BIEL-002

B.Tech. – VIEP – ELECTRONICS AND COMMUNICATION ENGINEERING (BTECVI)

Term-End Examination

□□?□6   June, 2015

BIEL-002 : ANALOG AND INTEGRATED CIRCUITS DESIGN

Time : 3 hours   *Maximum Marks : 70*

Note : Attempt any seven questions. All questions carry equal marks.

1. (a) Draw the schematic symbol and block diagram of an operational amplifier and explain each block.   5

    (b) Define Input offset voltage and current, Input voltage range, CMRR and Slew rate.   5

2. Explain the various open-loop opamp configurations and also derive the expressions for output voltage of each configuration for ideal case.   10

3. (a) Explain voltage follower. Why is it also called non-inverting buffer ?   5

   (b) Explain difference amplifier, and its limitations in precision differential measurements.   5

4. (a) Explain the difference between Clipper and Clamper circuits.   5

   (b) What is the difference between basic comparator and schmitt trigger ? Also list the limitations of OP-AMP as comparator.   5

5. What is the name of the circuit that is used to detect the peak value of non-sinusoidal input waveforms ? Explain its complete operation with suitable diagram.   10

6. Explain V to F and F to V converters with neat diagram and describe its applications.   10

7. Draw the schematic diagram of triangular wave generator using a square wave generator and an integrator. Also draw its input and output waveforms.   10

8. Define a filter. Discuss the various filter types by defining proper transfer functions for each. List the advantages of active filters.   10

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

(a) Virtual Short and Virtual Ground

(b) Monolithic Timers

(c) Log Antilog Amplifiers