Assignment 01

Basic Electronics /Physics

BC (CS) & BS (SE)

Fall Semester 2018

PART-A

Q.1 Discuss the definition, law, and derivation using examples.

Q.2 Explain the three type of diode approximations in detail.

Q.3 Differentiate between voltage source and current source using examples, graphs, and equations.

Q.4 Summarize the steps involve in applying the Thevenin's theorem and Norton's theorem.

Q.5 Discuss the following:

a. Troubleshooting b. Solder Bridge c. Cold-solder joint

d. An open device e. A shorted device

PART-B

Q.1 A given voltage source has a voltage (V_S) of 12 V and an internal resistance (R_S) of 0.2 Ω. For what values of load resistance (R_L) will the voltage source appear stiff?

Q.2 Find the load current (I_L) in Q.1 when the voltage source appears stiff.

Q.3 A current source of 10 mA has an internal resistance (R_S) of 100 KΩ. Over what range of load resistance (R_L) is the current source stiff?

Q.4 What is the load voltage (V_L) in Figure 01 when the load resistance (R_L) equals 10 kΩ?

Q.5 Find the Thevenin voltage (V_{TH}) and resistance (R_{TH}) in Figure 02 and draw the Thevenin circuit?

Q.6 Using Thevenin's theorem, what is the load current (I_L) in Figure 02 if R_L is 6 kΩ?

Q.7 Find the Thevenin's circuit for Figure 03 using NI Multisim and attach the printout in the answer sheet.

Q.8 Convert the Thevenin circuit obtained in Q.5 to Norton circuit.

Q.9 Find the Norton current (I_N) and resistance (R_N) in Figure 02 and draw the Norton circuit?

Q.10 What could the possible troubles be if you measure V_A = 5 12 V and V_B = 5 6 V in Figure 04?

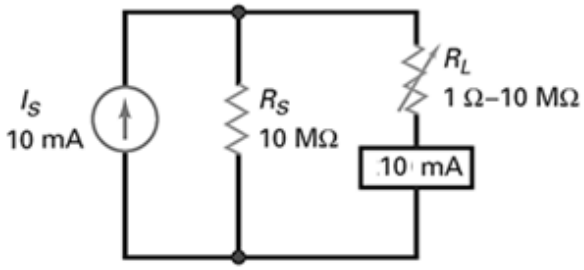

Figure 01

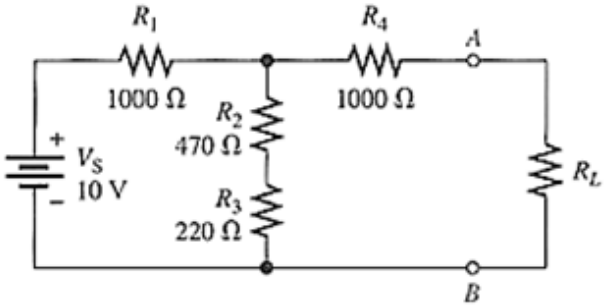

Figure 02

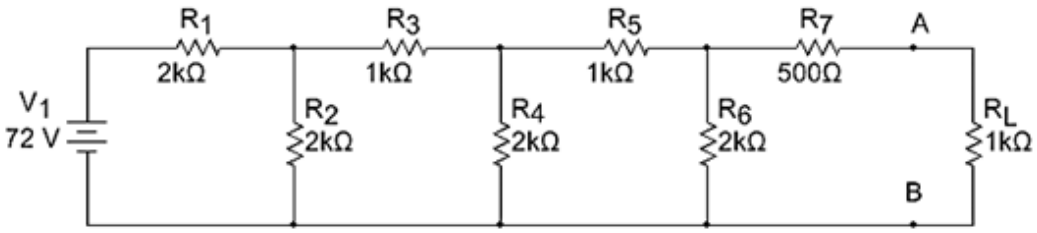

Figure 03

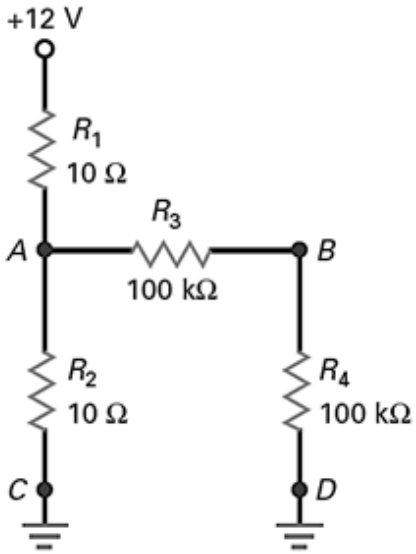

Figure 04