



SECOND SEMESTER DIPLOMA EXAMINATION IN ENGINEERING/  
TECHNOLOGY — MARCH, 2016

**BASIC ELECTRONICS**  
(Common for EL, EC and BM)

[Time : 3 hours

(Maximum marks : 100)

PART— A

(Maximum marks : 10)

Marks

I Answer the following questions in one or two sentences. Each question carries 2 marks.

1. Write the specifications of resistor.
2. State self inductance.
3. Define potential barrier.
4. Define the term rectification.
5. State the transistor current equation.

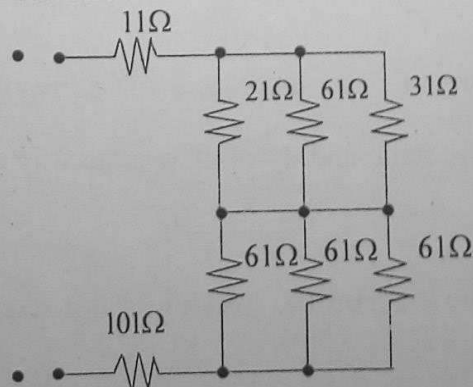
(5×2=10)

PART — B

(Maximum marks : 30)

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

1. Find the effective resistance of combination of resistor shown in the diagram.



2. Explain doping in semiconductor.



3. Explain the working of half wave rectifier with wave forms.
4. Describe ultra capacitor.
5. Discuss the effect of temperature in leakage current.
6. Draw the input/output characteristics of an PNP transistor in Common Base Configuration and mark the input/output resistance.
7. Explain the working of positive clipper with circuit diagram and waveform.

(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) Write colour band for the following resistors with tolerance value  $2\Omega$  with 20% tolerance,  $4.7K\Omega$  with 5% tolerance,  $5.6M\Omega$  with 10% tolerance. 6
- (b) Draw the basic structure of a transformer. Explain the working principle of transformers. 9

OR

- IV (a) Define dielectric. Explain the need of a dielectric in capacitor. 8
- (b) Differentiate between fixed and variable resistors. List the application of variable resistor. 7

UNIT—II

- V (a) Illustrate the principle of operation of PN junction diode under forward biased condition with the help of a diagram. 10
- (b) Describe Zener breakdown. 5

OR

- VI (a) Explain the working of Zener diode as a voltage regulator with circuit diagram. 9
- (b) State Knee voltage, static and dynamic resistance of a PN junction diode. 6

UNIT—III

- VII (a) Explain with circuit diagram the working of full wave centre tapped rectifier with waveforms. 10
- (b) Illustrate with circuit diagram the working of Voltage Tripler. 5

OR



- |   | Marks |
|---|-------|
| VIII (a) Explain the working of combinational clipper with circuit diagram.         | 7     |
| (b) Describe with appropriate circuit how we can double the given ac input voltage. | 8     |

UNIT—IV

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|---|----|
| IX (a) Describe with circuit diagram the working of CE configuration of PNP transistor. | 10 |
| (b) Explain the mechanism of current flow transistors.                                  | 5  |

OR

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|--|---|
| X (a) Give the relationship between current gain $\alpha$ and $\beta$ of a transistor.           | 6 |
| (b) Explain cut off, Active and Saturation Regions in characteristics curve of CE configuration. | 6 |
| (c) Draw the symbol of PNP and NPN transistor.   | 3 |
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