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BIEL-011

B.Tech. ELECTRONICS AND COMMUNICATION ENGINEERING (BTECVI)

00884

Term-End Examination

June, 2014

BIEL-011 : LINEAR INTEGRATED CIRCUITS

Time : 3 hours *Maximum Marks : 70*

Note : *Attempt any **seven** questions. Assume suitable data, wherever required. Use of scientific calculator is permited.*

1. Define input offset voltage and CMRR as applied to OP-AMP IC's. Explain how the above parameters can be measured. *10*

2. Draw the schematic of a low pass active filter and explain the operation. Also plot the gain/frequency response. *10*

3. (a) Draw and explain the functional block diagram of an OP-AMP. *6*

(b) Discuss briefly the power supply requirements of an OP-AMP. *4*

4. (a) What is the purpose of compensating networks in OP-AMPs ? What is meant by compensated and non-compensated OP-AMP ? *7*

(b) Write the applications of a sawtooth generator. *3*

5. (a) Draw a cascade differential amplifier circuit, and explain briefly. *5*

(b) With the help of circuit diagram, explain current mirror circuit. *5*

6. Draw and explain a Wein bridge oscillator with adaptive negative feedback. *10*

7. Explain the circuit of a zero crossing detector. Also draw its input and output waveforms. *10*

8. (a) Explain the working of switched mode power supplies. *5*

(b) Design a compensatory network for an OP-AMP using ±15 V supply voltages with V_{io} = 10 mV (maximum), and R_c = 10 Ω. *5*

9. (a) Draw the circuit diagram of an OP-AMP used as an inverting amplifier with negative feedback and derive the expression for its gain. *7*

(b) What is the role served by clipper circuit ? *3*

10. Write short notes on any ***two*** of the following : *2×5=10*

(a) Sample and hold circuit

(b) Voltage to current convertors

(c) Current mirror and level translator
