

# 1776

Code : 15ME54T

Register Number

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V Semester Diploma Examination, Nov./Dec. 2017

## MECHATRONICS

Time : 3 Hours |

| Max. Marks : 100

**Note :** Answer any **six** questions from Part – A and any **seven** from Part – B.

### PART – A

6 × 5 = 30

1. Define sensors and transducers with an example.
2. Explain control systems and their types.
3. What are Digital signals ?
4. Explain briefly Data acquisition system.
5. List all types of Ball bearings.
6. Explain the terms commonly used for specifying stepper motors.
7. List different control modes.
8. Explain briefly Adaptive Control and its three stages of operations.
9. Explain Ladder programming and its sequences with line diagram.

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**PART – B** *VME***7 × 10 = 70**

10. Make use of a sketch to explain the Hall Effect Sensors. **10**
11. Make use of a sketch to explain piezoelectric sensors. **10**
12. Construct the truth table and symbolical representation for the following logic gates : **10**
- (a) NAND gate
  - (b) NOR gate
  - (c) XOR gate
  - (d) OR gate
13. Make use of a sketch to explain LCD. **10**
14. Make use of a sketch to explain MOSFETs. **10**
15. Make use of a sketch to explain the basic working principle of DC motor. **10**
16. Make use of a line diagram to explain model of building up a spring-dashpot-mass mechanical system. **10**
17. Make use of a sketch to explain the rotational – translational system. **10**
18. Construct the ladder diagram for the following functions : **10**
- (a) Delay-on timer
  - (b) Delay-off timer
19. Make use of a neat sketch to explain Engine Management System. **10**

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