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Name.....

Reg. No.....

FOURTH SEMESTER B.TECH. (ENGINEERING) DEGREE EXAMINATION, FEBRUARY 2013

Applied Electronics and Instrumentation Engineering

AI/BM 04 406 – LINEAR INTEGRATED CIRCUITS AND APPLICATIONS

Time : Three Hours Maximum : 100 Marks

Answer **all** *questions.*

I. (a) Explain the features and applications of CMOS technologies.

(b) Explain the diffusion and Ion implantation processes of IC fabrication.

(c) List and explain the characteristics of an Ideal op-amp.

(d) Define and explain : (i) CMRR ; (ii) PSRR.

(e) Derive the voltage gain for Op-amp voltage follower.

(f) Draw op-amp peak detector and explain.

(g) State and derive Barkhausen criterion for Op-amp oscillators.

(h) Explain the operation of Op-amp universal active filters.

(8 × 5 = 40 marks)

II. (a) Explain the fabrication steps of IC with neat sketches.

(15 marks)

Or

(b) (i) Give an account on Monolithic IC technology.

(ii) Differentiate thin film from thick film technology.

(7 + 8 = 15 marks)

III. (a) (i) Explain the frequency response of an op-amp with neat sketches.

(ii) Draw op-amp block diagram and explain it in detail.

(7 + 8 = 15 marks)

Or

(b) Explain in brief about :

(i) Op-amp compensating networks.

(ii) Op-amp internal circuit.

(7 + 8 = 15 marks)

Turn over

IV. (a) Explain in detail the typical applications of Op-amp with neat diagrams.

(15 marks)

Or

(b) Give an account on :

(i) Op-amp timing mark generator.

(ii) V–I converter with floating and fixed loads.

(7 + 8 = 15 marks)

V. (a) Explain the operating of Op-amp Wien-bridge oscillator with a neat diagram. Derive the condition for oscillation.

(15 marks)

Or

(b) Explain the principle of op-amp sawtooth wave generator with a neat diagram.

(15 marks)

[4 × 15 = 60 marks]