Total number of printed pages: 2

D/4th/DECE404

2024

SUBJECT NAME: Linear integrated circuit

Full Marks: 100

Time : Three hours

The figures in the margin indicate full marks for the questions.

Answer any five questions

i) Input impedance of ideal Op-amp is ii) CMRR stands for iii) CMRR of ideal Op-amp is iv) Frequency of DC signal is v) Function generator generatessignal. vi) Comparator is a	Q.1	a)		Fill in the blanks	11
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Q.	3 a)	Write down whether the following statements are true or following	
		i)	Close loop gain for oscillation is unity	5
		ii)	Close loop Phase shift for oscillation should be affectively and	
		iii)	Ideal offset voltage of Op-amp should be OV	
		iv)	Common mode noise is cancelled out at differential output as the f	
			Diff-amp.	
		v)	Dc input response of a integrator is zero	
	b) i)	What is amplification?	
		ii)	Draw a sinusoidal signal and it's amplified signal	
		iii)	Draw output characteristics of a transistor and mark the region where	2
			amplification is possible.	2
		iv)	Why dc biasing is required for a transistor for amplification?	
		v)	What is operating point of a transistor	2
		vi)	What is the main advantage of Differential amplifier over single stars	
			amplifier.	2
	c)		Fill in the blanks	
		i)	For a inverting amplifier $rf=1k\Omega$ ri=1000 voltage gain =	5
		ii)	For a non inverting amplifier rf=10MO ri=1KO voltage gain	
		iii)	For a summing amplifier if vin1=sinwt vin2=4sinwt vont =	
		iv)	Ramp response to a differentiator is	
		v)	Op-amp is being build by using many amplifice	
2.4	a)	i)	Derive the output voltage equation of a inverting amplifier	-
		ii)	Derive the output voltage equation of a integrator	6
	b)	i)	Define offset voltage of a Op-amp	1
		ii)	What do you mean by virtual ground of a On-amp	2
			j in taking found of a op-amp.	2
	c)		Draw the block diagram of a multiplier	
				3
5	a)		Draw the circuit diagram of the following	2372
		i)	Log amplifier using diode.	3X3=9
		ii)	Active Low pass filter.	
		iii)	Zero voltage detector	
	b)		Write short notes on	
		i)	Frequency response of filters	4
		ii)	Data sheet parameters of Op-amp	4
6	a)			/
		i)	Draw the cuicuit diagram of a 5 yolt detector	2
		ii)	Explain the detection functionality with help of drawing win	2
				0
	b)		Write down few practical characteristics of a On amp	5
				3
	c)		Derive the output voltage equation of a active on amp differentiate	7
-		l.		1