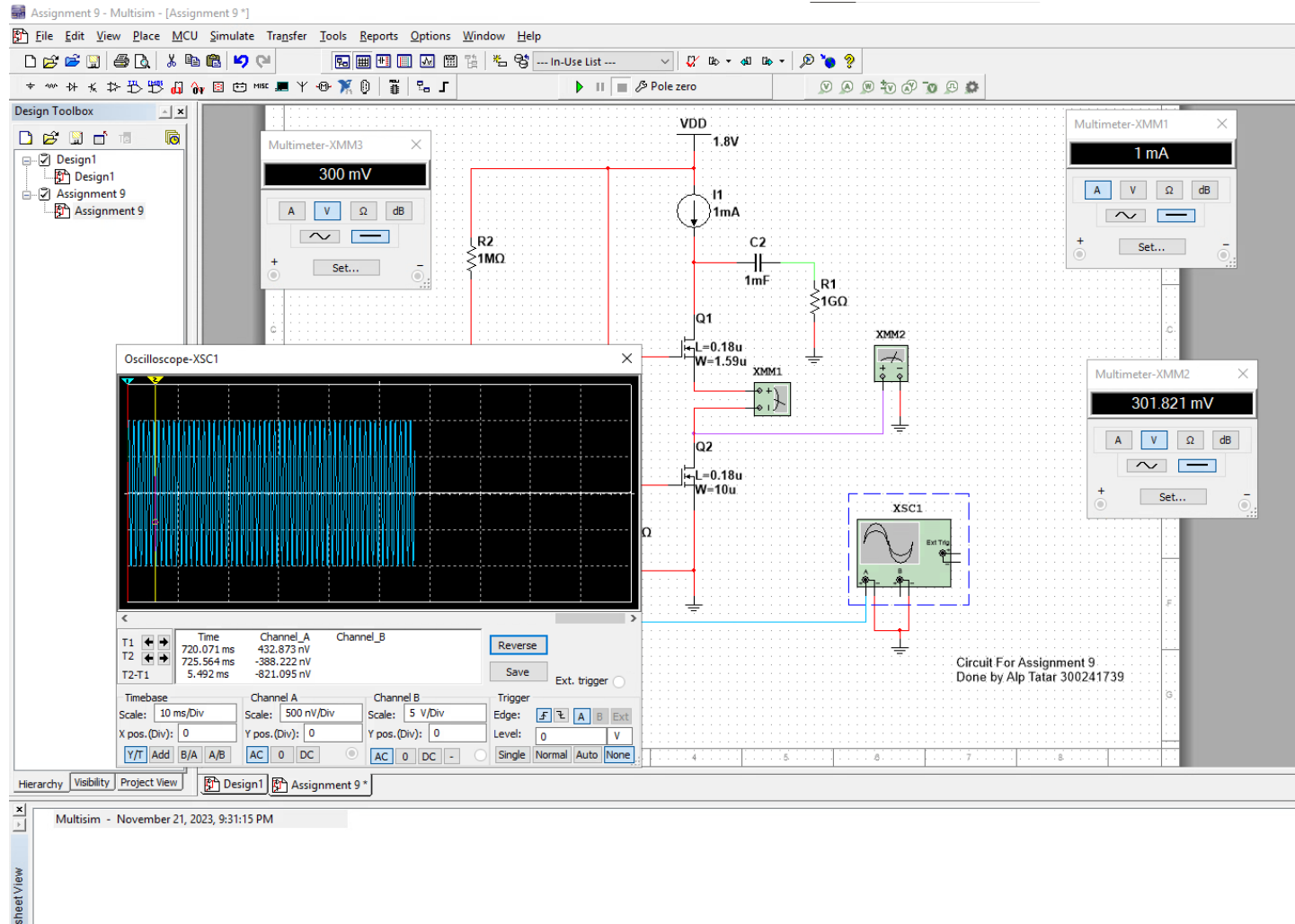# Assignment 9: Digital