Review for TEST 1 Intro to Mixed Signal Testing

1. What is a mixed signal circuit? List examples
2. Which type of mixed Signal Circuit is responsible for the volume control on the earpiece of the cellular phone depicted below
3. Which mixed signal circuit converts the speaker’s voice into digital samples?
4. What is a PGA?
5. When a PGA is combined with a digital logic block to keep a signal at a constant level, what is the combined circuit called?
6. What is Photolithography?
7. What is a possible defect on an IC cause by a dust particle landing on a photomask?
8. How does a clean room affect the number of defects in an IC manufacturing?
9. Name the steps needed for circuit fabrication.
10. List four production steps after wafers have been printed.
11. When five ICs are characterized can we draw conclusions pertaining to the design? Why or why not?
12. Name the components of an IC tester
13. What is a DIB?
14. What is a DUT?
15. What type of equipment handles wafers when they are tested by an ATE tester?
16. What is concurrent design? What are its advantages?
17. What is the purpose of a test plan?
18. What are the challenges faced by mixed signal test engineers?
19. List three purposes of a spec sheet?
20. What is a test plan?
21. What type of information may be found in a spec sheet?

[TLC7524C spec sheet](datasheetTLC7524C.pdf)

1. In which section of the data sheet can the maximum minimum and typical specifications listed?
2. Find in a Spec sheet the following
   1. Output load resistance used during settling time test
   2. Capacitance should be attached in parallel when running the settling time test
3. Does a DUT ABSMAX need to be verified during production testing?
4. Using the Data sheet of the TLC7524C spec determine what is the ideal relationship between the output voltage and the input voltage and digital input code when the DAC is operated in voltage mode?
5. What state must be applied the WR’ and CS’ signals to allow the DAC output voltage to change according to the data at DB0-DB7? If the CS signal is high and the WR’ signal is low, what will happen to the DAC output when the data signals DB0-DB7 change from 00000000 to 11111111?
6. What are the different packages available for an IC?
7. If the TLC 7524C is packaged in the FN Package, what device signal is attached to pin 16? What signal is attached to pin 9? What pin is connected to the positive power supply? When the TLC7524Cis powered with a 5Vsupply, what is the maximum power dissipated by the device? If it draws a 1.5mA current from the VDD supply, would it pass the power dissipation spec?
8. Which section of a test program tells the handler or prober whether a device is good or bad?
9. Why is order of test a concern when testing? Is this more important in production or in characterization?
10. What is a good overall order to test mixed signal circuits as described in the class?
11. What is the purpose of the DIB checker section of a test program?
12. What is ATE?
13. What is a focused calibration and its purpose?
14. Is there a rigorous method to convert a spec sheet into a test plan?