TED (15) – 5032

(REVISION — 2015)

Reg. No. PE • 2

Signature .....

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

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. Give the symbols of N channel and P channel JFET.
2. Write down any two applications of BJT.
3. Define firing angle of SCR.
4. List two factors which affect the speed of dc motor.
5. Define pulse width modulation. (5×2 = 10)

PART — B

(Maximum marks : 30)

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

1. Explain the characteristics of UJT.
2. Compare JFET and BJT.
3. Explain the gate triggering method of turning on of SCR.
4. Draw and explain the half wave resistance triggering circuit for SCR.
5. Describe single phase half bridge inverter with its circuit diagram and wave forms.
6. Explain the working of full converter DC drives.
7. Compare linear power supply and SMPS. (5×6 = 30)

Marks

PART — C

(Maximum marks : 60)

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

UNIT — I

III (a) Describe the operation of TRIAC. 8

(b) Explain the operation of DE - MOSFET. 7

OR

IV (a) Explain the structure and working of SCR. 8

(b) Discuss the characteristics of JFET. 7

UNIT — II

V (a) Describe with circuit diagram and necessary wave forms the working of single phase half wave converter with RL load. 8

(b) Explain the constant frequency control used in choppers. 7

OR

VI (a) Describe with circuit diagram and necessary wave forms the working of single phase full wave converter with R load. 8

(b) Explain the working of series inverter. 7

UNIT — III

VII (a) Explain the stator voltage control of three phase induction motor. 8

(b) Explain the solid state control of typical fan regulator. 7

OR

VIII (a) Explain the single phase dual converter DC drives. 8

(b) Explain the stator frequency control of three phase induction motor. 7

UNIT — IV

IX (a) Discuss the working of boost converter with block diagram. 8

(b) With the help of block diagram describe the working of ONLINE UPS. 7

OR

X (a) Explain the working of buck converter. 8

(b) Explain the working of static servo stabilizer with block diagram.. 7