Code No: P21ECT05

HALL TICKET NUMBER

PACE INSTITUTE OF TECHNOLOGY & SCIENCES::ONGOLE
(AUTONOMOUS)
II B.TECH I SEMESTER END SUPPLEMENTARY EXAMINATIONS, MARCH/APRIL - 2023
PULSE AND DIGITAL CIRCUITS
(ECE Branch)

Time: 3 hours Max. Marks: 70

Answer all the questions from each UNIT (5X14=70M)

Q.No.		Questions	Marks	CO	KL
		UNIT-I			
1.	a)	Define the rise time? Prove that the rise time of low pass RC circuit is 2.2RC.	[7M]	1	2
	b)	A pulse of amplitude 5V and duration 0.5msec is applied to High-pass RC circuit having R=22K and C=0.47μF. Sketch the output wave form and determine the percentage tilt in the output.	[7M]	1	3
		OR			
2.	a)	Obtain an expression for gain of an RC high pass circuit excited by a sine wave input.	[7M]	1	3
	b)	An RC differentiator circuit is driven by a 1KHz symmetrical square wave of 10V Peak-to peak. Calculate the output voltage levels under steady state if, RC = 1msec	[7M]	1	2
		UNIT-II			
3.	a)	Analyze a positive series clipper circuit with necessary waveforms and transfer characteristics.	[7M]	2	4
	b)	A square wave has to generate by passing a sine wave through a clipper. The square wave has to have an upper level of 40 V and a lower level of -20 V. The period of square wave is 5 ms. Draw necessary clipper circuit and output waveforms.	[7M]	2	3
		OR			
4.	a)	Analyze the positive clamper circuit.	[7M]	2	4
	b)	A 100 V peak square wave with a period of 20 ms, is to be negatively clamped at 25 V. Draw the circuit diagram necessary for this purpose. Draw the output waveform.	[7M]	2	3
		UNIT-III			
5.	a)	Discuss transistor switching times.	[7M]	3	2
	b)	How to overcome loading effect in fixed bias binary.	[7M]	4	2
		OR			
6.	a)	Show that a monostable multivibrator can be used as a voltage to time converter.	[7M]	4	2
	b)	Describe the working of two diode sampling gates.	[7M]	4	2
		UNIT-IV			
7.		Derive an expression for slope error, displacement error, transmission error and obtain a relation between them for exponential sweep circuit.	[14M]	4	3
		OR			
8.	a)	What are the different methods of generating time-base waveforms? Explain about each briefly.	[7M]	4	2

	b)	Explain the working of Transistor Miller sweep circuit. What are its advantages over Bootstrap sweep circuits?	[7M]	4	2
UNIT-V					
9.	a)	Realize a three-input NAND gate using transistor transistor logic and explain its operation with the help of truth table.	[7M]	5	3
	b)	Design and explain 2-input ECL OR/NOR gate.	[7M]	5	3
OR					
10.	a)	Discuss the characteristics of logic family.	[7M]	5	3
	b)	Realize a two-input NAND gate using diode transistor logic and explain its operation with the help of truth table.	[7M]	5	2

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