No. of Printed Pages : 3

BIEL-002

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B.TECH. IN ELECTRONICS AND COMMUNICATION ENGINEERING (BTECVI)

Term-End Examination

December, 2011

BIEL-002 : ANALOG INTEGRATED CIRCUITS DESIGN

Time : 3 hours *Maximum Marks : 70*

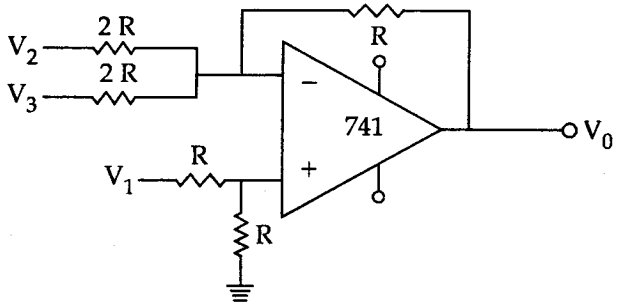
Note : *(i) Attempt **any five** questions.*
*(ii) All question carry **equal** marks.*
*(iii) Assume **necessary** data, if required.*

1. (a) Draw the basic block diagram of op-amp and explain the function of each block in detail. 7

(b) What is current mirror ? Give name of various types of active current sources. Explain any one in detail. 7

2. (a) What is an integrator ? Draw the circuit diagram of basic integrator and derive expression for its output. 7

(b) Derive the expression for output voltage V_0 for the given circuit. 7



3. (a) Draw the circuit diagram of sample and hold circuit and explain its operation. 7

(b) What do you understand by precision rectifier ? With the help of input and output wave forms explain the operation of full-wave precision rectifier. 7

4. (a) Explain how op-amp is used as saw-tooth wave generator. 7

(b) What is Astable multivibrator ? Draw the circuit diagram and explain it's operation with help of wave forms. 7

5. (a) Design a first order low pass Butter worth filter, at cut off frequency of 1 kHz with a pass band gain of 2. 7

(b) Explain the following for PLL : 7

(i) Free running frequency

(ii) Lock range

(iii) Capture range.

6. (a) With the help of circuit diagram find the expression for the output of an Anti-log Amplifier. 7

(b) Draw the circuit diagram of I to V convertor and explain how current is converted into voltage ? 7

7. Write short notes (***Any two***) : **14**

(a) Peak detector

(b) Schmitt Trigger

(c) Applications of PLL

(d) Instrumentation Amplifier.