O.P.Code: 20EC0411	R20	H.T.No.									

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)

B.Tech II Year II Semester Regular & Supplementary Examinations June-2024

LINEAR & DIGITAL IC APPLICATIONS

(Electronics & Communications Engineering)

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

(Answer all Five Units **5 x 12 = 60** Marks)

		UNIT-I			
1	a	Determine the output voltage of a differential Amplifier for the input voltages of 300μV & 240μV.The Differential gain of the amplifier is 5000.the value of the CMRR is 100.	CO1	L3	6M
	b	Draw the block diagram of Op-Amp and explain each block.	CO2	L1	6M
		OR			
2	a	Draw the circuit and explain the working of Current to voltage converter.	CO4	L1	6M
	b	Explain about the operation of sample and hold circuit with relevant waveforms and neat sketch.	CO4	L2	6M
		UNIT-II			
3	a	List the types of Filters.	CO1	L1	2M
	b	Derive the gain of a 1st order high pass Butterworth filter	CO4	L3	10M
		OR			
4	a	Draw the free running oscillator using 555 timer and also derive theexpression for frequency of oscillation.	CO2	L3	8M
	b	List out any four application of multivibrator.	CO1	L1	4M
		UNIT-III			
5	a	Draw and Explain the block diagram of Monolithic IC 565.	CO2	L2	6M
	b	Explain the basic structure of DAC.	CO2	L2	6M
		OR			
6	a	Discuss about low voltage CMOS and Interfacing.	CO5	L2	6M
	b	Explain in detail about basic ECL logic circuit.	CO5	L2	6M
		UNIT-IV			
7	a	Explain the various data types supported by VHDL. Give the necessary examples.	CO5	L2	6M
	b	Discuss about constants and arrays with an example.	CO6	L2	6M
		OR			
8		Design the logic circuit and write VHDL program for the following function. F(Y) = Π A, B, C, D (1, 4, 5, 7, 9, 11, 12, 13, 15).	CO6	L4	12M
		UNIT-V			
9	a	Design a 4 to 16 decoder with 74×138 IC's.	CO6	L3	6M
	b	Design a 16-bit comparator using 74×85 ICs.	CO5	L3	6M
		OR			
10	a	Distinguish between the synchronous and asynchronous counters.	CO6	L4	6M
	b	Design an 8-bit serial in and parallel out shift register.	CO6	L3	6M

***** END *****