TED (15/19) 4042
(Revision-2015/19)

A23 -02285

Reg.No.....
Signature.....

DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/MANAGEMENT/ COMMERCIAL PRACTICE, APRIL- 2023

LINEAR INTEGRATED CIRCUITS

[Maximum marks: 100] (Time: 3 Hours)

PART – A

Maximum marks : 10

I (Answer ***all*** the questions in one or two sentences. Each question carries 2 marks)

1. Define slew rate of an op-amp.
2. Explain the symbol of op-amp
3. What is precision rectifier?
4. Define lock range of PLL.
5. What is the function of a voltage regulator? (5 x 2 = 10)

PART – B

Maximum marks : 30

II (Answer any ***five*** of the following questions. Each question carries 6 marks)

1. List the characteristics of an ideal op-amp.
2. Draw and explain the circuit diagram of an op-amp voltage follower.
3. Explain the working of an op-amp integrator circuit.
4. Describe the working of schmitt trigger circuit with necessary waveforms.
5. Explain how PLL can be used as a frequency multiplier.
6. Draw the pin diagram of 555 timer and explain the function of each pin.
7. Explain the operation of adjustable voltage regulator LM317. (5 x 6 = 30)

PART – C

Maximum marks : 60

(Answer one full question from each unit.. Each full question carries 15 marks)

UNIT –I

III. (a) Define CMRR, input offset voltage, input offset current, input bias current of an op-amp. (8)

(b) Explain non-inverting amplifier using op-amp and derive the gain equation. (7)

OR

IV.(a) Draw and explain the block diagram of op-amp. (8)

(b) Explain different IC packages. (7)

UNIT-II

V.(a) Explain RC phase shift oscillator using op-amp. (8)

(b) Explain voltage to current converter using op-amp. (7)

OR

VI. (a) Explain monostable multivibrator using op-amp. (8)

(b) Explain first order low pass filter using op-amp. (7)

UNIT-III

VII. (a) With the help of block diagram explain the working of a PLL. (8)

(b) Explain 380 audio power amplifier. (7)

OR

VIII.(a) Draw and explain the circuit of an astable multivibrator using 555 IC. (8)

(b) Draw and explain the pin configuration of NE/SE 566 VCO and explain the function of each pin . (7)

UNIT-IV

IX. (a) Draw and explain low voltage regulator using LM 723. (8)

(b) Draw and explain the dual power supply using LM 320 and LM 340. (7)

OR

X. (a) Explain the block diagram of SMPS. (8)

(b) What is optocoupler? Explain the working principle and list its applications. (7)

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