Code No: RT31026

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SET - 1

III B. Tech I Semester Supplementary Examinations, October/November -2018 LINEAR & DIGITAL IC APPLICATIONS

(Electrical and Electronics Engineering)

Time: 3 hours Max. Marks: 70

Note: 1. Question Paper consists of two parts (Part-A and Part-B)

2. Answering the question in **Part-A** is compulsory

3. Answer any **THREE** Questions from **Part-B**

PART –A			
1	`		[2] (]
1	a) b)	Explain the significance of level translator Define CMRR and PSRR.	[3M] [3M]
	c)	What is an instrumentation amplifier?	[3M]
	d)	Draw the block diagram of a PLL?	[4M]
	e)	What are the advantages of active filters over passive filters?	[4M]
	f)	Define the terms Conversion time, Percentage resolution related to ADC.	[4M]
PART -B			
2	a)	Draw the circuit diagram of a basic differential amplifier and explain its transfer characteristics.	[8M]
	b)	Draw the circuit diagram of dual input unbalanced output differential amplifier and derive the expression for dc analysis.	[8M]
3	a)	Discuss briefly about the DC characteristics of an operational amplifier?	[8M]
	b)	Define the terms: SVRR, Input bias current, Input offset voltage, Gain bandwidth product.	[8M]
4	a)	With a neat sketch explain the principle of operation of Antilog amplifier.	[8M]
	b)	Design a differentiator to differentiate an input signal that varies in frequency from 100Hz to 10 KHz. If a sine wave of 1.2V Peak at 10 KHz is applied to the differentiator of part, draw its output wave form.	[8M]
5	a)	Why the name was given to 555 Timer. Draw monostable multivibrator using 555 Timer and explain the operation.	[8M]
	b)	Design an Astable multivibrator having an output frequency 15 KHz with duty cycle of 40%.	[8M]
6	a)	With neat circuit diagram explain the operation of 2 nd order butter worth HPF and derive an expression for voltage gain.	[8M]
	b)	Design a Band Pass filter with $fc = 1$ KHz, $Q = 3$ and $A_f = 10$. Draw the circuit with all the components.	[8M]
7	a)	Draw the schematic circuit diagram of dual-slope A/D converter and explain its operation. Derive expression for output voltage.	[8M]
	b)	Define important performance specifications of Digital to Analog converters and list their typical values. *****	[8M]