2008 COCHIN UNIVERSITY OF SCIENCE & TECHNOLOGY

B.TECH ELECTRONIC & COMMUNICATION ENGINEERING

LINEAR INTEGRATED CIRCUITS

NOVEMBER 2008

TIME: 3 HOUR
MARK: 90

ANSWER ANY SIX QUESTION
ALL QUESTIONS CARRY EQUAL MARKS

MARK [6*15]

1 a. Explain Dominant Pole Compensation and Pole Zero Compensation

b. Draw a differential amplifer with active load. Why is this type of load preferred?

2a. Draw and explain the working of a current mirror circuit with necessary equations. How does it work as a constant current source?

b. Compare and contrast an ideal op-amp with 741 op-amp

3a. Derive expression for closed loop gain, input impedance and output impedance of an inverting amplifier with feedback

b. Briefly explain virtual ground concept

4a. Draw the circuit of an instrumentation amplifier. Explain its features and applications

b. Draw and explain the working of a current to voltage converter with necessary equations. What is its application?

5a. With neat circuit diagrams and waveforms explain the working of Monostable Multivibrator using op-Amp

b. Draw the circuit of Weinbridge oscillator using op-amp. Derive expression for its frequency of oscilations.

6a. Why is regenerative feedback applied often in comparators? Explain considering a circuit with and without regenerative feedback

b. Draw and explain the block diagram of 723 voltage regulator.

7a. Draw the circuit of Twin-T Notch filter. Derive expression for its Transfer function. What is its Transfer function

b. Explain the advantages of active filters

8a. Draw the circuit of first order all pass filter. Derive expresion for its Transfer function. What is its application

b. Explain the working of Switched Capacitive Filter. Explain its advantages

9a. With neat circuit diagrams and waveforms explain:

i) the 555 as Monostable Multivibrator

ii) the 555 as Astable Multivibrator

b. Define lock range and capture range

10. Explain with diagrams

i) DAC with binary weighted resistors

ii) DAC with R and 2R resistors

iii) Successive-approximation ADC