Simulations Submission
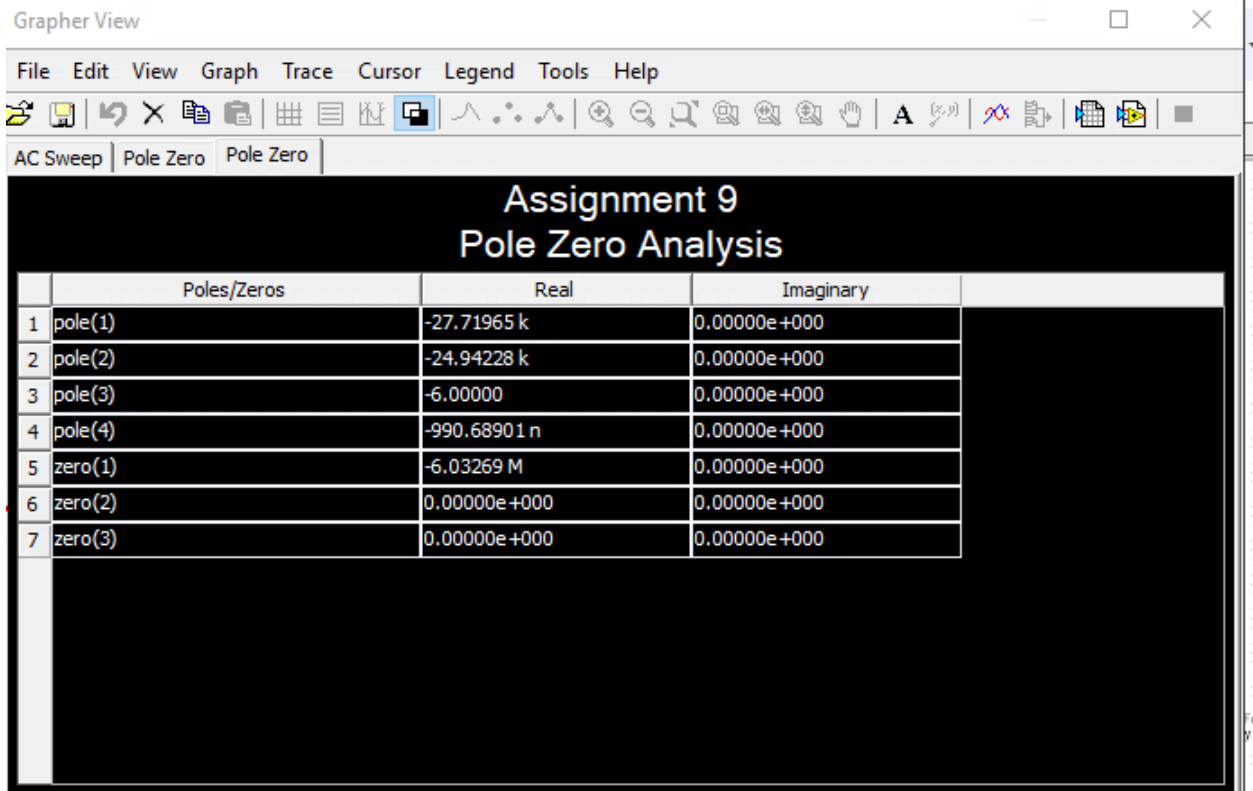## ELG 3136

