M 26234

Reg. No. : .....

Name : .....

V Semester B.Tech. Degree (Reg./Sup./Imp. – Including Part Time) Examination, November 2014

(2007 Admn. Onwards)

PT2K6/2K6 EC/AEI 505 : LINEAR INTEGRATED CIRCUITS

Time : 3 Hours Max. Marks : 100

I. a) Draw the block level diagram of an op-amp and explain each block. 5

b) Define unity gain band width. Also explain the significance of unity gain band width. 5

c) List out typical CMOS op-amp parameters. 5

d) Design a non inverting amplifier with gain = 11. 5

e) Explain the advantages of differential amplifier over single input amplifier. 5

f) Draw and explain the working of voltage to current converter with proper derivation ? 5

g) What is filter ? Draw the ideal characteristics of LPF, HPF, BPF and BRF. 5

h) Explain the difference between active and passive filter. 5

II. a) Explain and derive the equation for :

1) Slew rate

2) CMRR

3) PSRR. 15

OR

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

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 current differential amplifier with neat circuit diagram. 15

P.T.O.

IV. a) Define oscillator ? Explain the two conditions required for sustained oscillation ? Explain wein bridge oscillator with neat circuit diagram and derive the equation for f_o and R_F/R_I . **15**

OR

b) Explain the working of Astable multivibrator circuit using op-amp with neat circuit diagram and derive the equation for frequency, f. **15**

V. a) Draw the circuit diagram of a second order Butterworth sallenkey configuration high pass filter and derive the equation for transfer function, H(S). **15**

OR

b) i) Explain the concept of inductance simulation using Antonious gyrator. **8**

ii) Design a 2^{nd} order Butterworth high pass filter with cut-off frequency 2KHz. **7**