Roll No. | | | | | | | | | | | | | Total No. of Pages : 01

Total No. of Questions : 08

M.Tech. (Microelectronics) (Sem.–2)

ANALOG AND MIXED SIGNAL DEVICE DESIGN

Subject Code : ME-810

M.Code : 38410

Time : 3 Hrs. Max. Marks : 100

INSTRUCTIONS TO CANDIDATES :

1. **Attempt any FIVE questions out of EIGHT question.**
2. **Each question carry TWENTY marks.**

1. Explain the role of Analog Mixed signal in VLSI design.
2. a. Explain the operation of Sample and Hold circuit in Data converters.
   b. Explain the basic cells of A to D converts.
3. a. Explain the basic operation of Dual slop ADC.
   b. Explain the operation of Flash ADC and its advantages.
4. Why we use compensation approach in OP-Amp design and explain the Miller Compensation technique with suitable diagram?
5. Derive the expression of voltage gain and output resistance for an active-load MOS differential amplifier.
6. a. Explain the role of Decimation filter in Delta Sigma ADC.
   b. Explain the operation of function generator.
7. a. Assume that a DAC uses a Switched capacitor non inverting amplifier with C1 = C2 and GB = 1 MHz. Find the conversion time of an 8-bit DAC if V_{ref} is IV.
   b. Explain the role of Voltage controlled oscillator in PLL.
8. Short notes (**Any FOUR**) :
   a. Phase detector
   b. Switched Capacitor
   c. Multipliers
   d. Modulators
   e. Charge pump PLL.

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.