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Name.....

Reg. No.....

FOURTH SEMESTER B.TECH. (ENGINEERING) DEGREE EXAMINATION, JUNE 2009

AI/BM 04 406—LINEAR INTEGRATED CIRCUITS AND APPLICATIONS

(2004 Admissions)

Time : Three Hours

Maximum : 100 Marks

Answer **all** *questions.*

I. (a) What is photolithography ? Explain.

(b) Differentiate Thin film technology from Thick film technology.

(c) Draw the block diagram of an op-amp. Explain it.

(d) Define Sew rate. Explain its significance.

(e) Draw an op-amp inverter. Obtain its output voltage.

(f) Draw op-amp zero crossing detector and explain its principle.

(g) State and explain Barkhausen criterion for oscillation.

(h) Draw op-amp all pass filter and explain.

(8 × 5 = 40 marks)

II. (a) Explain the fabrication of BJTs using CMOS technology with neat sketches.

Or

(b) Broadly differentiate monolithic IC technology from hybrid IC technology.

III. (a) Draw the equivalent circuit of an op-amp. Derive an expression for output voltage.

Or

(b) (i) Explain the causes of slew rate.

(ii) Draw 741 op-amp simplified internal circuit and explain.

IV. (a) Explain the following op-amp circuits with neat sketches :—

(i) Op-amp log amplifier.

(ii) Op-amp peak detector.

Or

Turn over

(b) Draw op-amp integrator and differentiator and explain their operation. Derive expressions for output voltages.

V. (a) Draw op-amp Wien bridge oscillator and explain its principle. Derive the condition for oscillation.

Or

(b) (i) Explain the theory of operation of switched capacitor filter.

(ii) Explain the principle of op-amp bistable multivibrator with a neat diagram.

(4 × 15 = 60 marks)