Student Name: Alp Tatar

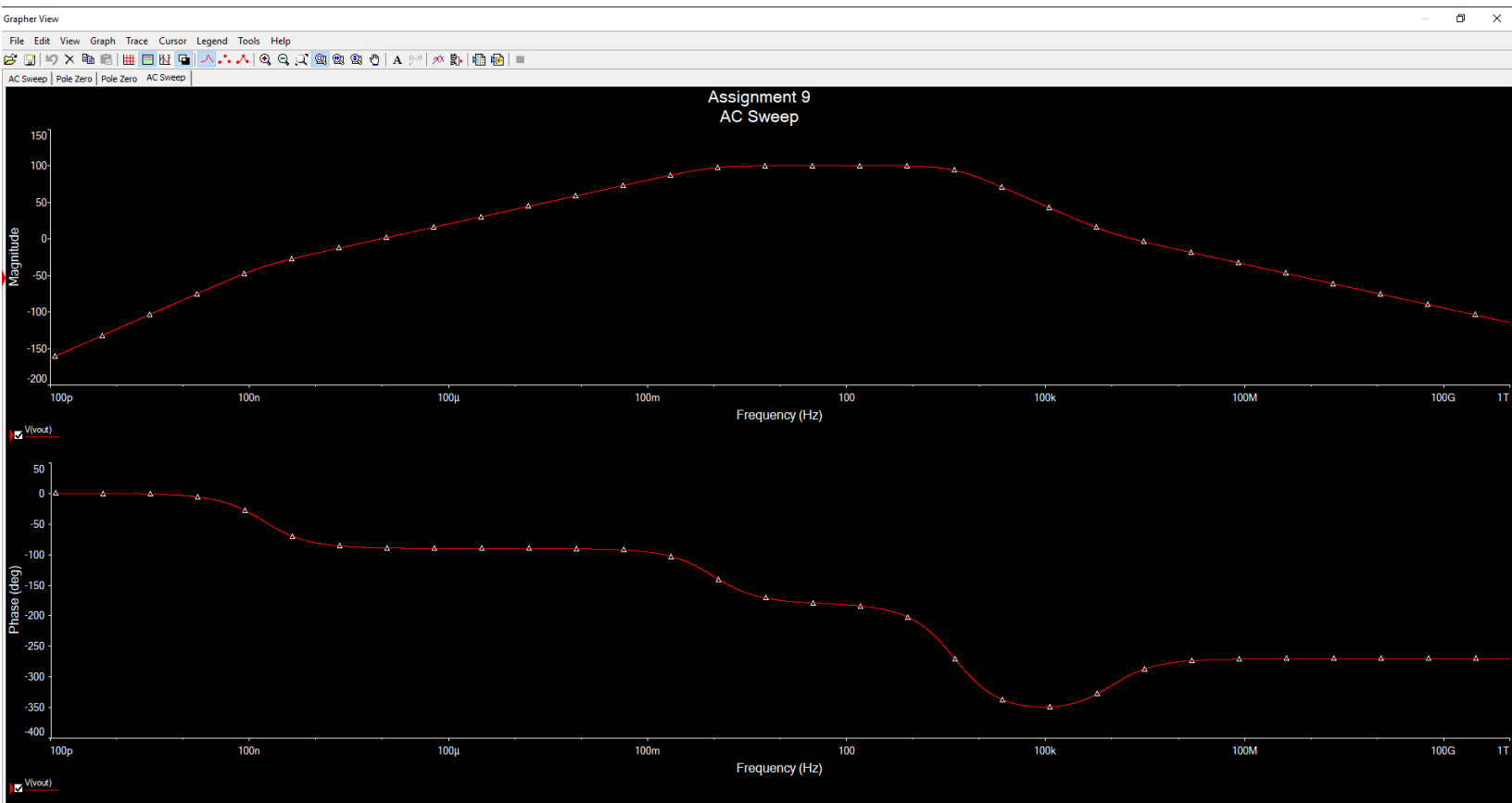Student Number: 300241739

October 15, 2023

Is the circuit shown in the PDF file (the screenshot) the same as your schematic file (.ms14)?

(20 points) Does the PDF report show the numerical values of the poles/zeros in tabulated form?

Grapher View

File   Edit   View   Graph   Trace   Cursor   Legend   Tools   Help

AC Sweep | Pole Zero | Pole Zero

Assignment 9
Pole Zero Analysis

	Poles/Zeros	Real	Imaginary
1	pole(1)	-27.71965 k	0.00000e+000
2	pole(2)	-24.94228 k	0.00000e+000
3	pole(3)	-6.00000	0.00000e+000
4	pole(4)	-990.68901 n	0.00000e+000
5	zero(1)	-6.03269 M	0.00000e+000
6	zero(2)	0.00000e+000	0.00000e+000
7	zero(3)	0.00000e+000	0.00000e+000

(20 points) Does the report show the Bode Plot obtained from the AC frequency sweep.

File   Edit   View   Graph   Trace   Cursor   Legend   Tools   Help

AC Sweep | Pole Zero | Pole Zero | AC Sweep

Assignment 9
AC Sweep

(15 points) Do you highlight the mid-frequency voltage gain and correlate it with the analysis and simulation results from the past assignments.
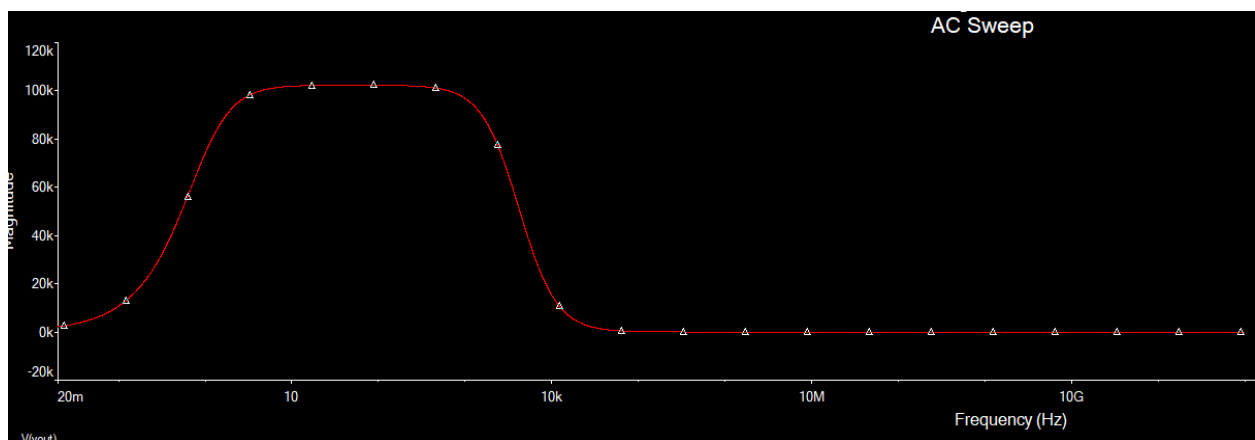
AC Sweep

Yes it does match as it can see by the linear model of the AC Sweep it is 100k and goes to 0 at higher frequencies.

