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

A22-00704

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

DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/MANAGEMENT/ COMMERCIAL PRACTICE, APRIL-2022

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 input offset voltage of OPAMP.
2. Write the advantages of active filters.
3. Define pull-in time of PLL.
4. Write any two applications of IC 555 timer.
5. Which are the different series of 3 terminal fixed voltage regulator IC'S? (5 x 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 a basic differential amplifier circuit.
2. What are the characteristics of an ideal OPAMP?
3. With the help of circuit diagram explain the working of a peak detector.
4. With the help of circuit diagram and waveform explain the working of a precision halfwave rectifier.
5. Explain the functional block diagram of IC 555.
6. Explain the operation of 3 terminal voltage regulator IC'S.
7. Explain the working of low voltage regulators using IC 723. (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 a typical OPAMP and explain the functions of each stage. (10)

(b) Explain the working of OPAMP as voltage follower. (5)

OR

IV.(a) Explain the working of OPAMP as inverting amplifier and derive the expression for gain (8)

(b) Explain the concept of virtual ground. (7)

UNIT-II

V. (a) Explain how OPAMP can be used as a subtractor circuit. (8)

(b) Explain the working of a first order high pass Butterworth filter. (7)

OR

VI. (a) Explain the working of Schmitt trigger using OPAMP. (8)

(b) Explain the working of a differentiator using OPAMP. (7)

UNIT-III

VII. (a) Explain the block diagram of PLL. (8)

(b) Draw and explain an audio power amplifier using LM 380. (7)

OR

VIII.(a) Explain the block diagram of Voltage Controlled Oscillator (VCO) (8)

(b) Explain how IC 555 can be used as an astable multivibrator. (7)

UNIT-IV

IX. (a) Explain the functional block diagram of LM 723 voltage regulator. (10)

(b) Explain the working principle of opto coupler. (5)

OR

X. (a) With the help of a block diagram explain the working of SMPS. (8)

(b) Explain the working of dual power supply using LM 320 and LM 340. (7)

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