

1342**Code : 15ME54T****Register
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V Semester Diploma Examination, April/May-2018**MECHATRONICS****Time : 3 Hours]****[Max. Marks : 100****Note :** Answer any six questions from Part – A and seven questions from Part – B.**PART – A**

1. Define Mechatronics with example. 5
2. Define the terms :
 - (i) Range
 - (ii) Error
 - (iii) Sensitivity
 - (iv) Repeatability
 - (v) Dead band.5
3. List the selection of DAQ criteria. 5
4. List different data presentation elements. 5
5. Explain briefly Ratchef and Pawl Mechanism. 5
6. Explain the terms commonly used in specifying stepper motor. 5
7. Explain thermal system building blocks. 5
8. Explain briefly adaptive control and its three stages of operations. 5
9. Explain microcontroller with block diagram. 5

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5

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PART - B

7 × 10 = 70

10. Explain the elements of closed loop control system with neat sketch. 10
11. (a) Explain variable reluctance tachometer generator with neat sketch. 5
(b) Explain with neat sketch strain gauge load cell. 5
12. Explain NOR and NAND logic gates with symbolic representation, Boolean algebra and truth table. 10
13. Explain the function of laser printer with neat sketch. 10
14. (a) Explain Relays with neat sketch. 5
(b) Explain the functions of diodes with characteristic curve. 5
15. Explain the working principle of D.C. motor with neat sketch. 10
16. Explain different mechanical system basic building blocks with line diagrams. 10
17. Explain with neat sketch :
(a) Rotational-translational system. 5
(b) Rotary potentiometer. 5
18. Construct a PLC ladder diagram for master and jump controls and briefly explain them. 10
19. Explain different types of network topologies with line diagrams. 10

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