CLASS: B.TECH   SEMESTER: VII
BRANCH: ECE   SESSION: MO/2022

SUBJECT: EC411 MIX SIGNAL DESIGN

TIME: 3 HOURS   FULL MARKS: 50

INSTRUCTIONS:
1. The total marks of the questions are 50.
2. Candidates attempt for all 50 marks.
3. Before attempting the question paper, be sure that you have got the correct question paper.
4. The missing data, if any, may be assumed suitably.
5. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.

				CO	BL
Q1	(a)	Briefly describe impulse train sampling.	[2]	1	2
Q1	(b)	Explain decimation with the help of block diagram.	[3]	1	2
Q1	(c)	Explain the working of fully differential S/H differential topology with the help of circuit diagram.	[5]	1	3
Q2	(a)	What do you mean by mix signal design?	[2]	1	2
Q2	(b)	Differentiate between bottom-up and top-down approach.	[3]	1	2
Q2	(c)	Explain low-power verification techniques.	[5]	1	2
Q3	(a)	Draw the block diagram of an integrator-based low pass filter.	[2]	2	2
Q3	(b)	Implement a first order low pass filter using a CAI. Why this filter is called an active-RC filter.	[3]	2	3
Q3	(c)	Write a short note on Transconductance-C integrators. Draw the circuit diagram of OTA.	[5]	2	2
Q4	(a)	Sketch the block level circuit diagram for an fs/4 digital resonator.	[2]	2	3
Q4	(b)	Explain how a counter can be used as a digital filter with a 1-bit input.	[3]	2	3
Q4	(c)	Draw a four stage FIR filter, also write the expression for transfer function. Write the benefits of using FIR filters.	[5]	2	3
Q5	(a)	What are various digital to analog converter (DAC) specifications?	[2]	2	2
Q5	(b)	Explain the working of binary weighted resistor DAC using circuit diagram.	[3]	2	3
Q5	(c)	Explain the working of Flash ADC with the help of circuit diagram.	[5]	2	3

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