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(Revision – 2015/19)

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Reg. No……
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DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/ MANAGEMENT/COMMERCIAL PRACTICE, NOVEMBER – 2023

LINEAR INTEGRATED CIRCUITS

[Maximum Marks: **100**] [Time: **3** Hours]

PART-A

[Maximum Marks: **10**]

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

1. Define Slew rate.
2. What is input offset voltage?
3. List the applications of integrator.
4. Define lock range of a PLL.
5. State the principle of opto-couplers. (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 different parameters of op amp.
2. Describe the working of a first order Butterworth LPF.
3. Write short notes on integrator.
4. Explain the working of LM 380 audio power amplifier.
5. Explain the general block diagram of a PLL.
6. Draw the block diagram of dual power supply.
7. List the advantages and disadvantages of SMPS. (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. Draw the block diagram of an op-amp and explain each block. (8)

b. Explain the working of a voltage follower circuit using op-amp. (7)

OR

IV. a. Explain the different op-amp packages. (8)

b. With circuit diagram explain the working of an inverting amplifier. (7)

UNIT – II

V. a. Explain the working of a full wave precision rectifier. (8)

b. Describe the working of a Schmitt trigger circuit using op-amp. (7)

OR

VI. a. Briefly explain the principle of an RC phase shift oscillator using op-amp. (8)

b. Explain the working of Triangular wave generator. (7)

UNIT- III

VII. a. Draw the internal architecture of 555 timer and explain. (9)

b. Explain the block diagram of frequency multiplier using PLL. (6)

OR

VIII. a. Explain the block diagram of VCO 566. (8)

b. Explain the block diagram of FM demodulator using PLL. (7)

UNIT - IV

IX. a. Explain the basic block diagram of an SMPS. (8)

b. Explain the fixed positive voltage regulators. (7)

OR

X. a. Explain the functional block diagram of LM 723 voltage regulator. (8)

b. With circuit diagram explain the operation of adjustable voltage regulator using LM 317. (7)

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