

[illegible]

Question Paper Code : 11670

B.E./B.Tech. DEGREE EXAMINATIONS, APRIL/MAY 2026.

Seventh Semester

Mechanical Engineering

ME3791 — MECHATRONICS AND IoT

(Regulations 2021)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Distinguish Sensors and Transducers.
2. Write the working principle of servo motors.
3. Draw the circuit diagram of Inverting Amplifier.
4. Draw the circuit diagram of Darlington Pair.
5. Mention any four applications of IoT.
6. List Four Security issues in IoT.
7. What is the purpose of the IDE?
8. Write the working principle of light intensity sensors.
9. What happens if ABS fails while driving?
10. What is the need for Remotely Operated Autonomous system.

PART B — (5 × 13 = 65 marks)

11. (a) Draw and explain the construction, working principle, applications and advantages of LVDT with neat sketch.

Or

- (b) Draw and explain the construction, working principle, applications and advantages of stepper motor with neat sketch.

12. (a) Describe the components and working of a PID controller. Explain how each term (P,I,D) affects system performance with suitable examples.

Or

- (b) Explain with the block diagram of PLC architecture and explain each blocks.

13. (a) Discuss with neat sketch the working of IoT in health care system with example.

Or

- (b) Discuss a real-world applications of IoT in water management system with suitable diagram.

14. (a) Explain about interfacing and controlling I/O devices by Raspberry Pi with suitable circuit diagram.

Or

- (b) List and explain the various types of Temperature Sensors and give their applications.

15. (a) Explain the construction and working of an anti-lock braking system (ABS) with a neat diagram.

Or

- (b) Discuss about IoT enabled robotic camera Dolly with suitable diagram.

PART C — (1 × 15 = 15 marks)

16. (a) Discuss a detailed case study about the applications of Remote monitoring system with suitable diagrams.

Or

- (b) Discuss a detailed case study about the portable, wireless, interactive IoT sensors for agriculture with suitable diagram.