Reg. No. : | | | | | | | | | | | | |

Question Paper Code : 80671

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2016.

Seventh Semester

Mechanical Engineering

ME 6702 — MECHATRONICS

(Common to Manufacturing Engineering, Mechanical and Automation Engineering and Production Engineering)

(Regulations 2013)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Write about the Mechatronics approach in a micro-processor-controlled washing machine.

2. Write about the bimetallic strips.

3. What is the function of Arithmetic Logic Unit (ALU)?

4. What is difference between microprocessor and microcontroller?

5. What is the function of Program Counter?

6. What is the function of Read/Write control logic in 8255PPI?

7. Why a LATCH circuit are used in PLC?

8. What is ladder programming?

9. How does a car park barrier works?

10. What is the difference between Traditional and Mechatronics Approach?

PART B — (5 × 16 = 80 marks)

11. (a) Explain the static and dynamic characteristics of transducers.

Or

(b) (i) Explain the principles and working of Hall Effect Sensor. (8)

(ii) What are the basic elements of a closed loop system? Explain. (8)

12. (a) Explain with neat sketch the architecture of 8085 microprocessor.

Or

(b) Write short notes on :

(i) Addressing modes. (8)

(ii) Instruction set of 8085 microprocessor. (8)

13. (a) Explain with neat sketch microprocessor based temperature control system by using 8255PPI.

Or

(b) Explain with neat sketch microprocessor based stepper motor control system by using 8255PPI.

14. (a) Explain the architecture of a PLC and explain about its elements.

Or

(b) Write short notes PLC for the following :

(i) Data Movement

(ii) Data Comparison.

15. (a) What are the roles of sensors in car engine management system? Explain with a block diagram.

Or

(b) Design a robot to pick and place the object and comment on the various elements in the system.

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