STATE BOARD OF TECHNICAL EDUCATION AND TRAINING TELANGANA
403C
18EC/EI/BM/ES
DIPLOMA EXAMINATION (C-18)
C-18-REGULAR-OCTOBER-2020
SEMESTER END EXAM
LINEAR INTEGRATED CIRCUITS
SEMESTER IV, PCODE: 6434

Time: 2 Hours

[Total Marks: 40]

PART-A

Instructions: 1. Answer the following questions   8 X 1 = 8
2. Each question carries ONE mark

1.   State any two functions of operational amplifier.
2.   Give the formula for voltage gain of non inverting amplifier using Op Amp.
3.   Write any two important features of instrumentation amplifier?
4.   Define the term common mode gain of OP-AMP.
5.   What is meant by a PLL?
6.   What is the function of the control voltage PIN of 555.
7.   Write any two applications of Instrumentation amplifier?
8.   What is instrumentation amplifier

PART-B

Instructions: 1. Answer the following questions   4 X 3 = 12
2. Each question carries THREE marks

9(a).   List any 3 advantages of Integrated Circuits over discrete circuits.

----- OR ----

9(b).   Mention any three design rules for implementing PLL circuit.

10(a).   Explain Gain Bandwidth product of Op-Amp.

----- OR ----

10(b).   Draw the circuit diagram of D/A converter using R-2R ladder network

11(a).   Draw the internal block diagram of PLL - LM565.

----- OR ----

11(b).   Draw the pin diagram of VCO (LM566).

12(a).   Define the terms Resolution ,Accuracy and Monotonocity

----- OR ----

12(b). State the need for A/D and D/A conversion.

PART-C

Instructions: 1. Answer the following questions   4 X :
                      2. Each question carries **FIVE** marks

13(a).   Explain the power supply requirements of operational amplifier.

----- OR ----

13(b).   Calculate the resistance required for Monostable Multivibrator using 555 Timer for generating 0.5 seconds of gating time. use capacitance of 10 μ f.

14(a).   Explain the use of operational amplifier as summing amplifier

----- OR ----

14(b).   A 5-bit D/A converter produces V_{out} = 0.2 V for a digital input of 00001. Find the value : Vout for the input of 11111.

15(a).   Explain use of PLL as frequency multiplier.

----- OR ----

15(b).   Explain the application of Astable Multivibrator for achieving 50% duty cycle in square wave output.

16(a).   Explain the operation of instrumentation amplifier using three op-amps.

----- OR ----

16(b).   Explain D/A converter using R-2R ladder network