Reg. No. : | | | | | | | | | | | | |

Question Paper Code : 71766

B.E./B.Tech. DEGREE EXAMINATION, APRIL/MAY 2017.

Third Semester

Electrical and Electronics Engineering

EE 6303 — LINEAR INTEGRATED CIRCUITS AND APPLICATIONS

(Common to Electronics and Instrumentation Engineering, Instrumentation and Control Engineering)

(Regulations 2013)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

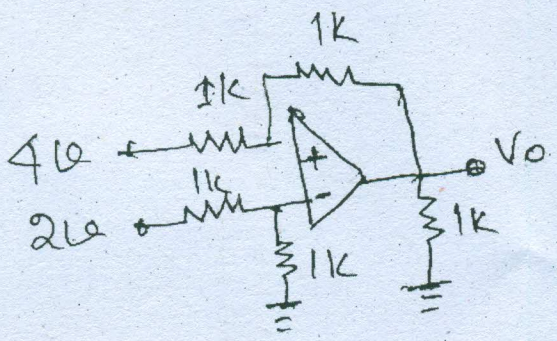
PART A — (10 × 2 = 20 marks)

1. State the advantages of CMOS circuits.

2. What is lithography?

3. Draw the circuit diagram of a symmetrical emitter coupled differential amplifier.

4. For the circuit diagram shown below determine the output voltage V_0.



5. Draw the circuit diagram of a zero cross detector with input and output waveforms.

6. Which is the fastest ADC? State reason.

7. What is an analog multiplier? Name its applications.

8. Draw the circuit diagram of a PLL circuit used as an AM modulator.

9. Give one comparison for switching regulator and variable voltage regulator.

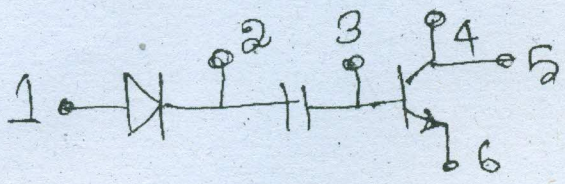
10. How are frequency of triangular waveform, obtained using ICL 8038 function generator?

PART B — (5 × 13 = 65 marks)

11. (a) With neat illustrations explain the various steps involved in the IC fabrication process. (13)

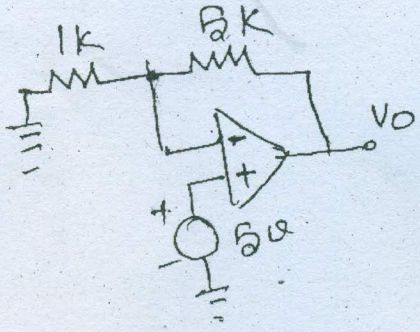
Or

(b) With circuit diagram explain the steps involved in the fabrication of the circuit shown below using IC technology. (13)

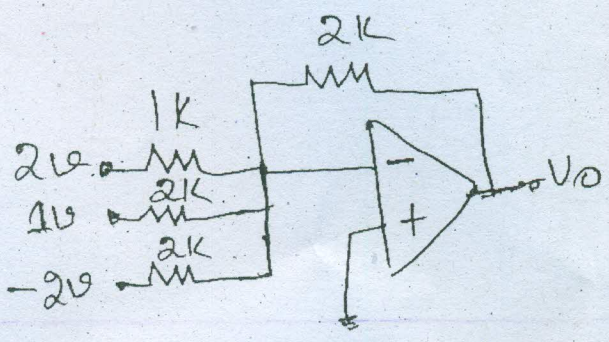


12. (a) Determine the output voltage for the following circuits. (6.5)

(i)



(ii)



(6.5)

Or

(b) (i) With diagram explain the working principle of V/I converter. (5)

(ii) Write a note on stability criterion and compensation techniques applicable to opamp circuit. (8)

13. (a) With diagram explain the following applications of op amp. (13)

(i) Clippers and clampers

(ii) Triangular waveform generator.

Or

(b) (i) Explain the working principle of R-2R ladder type D/A converter. (7)

(ii) Design a second, order Butterworth low pass filter with cut off frequency 2KHZ. (6)

14. (a) Briefly explain the functional block diagram of NE 565 PLL–IC to operate as a frequency divider. (13)

Or

(b) (i) Explain the functional block diagram of 555 timer IC. (8)

(ii) Design a monostable multivibrator with pulse duration of 1m sec using 555 timer IC. (5)

15. (a) With necessary diagram and waveforms explain the working principle of switched mode power supply. (13)

Or

(b) Write short notes on the following :

(i) LM 380 power amplifier

(ii) ICL 8038 function generator. (13)

PART C – (1 × 15 = 15 marks)

16. (a) Sketch the implementation of an instrumentation amplifier using three opamps. Explain the principle of operation and its applications. (15)

Or

(b) Using 7805 design a current source to deliver a 0.2A current to a 22 Ohm 10 w load. (15)

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