

Reg. No. :



**Question Paper Code : 31359**

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2013.

Fourth Semester

Electronics and Communication Engineering

EC 2254/ EC 44/10144 EC 405/EC 1254/080290022 — LINEAR INTEGRATED  
CIRCUITS

(Regulation 2008/2010)

(Common to PTEC 2254 Linear Integrated Circuits for B.E. (Part-Time) —  
Third Semester ECE — Regulation 2009)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. State the advantages of Integrated circuits over discrete components.
2. Define offset voltage of an operational amplifier.
3. Draw a non-inverting amplifier with voltage gain of 3.
4. Give an application for each of the following circuits:  
Voltage follower, peak detector, Schmitt trigger and clamper.
5. What is meant by frequency synthesizing?
6. Define lock range of a PLL.
7. Draw a sample and hold circuit.
8. State the principle of single slope A/D converter.
9. State the applications of 555 Timer IC.
10. Define line regulation with respect to a voltage regulator.

PART B — (5 × 16 = 80 marks)

11. (a) Explain the construction of a monolithic bipolar transistor. (16)
- Or
- (b) (i) Explain the working of a BJT differential amplifier with active load. (12)
- (ii) Write down the characteristics and their respective values of an ideal operational amplifier. (4)
12. (a) Explain the working of
- (i) Instrumentation amplifier (8)
- (ii) Schmitt trigger. (8)
- Or
- (b) Explain the working of
- (i) Precision Full wave rectifier (8)
- (ii) Integrator. (8)
13. (a) (i) Explain the working of a Gilbert multiplier cell. (11)
- (ii) Explain the principle of operation of a PLL. (5)
- Or
- (b) (i) Explain the working of IC 565. (10)
- (ii) Explain the application of PLL used for FM detection. (6)
14. (a) Explain the working of
- (i) R-2R ladder D/A converter (6)
- (ii) Dual slope A/D converter. (10)
- Or
- (b) Explain the working of
- (i) Weighted resistor D/A converter (6)
- (ii) Successive approximation A/D converter. (10)
15. (a) (i) Explain the working of monostable multivibrator. (14)
- (ii) What are opto-couplers? (2)
- Or
- (b) (i) Explain the working of a general purpose voltage regulator. (14)
- (ii) What is the need for isolation amplifiers? (2)