MAE 334 Quiz 1

o **Closed Book and Notes**

o **No Calculators**

1. **Fill in your name** on side 2 of the scoring sheet (Last name first!)

2. **Fill in your 8-digit person number** on your scoring sheet.

3. **Fill in circle 1 under GRADE OR EDUCATION** on your scoring sheet. This is your test number! You will receive a ZERO if you do not indicate your test number.

o For each question, choose **THE BEST ANSWER** and mark the corresponding answer on the scoring sheet.
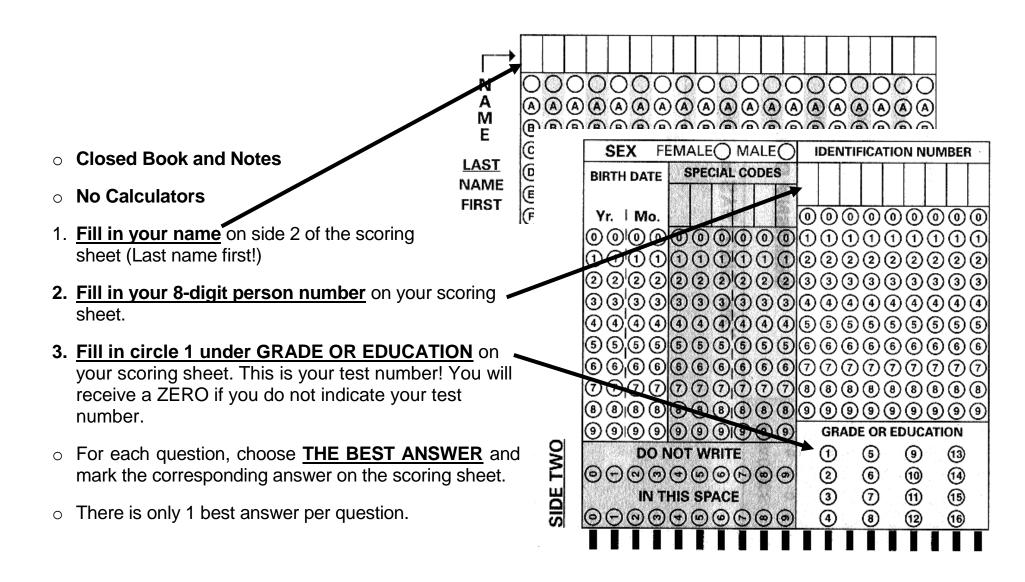
o There is only 1 best answer per question.

1. The precision error associated with the ADC used in our lab <u>cannot be less than</u>
   a. $10/200/2^{12}$ Volts
   b. $20/200/2^{12}$ Volts
   c. $20/2^{12}$ Volts
   d. None of the above

2. The ADC used in the lab would output what binary value corresponding to -4?
   a. 111111111100
   b. 100000000100
   c. 000000000100
   d. 111111111011
   e. None of the above

3. A 2 bit ADC with a 0 to 4 volt input signal range subjected to a 1.4 volt signal will output a value. Assume this is a normal ADC with, $\text{error} = \pm\frac{1}{2}Q$
   a. 0
   b. 1
   c. 2
   d. 3
   e. None of the above

4. To avoid aliasing the waveform $A\sin(2\pi 100 + \pi/2)$ which of the following sampling rates is the slowest acceptable conversion rate?
   a. 50 samples/sec
   b. 100 samples/sec
   c. 150 samples/sec
   d. 300 samples/sec