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Reg. No……
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DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/ MANAGEMENT/COMMERCIAL PRACTICE, NOVEMBER – 2020

LINEAR INTEGRATED CIRCUITS

[Maximum Marks: 75] [Time: 2.15 Hours]

PART-A

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

I. 1. Write the expression for voltage gain of a non-inverting amplifier.

2. Define slew rate and write its unit.

3. Draw a non inverting zero crossing detector using op-amp.

4. List any two features of 555 timer.

5. Write the output voltage of IC7905 and IC7812. (3 x 2 = 6)

PART-B

(Answer ***any four*** of the following questions. Each question carries ***6*** marks)

II 1. What are the characteristics of an ideal op-amp?

2. Explain the concept of virtual ground.

3. Explain the working of peak detector.

4. Explain the working of summing amplifier.

5. Draw the general block diagram of PLL and explain.

6. Explain the typical circuit of 7805.

7. Explain the working principle of an opto-coupler. (4 x 6 = 24)

PART-C

(Answer ***any of the three units*** from the following. Each full question carries 15 marks)

UNIT – I

III (a) Draw & explain the block diagram of an op-amp. (8)

(b) Derive the expression for voltage gain of an inverting amplifier. (7)

OR

IV (a) Explain the working of basic differential amplifier circuit. (8)

(b) Explain the working of a non inverting amplifier. (7)

UNIT – II

V (a) Explain the working of an op-amp astable multivibrator. (8)

(b) Explain the working of an op-amp integrator. (7)

OR

VI (a) Explain the working of RC phase shift oscillator using op-amp. (8)

(b) Explain the working of half wave precision rectifier. (7)

UNIT- III

VII (a) Draw and explain the functional block diagram of 555 IC. (8)

(b) Explain the working of frequency multiplier using PLL. (7)

OR

VIII (a) Explain the working of astable multivibrator using 555IC. (8)

(b) Draw and explain the block diagram of VCO. (7)

UNIT - IV

IX (a) Draw and explain the functional block diagram of 723 regulator IC. (8)

(b) List the advantages and disadvantages of SMPS. (7)

OR

X (a) Explain the operation of adjustable voltage regulator LM 317. (7)

(b) Draw and explain the block diagram of SMPS. (8)
