Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (please print)

Signature: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

ECE 2202 – Quiz #6

April 26, 2018

Keep this quiz closed and face up until you are told to begin.

1. This quiz is closed book, closed notes. You may use one 8.5” x 11” crib sheet, or its equivalent.

2. Show all work on these pages. Show all work necessary to complete the problem. A solution without the appropriate work shown will receive no credit. A solution which is not given in a reasonable order will lose credit.

3. It is assumed that your work will begin on the same page as the problem statement. If you choose to begin your work on another page, you must indicate this on the page with the problem statement, with a clear indication of where the work can be found. **If your work continues on to another page, indicate clearly where your work can be found. Failure to indicate this clearly will result in a loss of credit.**

4. Show all units in solutions, intermediate results, and figures. Units in the quiz will be included between square brackets.

5. Do not use red ink. Do not use red pencil.

6. You will have 30 minutes to work on this quiz.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_/20

Room for extra work

The circuit shown is operating in steady-state. The voltage source *vS(t)* is given as



1. Find the complex power absorbed by the load.
2. Find the real power absorbed by the load.
3. Find the reactive power absorbed by the load.
4. Find the apparent power absorbed by the load.
5. Find the phase of the impedance of the load.
6. Find the susceptance of the load.



Room for extra work

ECE 2202 Quiz 6 – April 26, 2018 – Solution:

The circuit shown is operating in steady-state. The voltage source *vS(t)* is given as



1. Find the complex power absorbed by the load.
2. Find the real power absorbed by the load.
3. Find the reactive power absorbed by the load.
4. Find the apparent power absorbed by the load.
5. Find the phase of the impedance of the load.
6. Find the susceptance of the load.



We convert to the rms phasor domain, and we get the following diagram.



The equivalent impedance of the load is



From this, we can find the complex power absorbed by the load, and the rest of the things requested.

