Reg. No. : .....

Name : .....

K15F 0174

V Semester B.Tech. Degree (Reg./Sup./Imp. – Including Part Time) Examination, November 2015
(2006 and Earlier Admn.)
PTEC2K/EC2K 504 : LINEAR INTEGRATED CIRCUITS

Time : 3 Hours

Max. Marks : 100

Instruction : *Answer* ***all*** *questions.*

PART – A

I. a) Explain the offset nulling technique used in opamp. **5**

b) Define unity gain bandwidth of an opamp. Also explain the significance of unity gain B.W. **5**

c) List out typical CMOS opamp parameters. **5**

d) Explain the advantage of differential amplifier over single input amplifier. **5**

e) Explain the working of inverting amplifier with proper circuit diagram. **5**

f) Explain the working of 4 quadrant multipliers. **5**

g) Draw the circuit diagram of all pass filter and explain why we need all pass filter. **5**

h) Differentiate : **5**

1) Active and passive filters
2) Analog and digital filters.

PART – B

II. a) Explain and derive the equation for

1) Slew rate
2) CMRR
3) Input offset current. **15**

OR

b) Define input bias current. Derive the equation of output offset voltage due to input bias current. Also explain how to nullify the effect of input bias current. **15**

P.T.O.

III. a) Explain the operation of cross coupled pair differential amplifier with neat circuit diagram. Also listout the advantages of cross coupled pair differential amplifier. **15**

OR

b) Explain the working of wide swing constant transconductance differential amplifier with neat circuit diagram. **15**

IV. a) Define oscillator. Explain wein bridge oscillator with neat circuit diagram and derive the equation for f_o (frequency of oscillation) and R_F/R_1. **15**

OR

b) i) Explain voltage to current converter using proper circuit diagram and equation. **7**

ii) Explain log amplifier with neat circuit diagram and derive the equation for output voltage. **8**

V. a) Derive the equation for transfer function of twin-T notch filter with neat circuit diagram. Also obtain the equation for Q factor. **15**

OR

b) Draw the circuit diagram of a second order Butterworth Sallenkey configuration H.P.F. and derive the equation for transfer function H(S) ? **15**
