This exercise is designed to “refresh” your memories on some of the basic electronic related material and to provide an opportunity to begin the process of working in teams and groups as will be used throughout the quarter. The grouping may be changed throughout the term.

The primary task is to correctly answer as many questions as possible in the 20 minutes allocated. Remember you are not working as an individual but as part of a team, try and allocate your “resources” accordingly.

1) Find the Thevenin equivalent for FIGURE 1 as seen between terminals AB. Your answer should be in terms of the variables supplied and should include a diagram.

2) Sketch $V_{out}$ for the circuit shown in FIGURE 2 based on a 5 V peak to peak 5 kHz sine wave input signal. Be sure to label voltage levels on the y axis.

3) Sketch a “typical” I-V characteristic curve for a silicon PN diode and identify specific operating regions.

4) Sketch $V_{out}$ for the circuit shown in FIGURE 3 based on a 5 V peak to peak 5 kHz sine wave input signal and a $|V_{out}/V_{in}|$ of 2.5. Be sure to label voltage levels on the y axis. How, or would, the graph change if the $C_E$ capacitor were removed?

5) Sketch $V_{out}$ for the circuit shown in FIGURE 4 based on a 5 V peak to peak 5 kHz sine wave input signal and a $|V_{out}/V_{in}|$ of 0.8. Be sure to label voltage levels on the y axis. How, or would, the graph change if the $C_2$ capacitor were connected to the drain instead of the source terminal without making any other changes?