

DEPARTMENT OF MATERIALS SCIENCE AND ENGINEERING
MASSACHUSETTS INSTITUTE OF TECHNOLOGY

3.225 Electronic and Mechanical Properties of Materials

Summer Term 2002

Problem Set #7

Due: Day #9

1. Consider the four types of gas sensors discussed in class: Potentiometric, semiconducting (bulk), semiconducting (interfacial) and resonant and respond to each question *briefly*.
 - a. List the advantages/disadvantages of each with respect to
 - ◆ Selectivity
 - ◆ Aging
 - ◆ Cost
 - b. What limits the response time of each?
 - c. What are the requirements on the electrical properties of each?
2. The term “smart sensor” is being used more and more. List four attributes that such a sensor might exhibit. Explain each in a sentence.