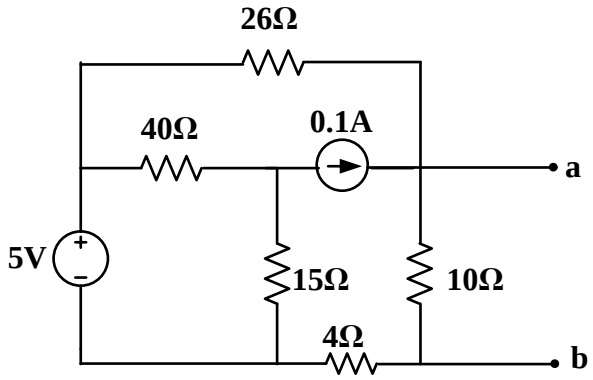
Name:	Roll No.	Tutorial Group:

1. Find current through the Galvanometer (G, from terminal a to terminal b) which has an internal resistance of 40 Ω.

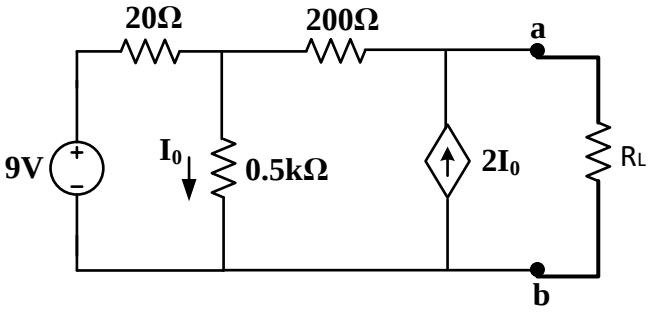


2. Find Norton's equivalent resistance in the following circuit as seen by the terminal a-b by the
a). conventional method and
b). open-circuit voltage and short-circuit current method.

Give reasons, if any, for differences between the two estimated values.

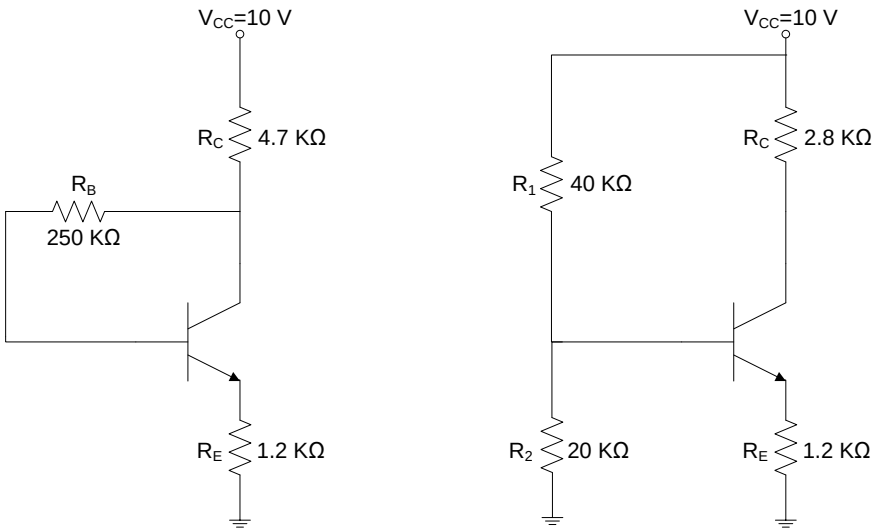


3. Find the maximum power delivered to the load resistor R_L.



4. In the two circuits shown below, the transistors have β=100. Assume V_{BE}=0.7 V when the B-E junction is forward biased and V_{CE}=0.1 V if the transistor is in saturation

Find the Q-point for the transistors in (i) and (ii), i.e. V_{CE}, I_C and I_B



(i) **(ii)**

5. In the circuit of (ii), R_1 is changed to be 20KΩ while everything else remains the same. What will be the state of the transistor in this case?