TED (15) – 3031 Reg. No.....

(REVISION — 2015) Signature .....

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)

Marks

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.

(i) Slew rate

(ii) Input resistance

(iii) CMRR

(iv) Input bias current 8

(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

———————