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Question Paper Code : 57310

B.E./B.Tech. DEGREE EXAMINATION, MAY/JUNE 2016

Third Semester

Electrical and Electronics Engineering

EE 6303 – LINEAR INTEGRATED CIRCUITS AND APPLICATIONS

[Common to Electronics and Instrumentation Engineering and Instrumentation and Control Engineering]

(Regulations 2013)

Time : Three Hours **Maximum : 100 Marks**

Answer ALL questions.

PART – A (10 × 2 = 20 Marks)

1. State the limitations of 1C technology.
2. Distinguish between dry etching and wet etching.
3. Why 1C 741 is not used for high frequency applications.
4. Draw the circuit diagram of an integrator and give its output equation.
5. What is sample and hold circuit ? Where it is used ?
6. What is the advantage of using active clipper over passive clipper ?
7. Define capture range of PLL.
8. What is analog multiplier IC ? Where it is used ?
9. Why do switching regulators have better efficiency than the series regulators ?
10. Give some examples of monolithic IC voltage regulators.

PART – B (5 × 16 = 80 Marks)

11. (a) (i) Distinguish diffusion and ion Implantation process in IC fabrication. **(6)**

(ii) Describe the metallization process, assembly processing and packaging with neat diagram. **(10)**

OR

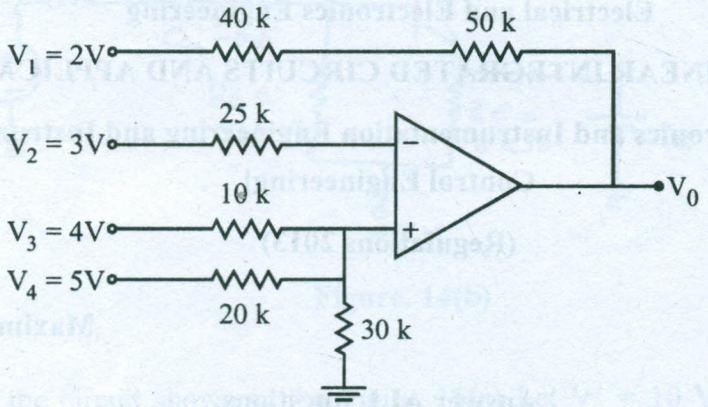
(b) Discuss briefly about the PN junction diode and JFET fabrication. **(16)**

12. (a) Discuss the frequency response characteristics and compensation of an operational amplifier. **(16)**

OR

(b) (i) Explain the application of Op-Amp as differentiator. **(8)**

(ii) Find V_0 for the given circuit. **(8)**



13. (a) (i) Design a Schmitt trigger using Op-Amp. **(8)**

(ii) Explain the working of successive approximation type A/D converter. **(8)**

OR

(b) (i) Draw the instrumentation amplifier using 3 Op-Amp and derive its output voltage equation. **(8)**

(ii) Explain the first order low pass butterworth filter with a neat diagram. Derive its frequency response and plot the same. **(8)**

14. (a) With the help of schematic diagram, explain the operation of IC-566 VCO. Also derive an expression for the output frequency. **(16)**

OR

(b) (i) Design and draw the waveform of a 1 kHz square wave generator using 555 timer for duty cycle of 50%. **(6)**

(ii) Explain the operation of astable operation of IC555 with necessary waveform. **(10)**

15. (a) Explain the operation of switching regulator. Give its advantages. **(16)**

OR

(b) Write short notes on :

(i) LM 380 power amplifier. **(8)**

(ii) ICL 8038 Function generator. **(8)**