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

$(5\times2 =10)$

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

$(5\times6 = 30)$

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