DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/ MANAGEMENT/COMMERCIAL PRACTICE — APRIL, 2018

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. Draw the symbols of UJT, IGBT.

2. Write the two applications of SCR.

3. What do you mean by phase control.

4. State two methods of speed control of three phase induction motor.

5. Mention the two advantages of SMPS.   (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 SCR.

2. Describe the single phase half wave converter with R load.

3. Explain the series inverter.

4. Draw circuit and explain the dual converter dc drive.

5. Explain the stator voltage control of three phase induction motor.

6. Describe the off line UPS.

7. Draw and explain block diagram of SMPS.   (5×6 = 30)

[116]   [P.T.O.

Marks

PART — C

(Maximum marks : 60)

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

UNIT — I

III (a) Explain the structure of JFET.   8

     (b) Describe the operation of TRIAC.   7

OR

IV (a) Draw the two transistor analogy method of SCR and explain the operation.   8

     (b) Explain the turn off methods of SCR.   7

UNIT — II

V (a) Describe single phase full wave converter with RL load and freewheeling diode.   8

     (b) Explain constant frequency control method of chopper.   7

OR

VI (a) Explain the principle of DC chopper.   8

     (b) Describe half wave bridge inverter.   7

UNIT — III

VII (a) Explain speed control of induction motor using stator voltage control.   8

      (b) Explain single phase semi converter DC drives.   7

OR

VIII (a) Explain the method of cooking system control.   8

       (b) Compare the AC and DC drives.   7

UNIT — IV

IX (a) Explain the boost converter.   8

     (b) Describe the specifications of UPS.   7

OR

X (a) Draw the block diagram of ON line UPS and explain.   8

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

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