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BIEL-038

DIPLOMA – VIEP – ELECTRONICS AND COMMUNICATION ENGINEERING (DECVI)

00716

Term-End Examination

June, 2016

BIEL-038 : LINEAR INTEGRATED CIRCUITS

Time : 2 hours *Maximum Marks : 70*

Note : *Attempt any **five** questions. All questions carry equal marks. Missing data may be suitably assumed. Use of scientific calculator is permitted.*

1. Give the block diagram of an op-amp, enlisting the circuit diagram of each block and mentioning the important functions performed by each block. Also draw its ideal voltage transfer curve and pin diagram of IC-741C. *10+4=14*

2. Draw the circuit diagram of the following using op-amp and derive an expression for their output voltage : *5+5+4=14*

(a) Difference Amplifier

(b) Non-inverting Adder

(c) Non-inverting Amplifier

3. Draw the circuit diagram of an instrumentation amplifier using three op-amp. Also derive an expression for its input impedance, output impedance and voltage gain. *5+3+3+3=14*

4. Draw and explain the operation of the following circuits using an op-amp : *7+7=14*
   (a) Sample and Hold Circuit
   (b) Schmitt Trigger Circuit

5. Give the circuit diagram of a High pass filter using an op-amp. Derive an expression for its transfer function and hence obtain the expressions for various filter parameters. *5+5+4=14*

6. Explain the operation of the following circuits using IC-555 :
   (a) Monostable Multivibrator
   (b) Astable Multivibrator
   Support your explanations with the required expressions and output waveforms. *7+7=14*

7. Explain the operation of PLL (IC-565) as (a) Frequency Multiplier, (b) FM Demodulator. *7+7=14*

8. Write short notes on any ***two*** of the following : *2×7=14*
   (a) Analog Multipliers
   (b) Comparators
   (c) Peak-to-Peak Detectors