Tutorial 8

Chapter 6:

Q1: What is semiconductor memory? Can you give a basic structure of a semiconductor memory? (answer from slide 2/3)

Q2: Give an architecture of a 16x4 memory block. (answer from slide 4)

Q3: What is RAM and ROM? Explain the difference between ROM and RAM? (answer from slide 11)

Q4: Explain the construction and operation of a 1 bit SRAM cell. (answer from slide 13/14)

Q5: Explain the construction and operation of a 1 bit DRAM cell. (answer from slide 15/16)

Q6: What are the differences between SRAM and DRAM? (answer from slide 17)

Q7: What is ROM? How many types of ROMs are there? Design a 4x4 ROM architecture. (answer from slide 19/20/21)

Q8: Explain the construction and operation of a MOSFET ROM/PROM cell. (answer from slide 22/23)

Q9: What is flash memory? Explain the construction and operation of a 1 bit flash memory cell. (answer from slide 25/26)

Chapter 6 part-2

Q10: What are the advantages of a digital system? Explain a basic digital system. (answer from slide 2/3)

Q11: What is an ADC? What are the major challenges of an ADC? (answer from slide 4/5)

Q12: Explain the concept of sampling and Quantization. (answer from slide 7-14)

Q13: Why sampling frequency should be more than twice of the signal frequency? (answer from slide 9)

Q14: Explain the construction and working principle of an n bit Flash ADC using operational amplifier. (answer from slide 16-19)

Q15: Explain the construction and working principle of an n bit SAR ADC. (answer from slide 22-23)

Q16: What is a DAC? What is the general concept of a DAC? (answer from slide 25-26

Q17: Explain the construction and working principle of an n bit Binary-weighted-input DAC. (answer from slide 28-29)

Q18: Explain the construction and working principle of an n bit R-2R-ladder DAC. (answer from slide 31-32)