MODEL QUESTION PAPER

TED (15) – 4042 Reg. No……

(REVISION – 2015) Signature……..

FOURTH SEMESTER DIPLOMA EXAMINATION IN ENGINEERING / TECHNOLOGY

LINEAR INTEGRATED CIRCUITS

(Common for EL, MD and EC)

(Maximum Marks: 100) (Time: 3 hours)

PART – A

(Maximum Marks: 10) Marks

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

1. List two applications of voltage follower circuit
2. Define the term slew rate of an op-amp
3. Define cut-off frequency of a filter
4. Define pull-in time of a PLL
5. State the principle of opto-couplers

(5×2 =10)

PART – B

(Maximum Marks: 30)

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

1. Explain the concept of virtual ground in op-amp?
2. Describe the working of a V to I converter using op-amp?
3. Explain the working of a subtractor circuit using op-amp?
4. Design an astable multivibrator using 555 for a frequency of 5Khz
5. List the important characteristics of 565 PLL IC?
6. Describe how a fixed voltage regulator can be converted into an adjustable regulator
7. Describe the role of PWM stage in SMPS

(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 1. Draw the pin diagram of an op-amp and explain each pin? 7

2. Derive the expression for output voltage and voltage gain of an inverting Amplifier. 8

OR

IV 1. Explain the electrical parameters of an op-amp? 8

2. With circuit diagram explain the working of a difference amplifier? 7

UNIT – II

V 1. Briefly explain the advantages of an instrumentation amplifier? 5

2. State the need for a precision rectifier and explain the working of a half wave precision rectifier? 10

OR

VI 1. Briefly explain the principle of a wein bridge oscillator using op-amp? 8

2. Explain the working of a Schmitt trigger circuit using op-amp? 7

UNIT – III

VII 1. Explain the circuit of a monostable multivibrator using 555? 7

2. Draw the internal architecture of 566 VCO IC and explain? 8

OR

VIII 1. Explain the internal architecture of 555 timer IC and explain? 8

2. Explain the block diagram of frequency multiplier using PLL? 7

UNIT – IV

IX 1. Briefly describe the principle of operation of IC 4N35 opto-coupler? 7

2. With circuit diagram explain the operation of high voltage regulator using LM723? 8

OR

X 1. Explain the functional block diagram of LM723 voltage regulator? 10

2. Draw the circuit of a dual power supply using LM78xx and LM79xx. 5