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SE-6827

B. E. III (Sem. V) (IC) Examination

April / May – 2011

Linear Integrated Circuits

Time : **3** Hours] [Total Marks : **100**

Instructions :

(1)

નીચે દર્શાવેલ ☛ નિશાનીવાળી વિગતો ઉત્તરવહી પર અવશ્ય લખવી.
Fillup strictly the details of ☛ signs on your answer book.

Name of the Examination :

☛ **B. E. III (Sem. V) (IC)**

Name of the Subject :

☛ **Linear Integrated Circuits**

☛ Subject Code No. : **6 8 2 7** ☛ Section No. (1, 2,.....) : **1&2**

Seat No. :

Student's Signature

(2) Attempt all questions.
(3) Figure to the **right** indicates marks.
(4) Answers to the **two** sections must be written in same answer book.

SECTION-I

1 (a) Answer the following question briefly. **10**

(i) Draw the pin diagram of IC 741 op-amp. **2**

(ii) Give any two non-linear applications of op-map. **2**

(iii) Define the terms 'offset voltage' and 'input impedance' with respect to op-amp. **2**

(iv) State barkheusen criteria ? **2**

(v) Give two disadvantages of R-2R ladder type DAC. **2**

(b) Explain the operation of op-amp as non-inverting amplifier. 8

2 (a) Explain the working of astable multivibrator using op-amp. 8

(b) Explain the working of full wave precision rectifier. 8

OR

2 (a) What is frequency compensation in op-amp ? How is it achieved ? 8

(b) How can we use op-amp as a constant current source ? 8

3 Explain any **two** of the following : **8×2=16**
(a) Differentiator
(b) Wein bridge oscillatro
(c) Schmitt trigger.

SECTION : II

4 (a) Answer the following question in brief. **10**
(i) Classify ADCs and DACs. **2**
(ii) Draw the frequency responses of high pass, low pass and band reject filters. **2**
(iii) What is a multivibrator ? Define monostable multivibrator. **2**
(iv) What do 78xx and 79xx series signify ? **2**
(v) What is resolution of ADC ? It depends on which factors ? **2**
(b) Explain the working of monostable multivibrator using IC 555. **10**

5 (a) Explain first order high pass butterworth filter using op-amp. 8
(b) Draw the circuit diagram of band pass filter and explain. 8

OR

5 (a) Explain second order high pass butterworth filter using op-amp. 8
(b) With the help of block diagram, explain voltage regulator using IC. 8

6 Explain any **two** of the following : **8×2=16**
(a) Sample and hold circuit
(b) Design of voltage regulator
(c) Dual slope type ADC.