



TED (15) – 4042
(REVISION — 2015)

Reg. No.

Signature

**DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/
MANAGEMENT/COMMERCIAL PRACTICE — OCTOBER, 2019**

LINEAR INTEGRATED CIRCUITS

[Time : 3 hours

(Maximum marks : 100)

PART — A

(Maximum marks : 10)

Marks

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

1. List any two package types of operational amplifier.
2. Define the slew rate of an op-amp.
3. Write the frequency of oscillation of RC phase shift oscillator.
4. Write the expression for time period of astable circuit using 555.
5. Give any two features of IC regulators.

(5 × 2 = 10)

PART — B

(Maximum marks : 30)

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

1. Explain the working of voltage follower.
2. Draw the Schmitt trigger circuit using op-amp and explain its working.
3. Explain the working of differentiator circuit using op-amp.
4. Define capture range, lock-in-range and pull-in-time of PLL.
5. Write the features of 555 timer.
6. Explain the operation of adjustable voltage regulator LM 317.
7. What are the advantages and disadvantages of SMPS ?

(5 × 6 = 30)



PART — C

(Maximum marks : 60)

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

UNIT — I

- III (a) Derive the expression for output voltage and voltage gain of inverting amplifier. 8
(b) What are characteristics of an ideal operational amplifier ? 7

OR

- IV (a) Explain the block diagram of general purpose operational amplifier. 8
(b) Explain the concept of virtual ground. 7

UNIT — II

- V (a) Describe the working of summing amplifier. 8
(b) Explain the working of current to voltage converters. 7

OR

- VI (a) With neat diagram explain the working of wein bridge oscillators. 8
(b) Explain the working of astable multivibrator using op-amp. 7

UNIT — III

- VII (a) Draw the block diagram of PLL and explain. 7
(b) Explain the working of monostable multivibrator using 555 timer. 8

OR

- VIII (a) Describe the application of PLL as frequency multiplier. 7
(b) Explain the functional block diagram of 555 timer. 8

UNIT — IV

- IX (a) Explain dual power supply using LM 320 and LM 340. 8
(b) With the block diagram explain SMPS. 7

OR

- X (a) Write the features of LM 723 voltage regulator. 7
(b) Explain working of optocoupler IC 4N35. 8