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Name.....

Reg. No.....

**FIFTH SEMESTER B.TECH. (ENGINEERING) DEGREE EXAMINATION
OCTOBER 2012**

EC 09 506—LINEAR INTEGRATED CIRCUITS

(2009 Scheme)

Time : Three Hours

Maximum : 70 Marks

Part A

Answer all questions.

1. Define Input bias current.
2. Define conversion time of an ADC.
3. Give the applications of 555 timer in monostable mode.
4. Define VCO.
5. State the advantages and disadvantages of active filters.

(5 × 2 = 10 marks)

Part B

Answer any four questions.

1. Explain the CMRR measurement in an op-amp.
2. Explain the working of I to V converter and voltage follower.
3. Explain the working of analog multipliers.
4. Draw and explain the frequency response of second order band-pass filter.
5. Briefly explain any two applications of 555 timer in astable mode.
6. With neat diagram, explain the working principle of instrumentation amplifier.

(4 × 5 = 20 marks)

Part C

Answer all questions.

1. Explain the transfer characteristics of op-amp with neat sketches. (10 marks)

Or

2. Explain the operation of a emitter coupled differential amplifier supplied by a constant current source.

(10 marks)

Turn over

3. (a) Explain the operation of a precision half wave rectifier. (6 marks)
(b) Explain how this circuit is modified for average peak measurement. (4 marks)

Or

4. Explain the operation of successive approximation type ADC with neat diagram. (10 marks)
5. (a) Derive the transfer function of a first order active high-pass filter. (6 marks)
(b) Obtain the frequency response of High-pass filter. (4 marks)

Or

6. Design a fourth order butterworth filter with a cut-off frequency of 1 kHz. (10 marks)
7. (a) Explain the operation of triangular waveform generator. (6 marks)
(b) Derive the expression for triangular frequency (f). (4 marks)

Or

8. (a) Explain the operation of 555 timer in astable mode. (8 marks)
(b) Give the applications of 555 timer in monostable mode. (2 marks)

[4 × 10 = 40 marks]