- Choose only one answer (A through D) 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 lower your grade on average.

1. Which of the following is an example of a requirement that might be used in the design of a control system?
    A. Command Response = making the output respond properly to inputs.
    B. Disturbance Rejection = preventing the output from responding to disturbances
    C. Noise Suppression = preventing the output from responding to noise in measurements used for feedback.
    D. All of the above are examples of control system requirements.

2. The attitude gyro used in the Apollo space program, shown at right, is an example of what type of system element?
    A. Actuator
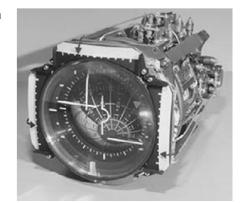   B. Sensor
    C. Analog Computer
    D. None of the Above

3. Which of the following is equal to $\dfrac{2-2j}{2+2j}$?

    A. $1-j$
    B. $e^{-j\pi/2}$
    C. $2\sqrt{2}e^{j\pi/4}$
    D. None of the Above

4. Which of the following is the solution of $4\dfrac{dy}{dt}+8y=0$, with $y(0)=8$?

    A. $y(t)=8+e^{-4t}-e^{-8t}$
    B. $y(t)=4e^{-8t}$
    C. $y(t)=8e^{-2t}$
    D. None of the above.

5. The solution of the system $\dfrac{d}{dt}\underline{x}=\begin{bmatrix} -3 & 0 \\ 0 & 12 \end{bmatrix}\underline{x}$ will have terms that vary with time as...

    A. e^{-3t} and e^{12t}
    B. $\cos(6t)$ and $\sin(6t)$
    C. Either A or B, depending on the initial conditions.
    D. None of the above.