B.E.(with Credits)-Regular-Semester 2012-Electronics & Telecommunication-Communication Engg.- Electronics Engineering Sem V

EC / EN 501 : Linear Electronic Circuits - Linear Integrated Circuits

P. Pages : 2 Time : Three Hours		2 ree Hours $* 3964 *$	GUG/W/16/3744 Max. Marks : 80
	Note	 es: 1. All questions carry equal marks. 2. Assume suitable data wherever necessary. 3. Diagrams and Chemical equation should be given wherever nec 4. Illustrate your answers wherever necessary with the help of near 	essary. z sketches.
1.	a)	Draw & explain the functional block diagram of internal structure for ope	rational amplifier. 8
	b)	Explain why CMRR $\rightarrow \infty$ for an emitter coupled differential amplified Define CMRR.	er with $R_E \rightarrow \infty$. 8
		OR	
2.	a)	Explain the necessity of DC level shifter in operational amplifier. Draw divider type dc level shifter circuit.	& Explain voltage 8
	b)	What are the advantages of constant current bias in differential amplifier constant current bias circuit.	? Draw any one 8
3.	a)	Using op-amp & resistor of 100Ω or less design the circuit to implement $V_0 = 3V_1 - 2V_2 + 2V_3 + 2V_4$.	the equation. 8
	b)	 Define w.r.t. op-amp. 1) Slew Rate. 2) PSRR 3) Input Bias current 4) Gain Bandwidth Product. 	8
		OR	
4.	a)	Draw the Ckt. for instrumentation amplifier using three op-amp & derive its output voltage.	expression for 8
	b)	What is integrator ? What are its limitations ? How they are overcome th integrator ?	e practical 8
5.		Write a short notes on.1) Full-wave rectifier.	16

- 2) Schmitt trigger.
- 3) Limiters.

OR

6.	a)	a) Draw & explain temperature compensated logarithmic amplifier & derive the express for o/p voltage.	
	b)	Draw & explain the working of IC 741 as a astable multivibrator.	8
7.	a)	Draw the circuit of RC phase shift oscillator & explain its working. Derive expressions for frequency of oscillators the condition of gain for sustained oscillation.	10
	b)	Explain successive approximation type A to D converter.	6
		OR	
8. a)		Design a second order Butterworth low-pass filter with a cutoff frequency of 1KHz. Draw the frequency response.	9
	b)	What is a basic use of sample hold circuit ? Explain the operation of sample hold circuit.	7
9. a	a)	Explain with the help of a block diagram working of IC723 regulator.	
	b)	 Explain the following pins w.r.t. timer IC 555. 1) Reset 2) Discharge 3) Threshold 4) Trigger 	8

OR

10.	a)	Draw the block diagram of PLL &	explain the working in brief.	8

b) Design an astable multivibrator using IC555 having 0/p frequency 5KHz & 60% duty cycle. 8