(30 points) Do you clearly explain the relation between the locations of the poles/zeros and the behavior of the Bode plot in light of your understanding of the lectures.
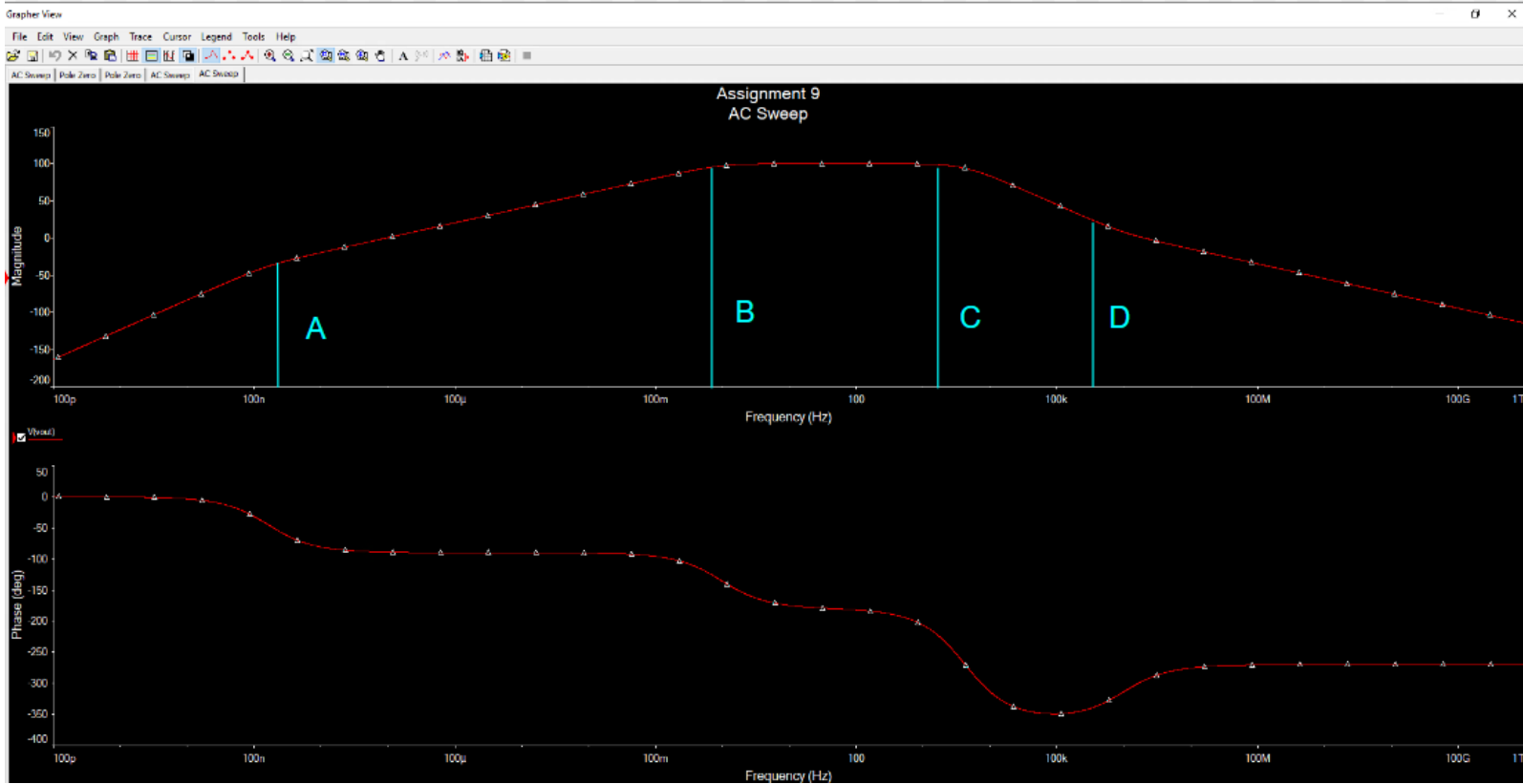
From 0 to A, encountering a zero results in an immediate 40 dB increase, attributed to the presence of two zeros. Transitioning to A to B, the introduction of a pole decreases the slope to 20 dB. This trend continues from B to C with another pole, reducing the slope to 0 dB. Moving further, from C to D, another pole deepens the slope to -20 dB. Beyond D, a final pole establishes a -40 dB slope until the magnitude reaches zero. Understanding these pole and zero relationships contributes to an objective comprehension of how the Bode plot reflects the behavior of the system.