

TED (10)–3001

Reg. No. ....

(REVISION—2010)

Signature .....

SECOND SEMESTER DIPLOMA EXAMINATION IN ENGINEERING/  
TECHNOLOGY—MARCH, 2013

**BASIC ELECTRONICS**

(Common for EL, EC, EA, EP, CT, CM, IF, AE, TC, BM and MD)

[Time : 3 hours

(Maximum marks : 100)

Marks

PART—A

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

1. What is the significance of fourth band in resistor ? What does silver band indicate ?
2. Draw the energy band diagram of insulator and semiconductor.
3. List two application of zener diode.
4. Name the various types of filters.
5. For a transistor  $\beta = 100$ , collector current is 40 mA, calculate emitter current?  
(5x2=10)

PART—B

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

1. What are the specification of resistors ?
2. What is the electrical charge of a P type semiconductor ?
3. Draw the symbol and explain the working of tunnel diode.
4. Show that the efficiency of a full wave rectifier is 81.2%.
5. Draw and explain voltage doubler circuit.
6. Explain the working of a NPN transistor.
7. Compare the three transistor configuration.  
(5x6=30)

PART—C

(Answer *one* full question from each unit. Each question carries 15 marks.)

UNIT – I

- III (a) How IFT differ from transformer ? 5
- (b) Explain the constructional details of electrolytic capacitor. 5
- (c) Write notes on thermistors. 5

OR

	Marks
IV (a) Explain the specification of resistors.	5
(b) Explain the working principle of transformer.	5
(c) What are the types and applications of capacitors ?	5
UNIT – II	
V (a) Explain the formation of PN junction and depletion region.	8
(b) Explain with neat diagram the V-I characteristics of zener diode.	7
OR	
VI (a) Distinguish between drift and diffusion current.	5
(b) Explain the static and dynamic resistance of a diode from the V-I characteristics.	5
(c) What is an ideal diode ?	5
UNIT – III	
VII (a) Explain with neat diagram and waveform the working of a centre tapped full wave rectifier. Derive its DC output waveform.	10
(b) Explain voltage tripler circuit.	5
OR	
VIII (a) Explain the working of shunt capacitor filter.	5
(b) Write notes on the different types of clipping circuit.	10
UNIT – IV	
IX (a) Explain with neat diagram the input and output characteristics of CB configuration.	10
(b) Derive $\alpha$ and $\beta$ and the relation between them.	5
OR	
X (a) Explain the effect of temperature on leakage current.	5
(b) Explain the constructional details, equivalent circuit and working of UJT.	10