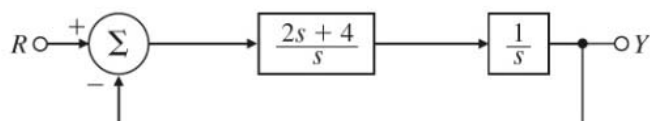# ESE 406/505 & MEAM 513 – 2011-Feb-07 – Quiz – Name:_____

- Choose only one answer for each question by circling the letter.
- A correct answer is worth 2 points.
- No answer is worth 0 points.
- An incorrect answer is worth -1 point. Random guessing will hurt you.

1. Which of the following is the transfer function corresponding to the figure at right?

   A. $\dfrac{Y(s)}{R(s)} = \dfrac{2s+4}{s^2 + 2s + 4}$

   B. $\dfrac{Y(s)}{R(s)} = \dfrac{s^2 - 2s - 4}{s^2}$

   C. $\dfrac{Y(s)}{R(s)} = \dfrac{2s+4}{s^2}$

   D. None of the above.

2. Which of the following is the correct transfer function for $\tau \dfrac{dy}{dt} + 2y = \tau \dfrac{du}{dt}$?

   A. $\dfrac{Y(s)}{U(s)} = \dfrac{\tau s}{\tau s + 2}$

   B. $\dfrac{Y(s)}{U(s)} = \dfrac{\tau}{\tau + 2s}$

   C. $\dfrac{Y(s)}{U(s)} = \dfrac{\tau}{\tau + 2}$

   D. It depends on the initial values of y and u.

3. The effective resistance of two resistors connected in series is…
   A. …the sum of the resistances.
   B. …the product of the resistances divided by the sum of the resistances.
   C. …the difference between the larger and smaller resistance.
   D. …None of the above.

4. Which of the following is the correct transfer function for the circuit shown below?

   A. $\dfrac{Y(s)}{U(s)} = \dfrac{Cs}{Cs + R}$

   B. $\dfrac{Y(s)}{U(s)} = \dfrac{R}{Cs + R}$

   C. $\dfrac{Y(s)}{U(s)} = \dfrac{1}{RCs + 1}$

   D. None of the above.
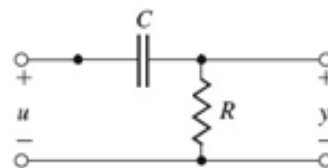
5. Which ONE of the following is NOT correct concerning assumptions we made to achieve our description of an "ideal" operational amplifier?
   A. Infinite input impedance → zero current on the inputs.
   B. Infinite output impedance → zero current on the output.
   C. Infinite gain → zero voltage difference between the inputs.