

Reg. No. : |

Question Paper Code : 51656

B.E./B.Tech. DEGREE EXAMINATION, MAY/JUNE 2014.

Seventh Semester

Mechanical Engineering

ME 2401/ME 71/ME 1402/10122 ME 702 — MECHATRONICS

(Common to Production Engineering)

(Regulation 2008/2010)

(Common to PTME 2401 – Mechatronics for B.E. (Part-Time) Fifth Semester
Mechanical Engineering – Regulation 2009)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What is mechatronic approach?
2. What is the basic principle in thermocouples?
3. Difference between hydraulic and pneumatic system.
4. List any four properties of stepper motor.
5. What do you mean by continuous process controllers?
6. Define adaptive control.
7. State the purpose of jump controls.
8. How will you process the input and output of PLC?
9. Compare traditional and mechatronic design.
10. List down the various stages in mechatronic design system.

2027 () -- (3+3+3) marks

11. (a) Explain any two types of temperature measurement system. (3+3)

Or

(b) Write a detailed note on pressure measuring system and pressure measuring transducer. (3+3)

12. (a) Explain the use of any two types of transducers in mechanical systems. (3+3)

Or

(b) Explain construction and working principle of AC and DC motor. (3+3)

13. (a) Draw truth table and working table for synchronous frequency divider and describe it. (3+3)

Or

(b) Draw truth table for following circuit

(i) JK flip-flop (3)

(ii) T flip-flop (3)

14. (a) (i) Explain the configuration of a PLC

(ii) Give advantages of PLC system over traditional mechanical system. (3+3)

Or

(b) Explain the following

(i) Integral relay (3)

(ii) Counter (3)

(iii) Shift Register (3)

(iv) Triac (3)

15. (a) Explain about the mechanical system design of an automatic car park system. (3)

Or

(b) Explain about the various functional components in Windows Formatted Address system. (3)