Q.P. Code: 19EC0409 **R19**

Reg. No: | | | | | | | | | | |

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY: PUTTUR

(AUTONOMOUS)

B. Tech II Year II Semester Supplementary Examinations February 2022

LINEAR & DIGITAL IC APPLICATIONS

(Electronics and Communication Engineering)

Time: 3 hours Max. Marks: 60

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

UNIT-I

1	a	Derive the expression for Inverting amplifier and draw its input and output wave forms.	6M
	b	Derive the output expression for the practical integrator circuit	6M
		OR	
2	a	Draw and explain the three open loop op-amp configurations with neat circuit diagram	6M
	b	Explain about the operation of sample and hold circuit with relevant waveforms.	6M
		UNIT-II	
3	a	Design the first order high pass filter and discuss its frequency response	6M
	b	What is the principle operation of RC phase shift oscillator? Explain its operation.	6M
		OR	
4	a	Explain the functional block diagram of 555 timer	6M
	b	Design Wien bridge oscillator using op-amp and explain its operation.	6M
		UNIT-III	
5	a	Draw and Explain about the Monolithic IC 565	6M
	b	Explain about counter type ADC with neat block diagram.	6M
		OR	
6	a	Draw and Explain about the Monolithic IC 565	6M
	b	Discuss about low voltage CMOS and Interfacing.	6M
		UNIT-IV	
7	a	Explain the various data types supported by VHDL along with examples.	6M
	b	Design the logic circuit and write VHDL program for the following function. $F(Y) = \Pi A, B, C, D (1, 4, 5, 7, 9, 11, 12, 13, 15)$.	6M
		OR	
8	a	Write a VHDL entity and Architecture for the following function. $F(x) = (a + b) (c.d)$ Also draw the relevant logic diagram.	6M
	b	Explain in detail different modeling styles of VHDL with suitable examples.	6M
		UNIT-V	
9	a	Design a 4 to 16 decoder with 74×138 IC's.	6M
	b	Design a priority encoder that can handle 32 requests. Use 74×148 and required discrete gates. Provide the truth table and explain the operation.	6M
		OR	
10	a	Design an 8-bit serial in and parallel out shift register.	6M
	b	Design a 16-bit comparator using 74×85 ICs.	6M

***** END *****