1. What is the difference between a self-exciting and a modulating sensor? Give at least one example of each used to sense the same quantity.

2. List the functions of interface electronic circuitry for microsensors.

3. Explain the two most widely used modes of digital transmission, with advantages and disadvantages of each.

4. How can capacitance measurement technique be used in sensing applications? Give examples. (The same question can be asked for resistance and inductance measurements)

5. If you’re trying to deposit a high quality SiO2 with good dielectric characteristics on a silicon wafer, what thin-film deposition technique would you choose? Describe the method in detail.

6. Explain the sputter deposition technique with advantages and disadvantages.

7. Explain chemical vapor deposition technique. Include advantages and disadvantages.

8. What is the difference between anistropic etching and isotropic etching? Give examples of wet etchants for each.

9. Describe the electrochemical etch stop technique.

10. What is a sacrificial layer? What is it used in conjunction with? Give examples of material used as sacrificial layers.

11. Discuss and compare different methods of etching Si. (Both wet and dry)

12. Discuss and compare different methods of etching SiO2.

13. Describe anodic bonding technique. (or another kind of bonding technique)

14. Describe and compare different wafer bonding techniques.

15. True or False. Give an explanation
   ___ Sputtering technique yields a poor quality of SiO2
   ___ Etch selectivity of <110> over <111> for KOH is much higher than EDP.
   ___ EDP does not etch Si3N4
   ___ KoH does not etch SiO2
   ___ Doping Si with high levels of Boron provides a good etch stop for both EDP and KOH
   ___ The lift-off technique is used mostly to pattern thick Si3N4 films