

TED (15) – 5032

Reg. No.....

(REVISION — 2015)

Signature .....

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

**POWER 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. Name any two applications of UJT.
2. Define commutation.
3. What is chopper ?
4. List any two speed control methods of three phase Induction motor.
5. Write the classifications of UPS.

(5×2 = 10)

PART — B

(Maximum marks : 30)

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

1. Draw and explain the working and VI characteristics of DIAC.
2. Write brief notes on constant frequency control used in choppers.
3. With circuit and wave diagrams, describe the working of half bridge inverter.
4. With diagram, explain the solid state control of typical fan regulator.
5. Draw and explain single phase semi converter DC drives.
6. Draw and explain line interactive UPS.
7. Compare buck and boost converters.

(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) Draw and explain the operation and static VI characteristics of SCR. 8  
 (b) Compare JFET, MOSFET and IGBT. 7

OR

- IV (a) Draw and explain the working and VI characteristics of TRIAC. 8  
 (b) Explain the Gate turn off method. 7

## UNIT — II

- V (a) Draw and explain the operation of single phase full wave converter with R load. 8  
 (b) With circuit and wave diagrams, describe the working of single phase Series Inverter. 7

OR

- VI (a) Draw and explain the operation of three phase fully controlled converter with R load. 8  
 (b) With circuit and wave diagrams, describe the working of full bridge Inverter. 7

## UNIT — III

- VII (a) Draw and explain speed control of induction motor using stator voltage control. 8  
 (b) Describe the concept of induction cooking system control. 7

OR

- VIII (a) Explain the v/f control of three phase induction motor. 8  
 (b) Draw and explain single phase full converter DC drives. 7

## UNIT — IV

- IX (a) With block diagram, explain the working of SMPS. 8  
 (b) Draw and explain the working of buck converter. 7

OR

- X (a) Describe the principle of static servo stabilizer with block diagram. 8  
 (b) Draw and explain the working of OFFLINE UPS. 7
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