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BIEL-011

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

00193

Term-End Examination

December, 2016

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. Design an active load for an emitter-coupled pair (differential amplifier) and perform a detailed analysis to find its differential mode gain and the output resistance. *10*

2. Obtain the frequency response of an open-loop op-amp and discuss about the methods of frequency compensation. *10*

3. Define offset voltage. Explain a method to nullify offset voltage. *10*

4. (a) Enlist the specification of a typical OP-AMP (741). *5*

(b) What are the limitations in a temperature compensated Zener-reference source ? *5*

5. (a) Design a low pass filter with a cut-off frequency of 1 kHz and with a pass band gain of 2. *5*

(b) Discuss the operation of a monostable multivibrator. *5*

6. Explain the functions of all the basic building blocks of an op-amp. *10*

7. (a) With neat sketch representations, explain the operation of positive peak follower. *7*

(b) State the advantages of sample and hold circuits. *3*

8. (a) Mention the ideal characteristics of an operational amplifier. *5*

(b) State the causes for slew rate in an operational amplifier ? How is it indicated ? *5*

9. Explain the triangle wave generator with a neat diagram and derive the expression of time period. *10*

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

(a) Phase Shift Oscillator

(b) Frequency Response of Non-compensated Op-amp

(c) Voltage-to-Current Converters