



TED (15) – 6025

Reg. No.....

(REVISION – 2015)

Signature

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

INDUSTRIAL AUTOMATION AND MECHATRONICS

[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. Define automation.
2. Give example for range and span of a transducer.
3. Draw the symbol of a 4/2 valve.
4. What is the function of a timer ?
5. Define mechatronics.

(5×2 = 10)

PART — B

(Maximum marks : 30)

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

1. Explain the major building block of mechatronic system with the help of a block diagram.
2. How is traditional design different from mechatronics design ?
3. Explain the working of eddy current proximity sensor with a sketch.
4. What are the factors to be considered for the selection of a sensor ?
5. Draw a hydraulic power supply system and name the parts.
6. Explain bipolar transistor.
7. Discuss bath room scale and mechatronic solution of it.

(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) Explain the elements of mechatronics design procedure. 8
 (b) List the advantages and disadvantages of mechatronic systems. 7

OR

- IV (a) Explain various types of automation. 8
 (b) Differentiate open loop and closed loop control system. 7

UNIT — II

- V (a) Appraise the working of a tachogenerator with a neat sketch. 8
 (b) Explain the working of thermocouple. 7

OR

- VI (a) Explain different types of bimetallic strips. 8
 (b) Write short notes on thermistor. 7

UNIT — III

- VII (a) Explain the working of a three phase variable reluctance stepper motor. 8
 (b) Differentiate between hydraulic and pneumatic system. 7

OR

- VIII (a) Discuss the controlling of a double acting cylinder with a neat sketch. 8
 (b) Explain the working of a poppet valve. 7

UNIT — IV

- IX (a) Write the fault finding techniques used with microprocessor based systems. 8
 (b) Write short notes on PLC programming. 7

OR

- X (a) Briefly explain fault detection techniques. 8
 (b) Compare microprocessors and microcontrollers. 7
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