TED (15) – 4042

(REVISION — 2015)

Reg. No. .....

Signature .....

DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/ MANAGEMENT/COMMERCIAL PRACTICE — APRIL, 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. Define input offset voltage.
2. Draw a unity gain circuit using op-amp.
3. List any four features of LM723 voltage regulator IC.
4. Define lock range.
5. Draw the frequency response curve of first order high pass butter worth filter.

(5×2 = 10)

PART — B

(Maximum marks : 30)

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

1. Sketch the pin configuration of op-amp and describe the function of each pin.
2. Explain the working of Schmitt trigger circuit with necessary waveforms.
3. Describe the working of RC phase shift oscillator using op-amp.
4. Draw the functional block diagram of LM723.
5. Illustrate the working of astable multivibrator using 555.
6. Explain how PLL can be used as FM demodulator.
7. Explain how LM320 and LM340 can be used to make a dual power supply.

(5×6 = 30)

Marks

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 voltage gain of non-inverting amplifier with circuit diagram. 8

(b) Explain the block diagram of general purpose op-amp. 7

OR

IV (a) Describe the working basic circuit of differential amplifier. 8

(b) List the characteristics of an ideal opamp. 7

UNIT — II

V (a) With neat diagram explain instrumentation amplifier. 7

(b) Draw & explain 1st order active low - pass Butterworth filter using opamp. 8

OR

VI (a) Describe the working of astable multivibrator using opamp. 8

(b) Explain voltage to current converter using opamp. 7

UNIT — III

VII (a) Explain LM380 audio power amplifier circuit. 7

(b) With the help of circuit and wave form explain the operation of monostable multivibrator using 555IC. 8

OR

VIII (a) Draw and explain the functional block diagram of 555 timer. 8

(b) Explain how PLL can be used as frequency multiplier. 7

UNIT — IV

IX (a) Explain the operation of adjustable voltage regulator LM317. 7

(b) Draw the block diagram and explain the working of SMPS. 8

OR

X (a) Explain low voltage regulator using LM723. 8

(b) Explain the working principle of opto couples and list its applications. 7