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No. of Printed Pages : 3

BIEL-002

B.Tech. – VIEP – ELECTRONICS AND COMMUNICATION ENGINEERING

(BTECVI)

Term-End Examination

December, 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 and explain the equivalent circuit and ideal voltage transfer curve of an OP-AMP. *5*

(b) List the various electrical characteristics of an ideal OP-AMP. *5*

2. Explain the closed loop configurations of an OP-AMP in detail with a suitable diagram. *10*

3. (a) For a differentiator circuit, input is a sinusoidal voltage of peak value 5 mV and frequency 1 kHz. Determine the output voltage, if R_F = 100 kΩ and C = 1 μF. *5*

(b) Explain the various effects of drift parameters. Explain in brief. *5*

4. (a) What is an Instrumentation amplifier ? List the applications of this amplifier. *5*

(b) Explain the voltage to current converter with grounded load. Is there any limitation with grounded load size ? *5*

5. (a) Differentiate between Clippers and Clampers using OP-AMP. Give applications of each. *5*

(b) What is the difference between slew rate and transient response ? *5*

6. What is a comparator ? List the important characteristics of comparator and explain them. *10*

7. Draw the schematic diagram of a saw-tooth wave generator. Also draw its input and output waveforms. *10*

8. List the various modes of operation of multi-vibrator. Explain any one in detail with proper diagram and waveforms. *10*

9. Define the filter order and poles. Derive the expression for transfer function of sallen key low pass filter. *10*

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

    (a) Grounding and Shielding techniques

    (b) Sample and Hold circuit

    (c) VCO and its applications
