

THIRD SEMESTER DIPLOMA EXAMINATION IN ELECTRICAL AND ELECTRONICS ENGINEERING — APRIL, 2017

ANALOG DEVICES AND CIRCUITS

[Time : 3 hours]

(Maximum marks : 100)

PART — A

(Maximum marks : 10)

Marks

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

1. Define the term ripple factor.
2. Draw the frequency response curve of a transformer coupled amplifier.
3. List the advantages of crystal oscillator.
4. Recognize the need of filter in a power supply.
5. Identify the reason for op-amp in obtaining this name. (5×2=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 voltage regulator using zener diode.
2. Draw and explain shunt capacitor filter.
3. List out the various types of couplings in amplifiers and write their applications.
4. Differentiate class A and class B amplifiers.
5. Draw and explain astable multivibrator using IC 555.
6. Discuss the concept of virtual ground in connection with op-amps.
7. Describe a precision half wave rectifier. (5×6=30)

PART — C

(Maximum marks : 60)

(Answer *one* full question from each unit. Each full question carries 15 marks.)

UNIT — I

- III (a) Explain the working of a voltage regulator using 7805 IC. 8
 (b) Compare half wave and full wave rectifiers. 7

OR

- IV (a) Draw and explain the working of biased clippers with wave forms. 8
 (b) Explain centre tap full wave rectifier circuit with wave forms. 7

UNIT — II

- V (a) Explain the working of RC coupled amplifier. 8
 (b) Draw and explain the working of complimentary symmetry push pull amplifier. 7

OR

- VI (a) Define bandwidth, lower and upper cut of frequencies and 3dB point. 9
 (b) Explain the working of class B amplifier. 8

UNIT — III

- VII (a) Draw a neat diagram of RC phase shift oscillator and write the equation for frequency of oscillation. 8
 (b) Describe the operation of Schmitt trigger circuit with a neat diagram. 7

OR

- VIII (a) Explain the operation of a transistorized monostable multivibrator. 8
 (b) Draw a neat diagram of crystal oscillator and explain its working. 7

UNIT — IV

- IX (a) Define the following terms with referene to op-amp. 8
 (i) Slew rate
 (ii) Input resistance
 (iii) CMRR
 (iv) Input bias current
 (b) Explain the working of a non inverting amplifier using op-amp. 7

OR

- X (a) Draw the bock diagram of op-amp and explain each block. 8
 (b) Draw and explain the working of an integrator circuit using op-amp. 7