



N19-00141

TFD (15) – 2041

Reg. No. ....

(REVISION — 2015)

Signature .....

DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/  
MANAGEMENT/COMMERCIAL PRACTICE — OCTOBER, 2019

**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. Write any two specifications of a resistor.
2. Sketch the V-I characteristics of zener diode.
3. State the importance of peak inverse voltage.
4. Write the significance of the arrow head in the symbol of a transistor.
5. List the uses of capacitors.

(5×2 = 10)

PART — B

(Maximum marks : 30)

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

1. Describe the charging and discharging of capacitor.
2. Define drift and diffusion current.
3. With suitable diagram explain the working of a half wave rectifier.
4. Explain with diagram the constructional details of a PNP transistor.
5. Draw the symbol and explain the working of a varactor diode.
6. Define the terms rectification efficiency and ripple factor.
7. Draw the output characteristics of CE configuration and mark the three regions of operation.

(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 colour coding of resistors with example and figure. 8  
 (b) With diagram explain the working principle of transformer. 7

OR

- IV (a) Define self inductance and mutual inductance. 8  
 (b) Derive the effective capacitance of series and parallel combination of capacitors. 7

## UNIT — II

- V (a) Explain with diagram the formation of PN junction and depletion region. 9  
 (b) Describe zener and avalanche break down. 6

OR

- VI (a) Define doping. Explain the formation of N-type semiconductor. 8  
 (b) Sketch and explain the V-I characteristics of diode. 7

## UNIT — III

- VII (a) With circuit diagram and waveform explain the working of full wave bridge rectifier. 10  
 (b) Explain the working of negative clamper. 5

OR

- VIII (a) Explain the working of full wave voltage doubler. 8  
 (b) Explain the working of shunt capacitor filter. 7

## UNIT — IV

- IX (a) State the effect of temperature in leakage current of transistor. 6  
 (b) Explain the working principle of NPN transistor with suitable diagram. 9

OR

- X (a) Derive the relation between  $\alpha$ ,  $\beta$  and  $\gamma$ . 6  
 (b) Draw the circuit diagram, input and output characteristics of transistor in CB configuration. 9