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23/5/13 FN

Reg. No. :

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Question Paper Code : 23374

B.E/B.Tech. DEGREE EXAMINATION, MAY/JUNE 2013.

Fourth Semester

Electronics and Communication Engineering

EC 1254/ EC 1252 A – LINEAR INTEGRATED CIRCUITS

(Regulation 2004/2007)

(Common to B.E. (Part-Time) Third Semester, Electronics and Communication Engineering, Regulation 2005)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Define CMRR.
2. What are the applications of current sources?
3. Design an inverter using op-amp.
4. What are the conditions to be satisfied to get sustained oscillations?
5. What are the applications of Gilbert cell?
6. Define lock range and capture range related to PLL.
7. What is the significance of current driven DAC?
8. Compare flash type and successive approximation ADC.
9. Mention any two applications of 555 I_c in monostable mode.
10. What are the limitations in linear voltage regulators?

PART B — (5 × 16 = 80 marks)

11. (a) Explain the process of I_c fabrication process with neat diagram. (16)

Or

- (b) (i) Explain in detail about the frequency compensation applied to operational amplifier. (10)
- (ii) Define slow rate and explain the methods to improve slow rate. (6)

12. (a) Draw and explain the working of op-amp as
- (i) Integrator (8)
 - (ii) Comparator (8)

Or

- (b) With an aid of circuit diagram explain the working of free running oscillator using op-amp and derive for its frequency of oscillation. (16)
13. (a) (i) Perform the closed loop of analysis of PLL using block schematic. (10)
- (ii) Explain how PLL can be used as AM and FM demodulators. (6)

Or

- (b) Prove that the Gilbert all can be used as four Quadrant trans conductance analog multiple with necessary diagrams. (16)
14. (a) Explain the working principles of current driven DAC and compare different types of DAC. (16)

Or

- (b) With an aid of diagrams explain the working of dual slope integrator type ADC. (16)
15. (a) Draw and explain the functional block diagram of a 723 voltage regulator and how this Ic can be used as high voltage regulator. (16)

Or

- (b) (i) Design 1 KHz square waveform generator using 555 timer for duty cycle 50. (12)
- (ii) Write explanatory note on fiber optic Ics. (4)