

C 6084

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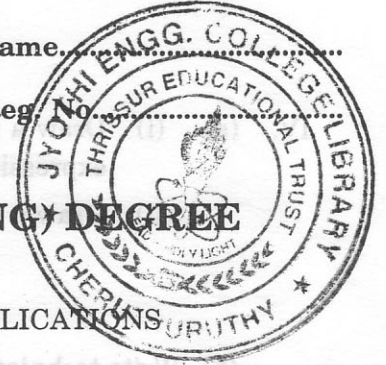
Name.....

Reg. No.....

**FOURTH SEMESTER B. TECH. (ENGINEERING) DEGREE
EXAMINATION, JUNE 2010**

AI/BI 04 406 – LINEAR INTEGRATED CIRCUITS AND APPLICATIONS

(2004 Admissions)



Time : Three Hours

Maximum : 100 Marks

- I. (a) Explain in detail about 1. dc sputtering ; 2. Hybrid IC.
(b) Differentiate thick film technology from thin film technology.
(c) Define : 1. CMRR. 2. PSRR for an op-amp. Write the expressions.
(d) Derive the closed loop gain expression of non-inverting amplifier.
(e) List the characteristics of voltage follower.
(f) Explain the advantages and applications of precision diode.
(g) Differentiate RF Oscillator from AF Oscillator.
(h) Give an account in switched capacitor integrator.

(8 × 5 = 40 marks)

- II. (a) (i) Explain the basic process used in silicon planar technology.
(ii) Explain in detail the steps for fabrication of FET with neat sketches.

(7 + 8 = 15 marks)

Or

- (b) (i) Explain about ion implantation and write the advantages.
(ii) Explain the steps involved in the preparation of Silicon Waters.

(7 + 8 = 15 marks)

- III. (a) Explain in detail the various applications of op-amp with neat circuit diagrams. Derive equations for the output voltages of all applications.

Or

- (b) (i) Draw the op-amp internal circuit and explain it in detail.
(ii) Explain the significance of CMRR, PSRR and slew rate.

(7 + 8 = 15 marks)

Turn over

- IV. (a) (i) Draw a neat circuit diagram of op-amp differential amplifier and explain. Derive an expression for CMRR in terms of its output voltage.
- (ii) Draw a neat circuit diagram for V-I converter and explain its operation.

(7 + 8 = 15 marks)

Or

- (b) Write technical notes on :

- (i) Precision Rectifier.
- (ii) Sample and hold circuit.
- (iii) Op-amp peak detector.

(5 + 5 + 5 = 15 marks)

- V. (a) Draw a neat circuit diagram for op-amp R-C phase shift oscillator and explain its principle of operation. Derive the conditions for oscillation.

(15 marks)

Or

- (b) (i) Draw a neat op-amp saw tooth wave generator circuit and explain its principle.
- (ii) Differentiate Band pass filter from Band reject filter.

(7 + 8 = 15 marks)

[4 × 15 = 60 marks]

Or

- III. (a) Explain in detail the various applications of op-amp with neat circuit diagrams. Derive equations for the output voltages of all applications.

(7 + 8 = 15 marks)

Or

- (b) (i) Draw the op-amp internal circuit and explain it in detail.
- (ii) Explain the significance of CMRR, PSRR and slew rate.