



TED (10) – 4047

Reg. No.

(REVISION — 2010)

Signature

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

INDUSTRIAL ELECTRONICS AND PLC

[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. List two applications of IGBT.
2. Define the term latching current of an SCR.
3. State the function of a chopper.
4. Define the term stabilizer.
5. State the principle of hall effect sensors.

(5×2 = 10)

PART — B

(Maximum marks : 30)

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

1. Draw the structure of a DIAC and explain.
2. Explain full wave mid-point converter with R load.
3. Briefly explain the circuit of an AC chopper.
4. With block diagram explain the operation of on-line UPS.
5. Describe the circuit of speed control of a series motor.
6. Describe TOff instruction in PLC.
7. Draw the ladder diagram of a half adder circuit.

(5×6 = 30)



PART — C

(Maximum marks : 60)

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

UNIT — I

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| III | (a) Explain turn on methods of an SCR. | 7 |
| | (b) Draw the structure of an IGBT and explain. | 8 |

OR

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| IV | (a) With circuit diagram explain an RC trigger circuit of an SCR. | 6 |
| | (b) Explain the structure and characteristics of an SCR. | 9 |

UNIT — II

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| V | (a) With circuit diagram explain the principle of a parallel inverter. | 8 |
| | (b) Describe the working of a single phase dual converter. | 7 |

OR

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| VI | (a) Explain the working of a half wave controlled rectifier with RL load. | 8 |
| | (b) Explain the working of a step down chopper. | 7 |

UNIT — III

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| VII | (a) With block diagram explain a sequence timer used in resistance welding. | 8 |
| | (b) Describe the applications of induction heating. | 7 |

OR

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| VIII | (a) Explain the speed control of induction motor using rotor on-off method. | 8 |
| | (b) Explain the principle of dielectric heating. | 7 |

UNIT — IV

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| IX | (a) Draw the ladder diagram of an X-OR gate. | 6 |
| | (b) Briefly explain the architecture of a PLC. | 9 |

OR

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| X | (a) Write short notes on : | |
| | (i) Proximity switch (ii) RS 485 protocol | 8 |
| | (b) Describe any two math instructions used in PLC. | 7 |
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