
B.E Full Time Degree END SEMESTER EXAMINATIONS, Nov/Dec 2011

Fifth Semester, EEE Reg 2008

EE 9303 Linear Integrated Circuits

Time: 3 Hours Max. Marks: 100

Answer ALL Questions

PART – A (10 x 2 = 20 Marks)

1. How are Integrated Circuits categorized?
2. If in a OpAmp IC ,0.5 V change in common mode input causes a DC output offset change of 5μV,determine the CMRR in dB.
3. Compare the output voltages for the inverting amplifier with pin3 grounded, if changes in input are Vin = 20mVdc & if vin = - 50μV peak sine wave.
4. Discuss on a suitable circuit suited to detect the aperiodic sinusoidal input waveform using OpAmp.
5. How is frequency stability achieved for OpAmp Circuits?
6. What determines the output pulse width in case of a retriggerable monostable multivibrator?
7. If V (DC) is 12V, v(ripple: peak to peak) is .25v determine the ripple factor & the percentage ripple.
8. If supply of 220+ 20V AC ,falls from a no-load output produce of 24V DC to 23.8V DC as load changes from no load to full load ,determine the Line regulation & Load regulation.
9. Distinguish the principle of Linear regulator and a switched mode power supply.
10. Write briefly on optoelectronic ICs .

PART – B (5 x 16 = 80 Marks)

11. i) Derive the functional parameters for an Inverting mode feedback circuit with OpAmp
    ii) For a 741 OpAmp IC Inverting mode ,with R1=1Kohm,Rf=4.7 Kohm, compute Af; Rif; Rof; BW; offset voltage.
    (iii) Develop a Comparator Logic of the circuit by finding for (A>B) ; (A=B) ;(A / B) &;(A * B) using differential mode OpAmp and suitable components if required. (6+6+4)

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12. a. i. What are the catogorisation of Analog to Digital Converters?
ii. Design a OpAmp based Integrating circuit.
iii. Discuss on the Integrating type ADC realization. (2 + 7+7)

(OR)

12. b. i). What are the types of voltage comparator techniques?
ii). For an open loop inverting mode OpAmp,if vin =2V peak to peak sinewave at 500Hz, supply voltages=15V DC fitted with external pot that changes the V(Ref)=0V; 0.2V; −.5V. Draw the output waveforms.
iii) Design & explain a Schmitt Trigger circuit. (2 + 7+7)

13. a Design a Sine wave Generator to output a frequency of 2KHz , with C =.05 μF. What is the design attribute to obtain the co-sine wave generation? (10 + 6)

(OR)

13. b. Write briefly on any two of the following: (8 + 8)
i. Switching Signal Generator IC.
ii. Diodes role in OpAmp Circuits.
iii. Clipper and Clamper circuits.

14. a. i) How are Filters categorized?
ii) Design a Analog First order Low pass Filter using OpAmp.
iii) How is the Low Pass filter converted to High pass filter of First & second order? (2+10+4)

(OR)

14. b. Design a Square Wave Generator. Explain how a Triangular Wave ; Sawtooth wave is Generated. (8+4+4)

15. a. (i) Describe the 555 Timer IC .(ii)Design a Astable Multivibrater Circuit to generate output Pulses of 25%,50% duty cycle using a 555 Timer IC, with choice of C=0.01μF, Frequency as 2.5KHz . (8+8)

(OR)

15. b. Answer any two of the following: (8+8)
i. Phase Lock Loop Circuit IC.
ii. Voltage Switching regulator IC.
iii. IC Fabrication technique to realize R, C, Transistor.