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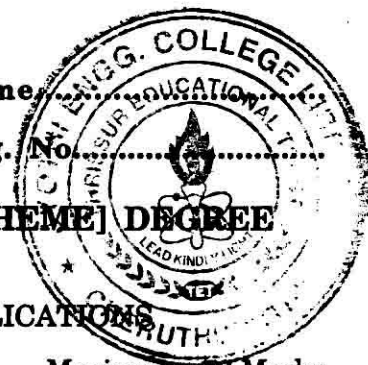Name.................................

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FOURTH SEMESTER B.TECH. (ENGINEERING) [09 SCHEME] DEGREE EXAMINATION, APRIL 2015

AI 09 403—LINEAR INTEGRATED CIRCUITS AND APPLICATIONS

Time : Three Hours

Maximum : 70 Marks

Part A

I. 1 Define CMRR of op-amp.

2 Define offset voltage of an op-amp.

3 What is virtual ground ?

4 Draw the circuit of a voltage follower.

5 State two advantages of active filter over passive filters.

(5 × 2 = 10 marks)

Part B

II. Answer any *four* questions :

1 Compare the performance of BJT and FET.

2 Draw the equivalent circuit of an op-amp and explain.

3 Derive the expressions for gain of an inverting and non-inverting op-amps.

4 Explain the working of sample and hold circuits.

5 Explain the working of switched capacitor integrator.

6 Explain the principle of an oscillator. State the types of oscillator.

(4 × 5 = 20 marks)

Part C

III. 1 Explain the working of BiCMOS amplifier.

Or

2 Explain the fabrication of BJT.

3 Discuss the frequency response of an op-amp. Explain a frequency compensation technique.

Or

4 Draw the internal circuit of 741 op-amp and explain its working.

5 Explain the working of (i) Instrumentation amplifier ; and (ii) Peak detector.

Or

Turn over

6   Explain the working of :

    (i)   V to I converter with floating fluid.

    (ii)   Analog multiplier.

7   Explain the working of a saw-tooth wave generator.

Or

8   Derive the transfer function of a second order active Butterworth low-pass filter.

(4 × 10 = 40 marks)