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

Question Paper Code: 33502

B.E. / B.Tech. DEGREE EXAMINATION, APRIL 2019

Third Semester

Electronics and Instrumentation Engineering

01UEI302 - LINEAR INTEGRATED CIRCUITS AND APPLICATIONS

(Regulation 2013)

Duration: Three hours Maximum: 100 Marks

Answer ALL Questions.

PART A - (10 x 2 = 20 Marks)

1. Why is ion-implantation preferred over diffusion?
2. Name the various types of IC packages.
3. Define slew rate.
4. How do the open - loop voltage gain and the closed loop voltage gain of an op - amp differ?
5. How the gain of basic instrumentation amplifier is determined?
6. Name any two types of oscillators.
7. Draw the circuit of basic 555 timer used in monostable(one shot) mode.
8. Draw the pin configuration of VCO.
9. Calculate the required input angle voltage and resultant output voltage for angles of (a) $\pm 45^0$.
10. What is meant by optocoupler?

PART - B (5 x 16 = 80 Marks)

11. (a) Explain the classification of ICs according to their method of fabrication. (16)

Or

(b) Illustrate the basic processes involved in fabricating Diode using planar technology. (16)

12. (a) (i) Explain the DC characteristics of an Op-amp. (8)

(ii) Illustrate the frequency response characteristics of Op-amp with suitable equations and plots. (8)

Or

(b) Explain about the AC characteristics of Op-Amp. (16)

13. (a) What is an instrumentation amplifier? Draw and explain the commonly used three Op-amp instrumentation amplifier circuits. Derive expression for its gain. (16)

Or

(b) (i) Illustrate the operation of sample and hold circuits. (8)

(ii) Outline the concepts of binary weighted resistor type D/A conversion techniques. (8)

14. (a) Draw the equivalent circuit for the timing circuit portion of the 555 monostable circuit and analyze the circuit. (16)

Or

(b) With the help of a neat sketch, explain PLL demodulation of an FM signal. (16)

15. (a) With neat circuit diagram, explain any two types of voltage regulators. (16)

Or

(b) Outline the concepts of ICL 8038 function generator IC. (16)

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