

**B.Tech. - VIEP - ELECTRONICS AND
COMMUNICATION ENGINEERING
(BTECVI)**

Term-End Examination

00103

June, 2018

BIEL-011 : LINEAR INTEGRATED CIRCUITS

Time : 3 hours

Maximum Marks : 70

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

1. What is a practical op-amp ? Draw it's equivalent circuit. Also define CMRR and slew rate. $3+3+4=10$
2. Explain the use of cascade configuration in an op-amp. Why are FET op-amps better than BJT op-amps ? $5+5=10$
3. What are the various factors which affect the input offset voltage, input bias and input offset currents ? 10

4. What is frequency response ? Briefly explain the need for compensating network in an op-amp. 10
5. Explain the effect of negative feedback on frequency response. Explain the difference between slew rate and transient response. 5+5=10
6. Draw the circuit of a temperature compensated log-amplifier using two op-amps and explain its operation. Also derive an expression for its output voltage. 10
7. What is frequency stability ? Explain its significance. What is the basic difference between the sawtooth wave and triangular wave ? 3+3+4=10
8. Classify the oscillators on the basis of the following : 3+3+4=10
- (a) Types of components used
 - (b) Frequency of oscillation
 - (c) Types of waveforms generated

9. Draw the circuit diagram of a practical integrator and differentiator circuit. Also explain its operation with the help of necessary mathematical expressions. 5+5=10

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

- (a) Differential Amplifier with Swamping Resistor
 - (b) Causes of Slew Rates
 - (c) Sample and Hold Circuit
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