

C 58186

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Name: .....

Reg. No. ....



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

EE 04 404—ELECTRONICS II

(2004 Admissions)

Maximum : 100 Marks

Time : Three Hours

**Part A**

1. (a) Differentiate positive feedback from negative feedback. Explain the basics.
- (b) State and prove Barkhausen's Criterion.
- (c) Draw op-amp inverting and summing amplifiers. Explain them.
- (d) Draw op-amp ramp generator and explain its principle of operation.
- (e) Give an account on "NE565".
- (f) Design an op-amp BPF for  $f_L = 500 \text{ Hz}$  and  $f_H = 2 \text{ KHz}$ .
- (g) Explain the principle of current switching DAC.
- (h) Draw a neat sketch of tracking ADC and explain its principle in detail.

(8 × 5 = 40 marks)

- II. (a) (i) Explain the advantages of negative feedback with examples. (7 marks)
- (b) (ii) Explain in detail the properties of practical op-amps. (8 marks)

Or

- b (i) Draw a CST current shunt feedback amplifier and its equivalent circuit. Derive expressions for  $A_i$ ,  $A_v$ ,  $z_i$  and  $z_{out}$ . (7 marks)

- (ii) Explain the properties of voltage follower. (8 marks)

- III. (a) Explain the principles of op-amp square and triangular wave generators with neat sketches.

Or

- (b) Explain the following op-amp circuits in detail :

1 Instrumentation amplifier. (5 marks)

2 Principles of Vco circuit. (5 marks)

3 Op-amp scalar. (5 marks)

Turn over

IV. (a) Draw op-amp astable and monostable circuits. Explain their principle of operation.

Or

(b) Give an account on :

1 PLL in signal reconstruction.

(7 marks)

2 Op-amp all pass filter.

(8 marks)

V. (a) Explain the following op-amp circuits in detail :

1 Sample and hold circuit.

(7 marks)

2 Current switching DAC.

(8 marks)

Or

(b) Draw a neat sketch of successive approximation ADC and explain its principle in detail.

[4 × 15 = 60 marks]