TED (15) – 3044

(REVISION — 2015)

Reg. No. .....

Signature .....

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

## ELECTRONIC 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. State the need of multistage amplifier.
2. Define Q factor.
3. Define the term cross over distortion in power amplifier.
4. Define pinch off voltage of a FET.
5. List the merits of crystal oscillator. (5 × 2 = 10)

### PART — B

(Maximum marks : 30)

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

1. Explain ac and dc load line with graph.
2. List the advantage and disadvantage of direct coupled amplifier.
3. A parallel tuned circuit is resonant at 455 KHz and has 20KHz band width and XL = 1500Kohm. Find Q factor.
4. List the advantage of negative feedback.
5. Explain the working of Unijunction transistor.
6. Prove that the output of RC differentiator circuit is proportional to the derivative of the input.
7. Explain the principle of L C oscillator. (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) Draw and explain the emitter follower and its application. 8

(b) Distinguish between different coupling schemes used in multistage amplifiers. 7

Or

IV (a) Draw the frequency response of Common Emitter RC coupled amplifier and explain why bandwidth decreases at low frequencies and high frequencies. 10

(b) List the application of transformer coupled amplifier. 5

### Unit — II

V (a) Explain the classification of power amplifier with transfer characteristics curve. 8

(b) Compare between series and parallel resonance circuit. 7

Or

VI (a) Draw and Explain the operation of complementary symmetry push pull power amplifier. 9

(b) Why heat sinks are necessary to use with power transistors. 6

### Unit — III

VII (a) Describe construction of N-Channel deflection type MOSFET. 8

(b) Distinguish the properties of positive and negative feedback circuits. 7

Or

VIII (a) What are parameters of FET ? Explain. 7

(b) Distinguish between JFET and MOSFET. 8

### Unit — IV

IX (a) Draw and explain the working of Astable Multivibrator with waveforms. 7

(b) Draw and explain the working of wein bridge oscillator. 8

Or

X (a) Draw and explain working of collipts oscillator. 7

(b) Explain the working of crystal oscillator, with neat circuit diagram. 8