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**Question Paper Code : 72169**

B.E./B.Tech. DEGREE EXAMINATION, APRIL/MAY 2017.

Seventh Semester

Mechanical Engineering

ME 6702 — MECHATRONICS

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

(Regulations 2013)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What is the purpose of a sensor?
2. How does an LVDT work?
3. What is microprocessor?
4. What are the five types of instructions set in 8085 microprocessor?
5. What is Peripheral Interfacing?
6. What are the functions of port in 8255PPI?
7. What is a PLC?
8. What are the criteria needs for the selection of a PLC?
9. What is the use of PLC in automatic car park system?
10. Write about the engine speed sensor?

PART B — (5 × 16 = 80 marks)

11. (a) Explain any three sensors used for temperature measurement.

Or

(b) Explain the principle of any three sensors used for measuring displacement.

12. (a) Explain with neat sketch architecture of 8051 microcontroller.

Or

(b) Write short notes on :

(i) Addressing modes. (8)

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

13. (a) Explain the architecture of a 8255 Programmable Peripheral Interface.

Or

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

14. (a) (i) Write a short note on Jump Control used in PLC. (8)

(ii) Write a short note on Timers and Counters. (8)

Or

(b) Discuss how AND, OR, NOR and NAND systems can be formed with ladder diagram.

15. (a) (i) Discuss the various stages involved in the design of Mechatronic systems. (8)

(ii) What are the differences between Traditional and Mechatronics Approach? Give a case study. (8)

Or

(b) With necessary diagrams, explain the automatic car parking system.

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