Code No: H6802/R13

M. Tech. II Semester Supplementary Examinations, May-2017

CMOS MIXED SIGNAL CIRCUIT DESIGN

(Common to VLSI&ES, ES&VLSI, VLSID&ES, ES& VLSID, VLSI, VLSID, VLSISD and VLSI&ME)

Time: 3 Hours **Max. Marks: 60**

Answer any FIVE Questions
All Questions Carry Equal Marks

1.	a	What is switched capacitor? What is its significance in the CMOS technology?	5
	b	If $C_1 = C_2 = C$, find the value of C that will emulate a 1MΩ resistor if the clock frequency is 200 KHz.	7
2.	a	Explain about the basic charge pump PLL with a neat figure.	5
	b	With the help of necessary waveforms, explain about the non-ideal effects in PLLs.	7
3.	a	What are the dynamic characteristics that influence the performance of DACs?	5
	b	Design a decoder based DAC with a detailed explanation.	7
4.	a	Give the classification of ADC architectures based on the conversion rate.	5
	b	Explain the static and dynamic characteristics of ADCs.	7
5.	a	What is a flash converter? Explain the function of a 3 bit flash ADC.	5
	b	What is time interleaving? Explain the operation of a time interleaved ADC.	7
6.	a	Discuss about Delta-Sigma ADC.	5
	b	Explain the block diagram of second order Delta-Sigma modulator.	7
7.		Distinguish between oversampling without noise shaping and with noise shaping.	12
8.	a	What are biquad filters? Explain about the two switched capacitor biquad realizations.	5
	b	Design a switched capacitor realization for a first order, high pass circuit with ahigh frequency gain of -10 and a -3dB frequency of 1 kHz using a clock of 100kHz	7

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