The following describes some of the key purposes of Homework in this course:

1. To practice, and consolidate the knowledge and skills introduced to you through:
   a. Lectures
   b. Lecture notes and solved examples
   c. Textbook material, examples, and exercises
   d. Additional notes and references supplied by the instructor.

2. To gain skills and insight as a result of doing the homework.
3. To encourage organized, algorithmic, and critical thinking.
4. To self-evaluate
5. To demonstrate that you can apply what you have learned to new situations.
6. To demonstrate you can learn new material on your own.
7. To be able to research certain topics of relevance and interest.
8. To engage in multidimensional aspect of learning: by independent work, peer teaching and learning, GTA and instructor consultation.
9. Learning how to communicate clearly and neatly your problem solving plans, techniques, results, and meaning of the results.
10. To keep up with the material and not cram before the exams
STATE CLEARLY & CONCISELY FOR EACH PROBLEM WHAT KNOWLEDGE, SKILL, AND INSIGHT YOU USED & GAINED.

10 out of 100 points come from filling the Table

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<th>KNOWLEDGE USED</th>
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PROBLEM 1: Analysis of Cascaded Amplifier: Overall Gain

You are asked to rework Example 1.3 in your Textbook (Sedra/Smith 6th edition) with new values given below in the modified Figure 1.17.

1. Find the numerical value of the Voltage Gain $\frac{v_L}{v_s}$. Show all your steps and all the formulas.

2. Find the numerical value of the Power Gain $\frac{p_L}{p_s}$ (ratio of power delivered to the Load to the power delivered by the source).

3. What percentage of power comes from the source?

4. Where does the rest come from?

**Figure 1.17 Three-stage amplifier**

*Microelectronic Circuits, Sixth Edition Sedra/Smith Copyright © 2010 by Oxford University Press, Inc.*

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<tr>
<th>Voltage Gain $\frac{v_L}{v_s}$</th>
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<tbody>
<tr>
<td>Power Gain $\frac{p_L}{p_s}$</td>
<td>Answer to 4</td>
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**YOUR SOLUTION STEPS AND DETAILS:**
SOLUTION TO PROBLEM 1 Continued:
SOLUTION TO PROBLEM 1 Continued:
PROBLEM 2: Analysis of Cascaded Amplifier: Overall Gain when 2 amps are switched

Repeat Problem 1 with the first and last amplifiers change places.

1. Find the value of the overall Voltage Gain $\frac{v_L}{v_S}$. Show all your steps and all formulas used.
2. What percentage of power delivered to the load comes from the source?
3. Compare the voltage gain found here to the one found in Problem 1. Explain why there is such a big difference.
4. THE OVERALL GAIN OF TWO CASCADED VOLTAGE AMPS DOES NOT DEPEND ON THE ORDER DOES NOT DEPEND ON THE

DRAW THE CIRCUIT IN THE BOX BELOW

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YOUR SOLUTION STEPS AND DETAILS:
YOUR SOLUTION TO PROBLEM 2 Continued:
YOUR SOLUTION TO PROBLEM 1 continued: