EE 2212 QUIZ ZERO Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

30 August 2021

S. G. Burns

Help me understand your background from EE 2006 as well as from pre-requisite and co-requisite mathematics and physics courses. The results are not graded but for information to assist me in the classroom and laboratory topic and coverage planning.

Use the following scale:

**5** Reasonably familiar with the topic and confident in its application

**4** Familiar with the topic and just need to do some self-review and practice when the topic comes up in class

**3**  I was introduced to the topic but some in-class or in-laboratory review would be helpful

**2** I was exposed to the topic but it should be reviewed and discussed in some depth

**1**  Never heard of it. The topic was not presented and/or I don’t recall the topic if it was presented

\_\_\_\_\_Basic definitions of voltage and current

\_\_\_\_\_Metric system of units including the very small and the very large (pico to giga and beyond)

\_\_\_\_\_Ohm’s Law applied to dc circuits

\_\_\_\_\_Ohm’s law applied to ac circuits

\_\_\_\_\_I-V characteristics of ideal independent voltage and current generators

\_\_\_\_\_Differences between independent and dependent voltage and current generators

\_\_\_\_\_I-V characteristics of resistors, capacitors, and inductors

\_\_\_\_\_Impedance and reactance of an inductor

\_\_\_\_\_Impedance and reactance of a capacitor

\_\_\_\_\_Complex numbers and conversion between rectangular and polar forms-Analytical

\_\_\_\_\_Complex numbers and conversion between rectangular and polar forms-Your Calculator/Smart Phone

\_\_\_\_\_First and second order differential equation solutions as applied to electrical systems

\_\_\_\_\_Vectors in rectangular coordinates

\_\_\_\_\_Relationship between rms (root mean square) and peak values for sinusoids

\_\_\_\_\_Phasors (not referring to the weapon of choice in the vintage Star Trek series)

\_\_\_\_\_Operational amplifiers including basic inverting and non-inverting amplifier topolgies

\_\_\_\_\_Kirchoff’s Laws-voltage and current

\_\_\_\_\_Loop analysis

\_\_\_\_\_Node analysis

\_\_\_\_\_Linear superposition

\_\_\_\_\_Thevanin and Norton equivalent circuits

\_\_\_\_\_Ability to solve a system of simultaneous linear equations with two or three unknowns-Analytical

\_\_\_\_\_Ability to solve a system of simultaneous linear equations with two or three unknowns-Your Calculator

\_\_\_\_\_SPICE/PSPICE/LTSPICE schematic capture

\_\_\_\_\_Use of SPICE/PSPICE/LTSPICE for dc circuit analysis and interpreting the results

\_\_\_\_\_Use of SPICE/PSPICE/LTSPICE for ac circuit analysis and interpreting the results

\_\_\_\_\_Use of SPICE/PSPICE/LTSPICE for transient circuit analysis and interpreting the results

\_\_\_\_\_Laboratory safety practices including the rules for 24/7 access to our laboratory

\_\_\_\_\_Wiring standards/practices for the U.S. power distribution system as implemented in the lab or residence

\_\_\_\_\_Voltage and frequency standards for power distribution in the U.S.

\_\_\_\_\_Voltage and frequency standards for power distribution in other parts of the world

\_\_\_\_\_NFPA NEC (National Fire Protection Association-National Electrical Code)

\_\_\_\_\_Use of the digital oscilloscopes from your EE 2006 experience

\_\_\_\_\_Use of the function generators and dc power supplies from your EE 2006 experience

\_\_\_\_\_Able to wire a circuit on the breadboards from a circuit diagram

\_\_\_\_\_Downloading screen images to the lab printer from your EE 2006 experience

\_\_\_\_\_Microsoft Word processing including using an equation editor

\_\_\_\_\_EXCEL Spreadsheets including obtaining a graph from data sets

\_\_\_\_\_INTERNET information retrieval; i.e. “surfing” the WEB; preferably using IE or CHROME

\_\_\_\_\_Writing laboratory reports

\_\_\_\_\_ Patent style notebook guidelines-Intellectual Property guidelines

\_\_\_\_\_ Professional Engineering Licensing and the Fundamentals of Engineering Examination

\_\_\_\_\_ Ability to use ZOOM

\_\_\_\_\_ IEEE Code of Ethics