

APJ Abdul Kalam Technological University
Second Semester M.Tech Degree Examination May 2016
Ernakulam II Cluster
Branch: Electronics and Communication Engineering
Specialization: VLSI and Embedded Systems
05EC 6002–MIXED SIGNAL VLSI DESIGN

Duration: 3 hrs.

Max. Marks: 60

- 1 a) Explain the transfer function of a general second order filter and specify it for various types of second order filters. [4 Marks]
- b) Explain the principle behind switched capacitor resistor explain the working of switched capacitor integrator. [8 Marks]
- 2 a) Draw the block diagram of single ended first order Gm-C filter and derive the expression for its output. [6 Marks]
- b) Explain in detail, how FIR and IIR filters are implemented in VLSI. [6 Marks]
- 3 a) Explain offset and gain errors in data converters. [8 Marks]
- b) Explain the working of cyclic DAC. [10 Marks]

OR

- 4 a) Explain quantization error in ADC. [9 Marks]
- b) Explain the working of two step flash ADC and compare its similarity with pipelined ADC. [9 Marks]
- 5 a) Compare Nyquist rate and oversampling data converters and their circuit complexity. [10 Marks]
- b) What do you mean by noise shaping in data converter? [8 Marks]

OR

- 6 With suitable diagram, explain sigma delta DAC & ADC's. [18 Marks]