Code: R7310403 **R07**

B.Tech III Year I Semester (R07) Supplementary Examinations December 2015

LINEAR IC APPLICATIONS

(Electronics and Communication Engineering)

(For 2008 regular admitted batch only)

Time: 3 hours Max Marks: 80

Answer any FIVE questions
All questions carry equal marks
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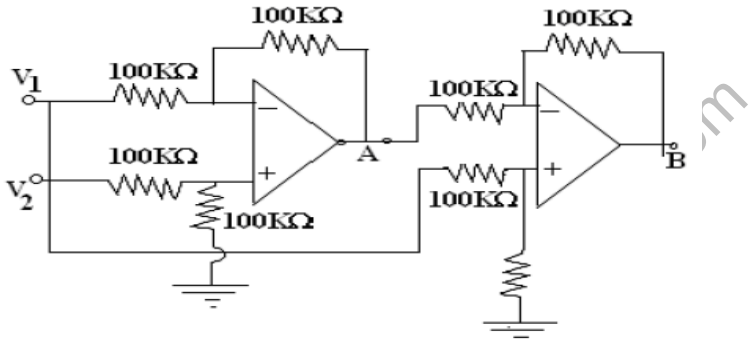
1 (a) Draw the schematic of Cascaded differential amplifier and explain the operation.
(b) Determine the procedure to design differential amplifier from known values of A_d and CMRR.

2 (a) Discuss the electrical characteristics of an OP-AMP in detail.
(b) Discuss the three basic types of linear IC packages and briefly explain the characteristics of each.

3 (a) What is the voltage at point A and B for the circuit shown in figure below, if V_1 = 5 V and V_2 = 5.1 V.



(b) Draw the circuit of non-inverting amplifier and derive the expression for output voltage.

4 (a) Explain the operation of antilog amplifier using Op-Amp.
(b) What is the main advantage of comparator based triangular wave generator over free running Astable multivibrator based circuit?

5 Derive the frequency of oscillation of a RC phase shift oscillator and explain the operation of the circuit.

6 (a) Draw the block schematic of a PLL describing the function of each block briefly.
(b) What is the purpose of law pass filter in a phase Locked Loop? Describe different types of law pass filters used in a PLL.

7 (a) Explain the operation of a successive approximation type Analog to Digital converter.
(b) An 8-bit Analog to Digital converter has a supply voltage of +12 volts. Calculate: (i) The voltage step size for LSB. (ii) The value of analog input voltage for a digital output of 01001011.

8 (a) What is Gyrator circuit? Explain its operation with a neat circuit diagram.
(b) What is a sample and hold circuit? Why is it needed? With neat circuit diagram, describe the operation of an op - amp based sample and hold circuit.

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