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BIEL-011

01651

B.Tech. ELECTRONICS AND COMMUNICATION ENGINEERING (BTECVI)

Term-End Examination

December, 2013

BIEL-011 : LINEAR INTEGRATED CIRCUITS

Time : 3 Hours *Maximum Marks : 70*

Note : *(i)* *Attempt **any seven** questions .*

(ii) *Assume suitable data, wherever required.*

(iii) *Use of scientific calculator is **permitted**.*

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1. (a) With the help of circuit diagram explain briefly Emitter coupled differential amplifier. **8**

(b) Why are FET OP - amps better than BJT OP - amps ? **2**

2. (a) Define thermal drift , Input offset Voltage, Input offset current of an OP - amp. **6**

(b) Discuss briefly the measurement of CMRR. **4**

3. (a) Explain frequency compensator techniques used in OP- amps. **7**

(b) What is the use of a heat sink ? **3**

4. Define slew rate. What causes it ? How is it measured ? **10**

5. For an op-amp shown in fig(i) Derive the transfer function. **10**

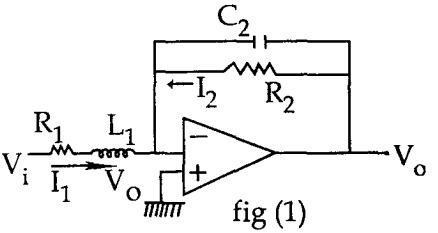

fig (1)

6. (a) Draw and explain an OP - amp as an integrator. **7**
   (b) What are the advantages of using a voltage follower amplifier ? **3**

7. Design a second order BPF with mid - band voltage gain $A_o = 50$, Center frequency $f_o = 160Hz$, and bandwidth $= 16Hz$, and $C_1 = C_2 = 0.1\ \mu f$. **10**

8. State the use of sample and hold circuits. Sketch the circuit arrangement along with output waveform and discuss briefly the operation of the circuit. **10**

9. With neat circuit diagram explain the operation of Zero crossing detector. What is its advantages ? **10**

10. Write short notes on **any two** of the following : **2x5=10**
   (a) Voltage limiters
   (b) Saw - tooth wave generators
   (c) Current mirror