TED (15) – 2041 Reg. No.....

(REVISION — 2015) Signature .....

DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/ MANAGEMENT/COMMERCIAL PRACTICE — OCTOBER, 2017

BASIC ELECTRONICS

[*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 mutual inductance.
2. State the knee voltage of PN junction diode.
3. Write the ripple factor of half wave rectifier.
4. State α (alpha) of a transistor.
5. Define capacitance. (5×2 = 10)

PART — B

(Maximum marks : 30)

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

1. Explain three and four digit coding of chip resistor.
2. Draw the energy band diagrams of conductors, semiconductors and insulators.
3. Describe the zener and avalanche breakdown.
4. Draw and explain the working of π - section filter.
5. Explain the working of voltage trippler with figure.
6. Draw the output characteristic curve of transistor in CB configuration.
7. Derive the relation between α (alpha) and β (beta) of a transistor. (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) Identify the areas of application of Electronics. 7

(b) List different types of capacitors according to the dielectric used. Give some applications. 8

OR

Marks

IV (a) Describe ultra capacitor and chip capacitor. 9

(b) List different types of inductors and specify their applications. 6

UNIT — II

V (a) Write short notes on :

(i) Doping (ii) Drift current

(iii) Diffusion current (iv) Potential barrier (4×2 = 8)

(b) Explain the formation of PN junction. 7

OR

VI (a) Draw and explain zener diode voltage regulator. 10

(b) State the static and dynamic resistance of PN junction diode. 5

UNIT — III

VII (a) Draw and explain a full wave centre tapped rectifier with waveforms. 10

(b) Write comparison between full wave centre tapped and bridge rectifier. 5

OR

VIII (a) Draw and explain a voltage slicer with waveforms. 10

(b) Draw positive clamper with waveforms. 5

UNIT — IV

IX (a) Draw the three transistor configurations. 9

(b) Draw and explain the working principle of NPN transistor 6

OR

X (a) Identify cutoff, active and saturation regions on characteristic curve of transistor in CE configuration. 10

(b) Discuss input resistance and output resistance of transistor in CB configuration. 5