ADC. 5

TED (15) – 3031

(REVISION — 2015)

Reg. No. .....

Signature .....

DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/ MANAGEMENT/COMMERCIAL PRACTICE — APRIL, 2018

ANALOG DEVICES AND CIRCUITS

[*Time* : 3 hours

(Maximum marks : 100)

PART — A

(Maximum marks : 10)

Marks

I Answer *all* questions in one or two sentences. Each question carries 2 marks.

1. Define the term rectification efficiency of a rectifier.
2. State the function of clipping circuits.
3. Draw the frequency response curve of an RC coupled amplifier.
4. State Barkhausen criteria for oscillation.
5. Voltage gain of op-amp.

(5×2 = 10)

PART — B

(Maximum marks : 30)

II Answer any *five* of the following questions. Each question carries 6 marks.

1. Draw a full wave rectifier circuit with centre tapped transformer and its waveform.
2. List out different types of clipping circuits.
3. Draw a neat sketch of RC coupled amplifier and identify the components.
4. Differentiate positive feed back and negative feed back.
5. Draw and explain astable multivibrator using IC 555.
6. Discuss the concept of virtual ground in connection with op-amp.
7. Explain inverting and non inverting amplifier using op-amps.

(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) Compare full wave and half wave rectifier. 8

(b) Explain the working of half wave rectifier with filter circuits and draw the waveforms. 7

OR

IV (a) Explain the working of biased positive clippers with necessary diagrams and waveforms. 8

(b) Explain the operations of zener diode as voltage regulator. 7

UNIT — II

V (a) Explain the operations of class B amplifier. 8

(b) Explain the need of coupling in power amplifiers. 7

OR

VI (a) Explain the working of class A power amplifier. 8

(b) Draw and explain the working of push pull amplifier. 7

UNIT — III

VII (a) Draw a neat sketch of RC phase shift oscillator and explain its working. 8

(b) Describe the working of crystal oscillator. 7

OR

VIII (a) Explain the working of bistable multivibrator. 8

(b) Describe the working of monostable multivibrator using IC 555. 7

UNIT — IV

IX (a) Describe integrator and differentiator using op-amps. 8

(b) List the characteristics of an ideal op-amp 7

OR

X (a) Describe adder and substractor using op-amps. 8

(b) Explain op-amps as comparator. 7
