B.Tech. Degree V Semester Special Supplementary Examination
August 2015

EE 1505 LINEAR INTEGRATED CIRCUITS
(2012 Scheme)

Time : 3 Hours   Maximum Marks : 100

PART A
(Answer *ALL* questions)

(8 × 5 = 40)

I. (a) Explain the concept of virtual ground.

(b) Compare open loop inverting and non-inverting amplifier.

(c) Draw and explain the operation of voltage to current converter.

(d) Define (i) CMRR   (ii) Slew Rate

(e) Draw and explain op-amp integrator circuit.

(f) Draw and explain the working of a triangular wave generator.

(g) Explain PLL.

(h) Compare active and passive filters.

PART B

(4 × 15 = 60)

II. Derive the expression for voltage gain, input impedance and output impedance of a   (15)
dual input balanced output differential amplifier.

OR

III. Draw the block diagram representation of an op-amp and explain the function of each   (15)
block.

IV. (a) Draw and explain the operation of an ac voltage follower.   (5)

(b) Derive the expression for voltage gain and input impedance of an inverting feedback   (10)
amplifier with a neat circuit diagram.

OR

V. Draw the circuit diagram of an instrumentation amplifier with three op-amps. Derive   (15)
expression for it's voltage gain.

VI. (a) Explain the working of precision full wave rectifier with a neat circuit diagram.   (10)

(b) Explain sample and hold circuit.   (5)

OR

VII. (a) Draw and explain the working of an op-amp astable multivibrator.   (6)

(b) Draw and explain the circuit of Wien bridge oscillator. Derive expression for the   (9)
frequency of oscillations.

VIII. (a) Draw and explain the working of successive approximation type ADC.   (8)

(b) Draw and explain the functional block diagram of 555 timer.   (7)

OR

IX. (a) Draw and explain the working of all pass filter.   (7)

(b) Explain the working of DAC with R-2R resistors and compare with binary weighted   (8)
type resistor DAC.

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