

R09

Code: 9A04502

B.Tech III Year I Semester (R09) Supplementary Examinations December 2015

LINEAR IC APPLICATIONS

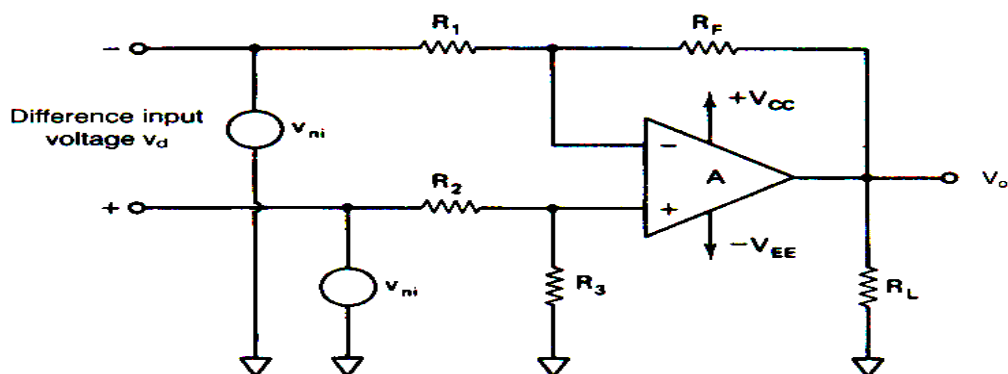
(Electronics & Communication Engineering)

Time: 3 hours

Max Marks: 70

Answer any FIVE questions
All questions carry equal marks

- 1 (a) Draw the equivalent circuit of emitter coupled differential amplifier from which calculate A_d .
(b) Draw the block diagram of four stage cascaded amplifier. Explain the function of each block.
- 2 (a) For the circuit shown below if $R_1 = R_2 = 1 \text{ k}\Omega$, $R_F = R_3 = 10 \text{ k}\Omega$, $V_d = 5 \text{ mV}$ sine wave at 1 kHz and $V_{ni} = 2 \text{ mV}$ at 60 Hz. Calculate: (i) The output voltage at 1 kHz. (ii) The amplitude of induced 60 Hz noise at the output. The Op-Amp is the 741 with CMRR = 90dB.



- (b) Explain the difference between slew rate and transient response.
- 3 (a) Draw and explain the operation of AC voltage follower having very high input resistance.
(b) Draw the circuit of differential amplifier with one Op-Amp and derive the expression voltage gain and input resistance.
- 4 (a) What do you mean by sampling? Explain the basic circuit for sample and hold circuit.
(b) Can we use a diode in the design of a logarithmic amplifier, Explain?
- 5 (a) What is band pass filter and what are the two types of band pass filters.
(b) Design a notch filter to eliminate 50 Hz frequency signal.
- 6 (a) Configure a 555 timer as a Schmitt trigger and explain.
(b) Explain frequency translation and FSK demodulation using 565PLL.
- 7 (a) Sketch and explain the transfer characteristic of a DAC with necessary equations.
(b) LSB of a 9 - bit DAC is represented by 19.6 mv. If an input of 9 zero bits is Represented by 0 volts.
(i) Find the output of the DAC for an input 10110 1101 and 01101 1011.
(ii) What is the full scale reading (FSR) of this DAC?
- 8 (a) What are the different types of multiplexers? Explain logic diagram and truth table of Dual 4 to 1 line multiplexer.
(b) Explain the operation of balanced modulator using neat sketch.