

Exam.Code:0944
Sub. Code: 6736

2053
B.E. (Mechanical Engineering)
Eighth Semester
MEC-801: Mechatronics

Time allowed: 3 Hours

Max. Marks: 50

NOTE: Attempt five questions in all, including Question No. 1 which is compulsory and selecting two questions from each Unit.

x-x-x

I. Attempt the following:-

- a) Write the functioning of ALE, SID, TRAP and HOLD pins.
- b) Explain NAND and XOR gates.
- c) What is data acquisition system in PLC?
- d) What are interfacing requirements?
- e) How cams and gears are used as mechatronic elements? (5x2)

UNIT - I

- II. a) How mechatronics helps to modify the open loop system to closed loop system?
b) Explain and differentiate PI and PD controllers. (2x5)
- III. Draw the hydraulic circuit diagram of double acting hydraulic cylinder explaining the functioning and symbols of all the parts. (10)
- IV. a) Write the functioning of Ratchet and Pawl mechanism along with sketch.
b) Explain the different elements of PLC. (2x5)

UNIT - II

- V. Draw and explain block diagram of 8085 microprocessor. Explain in detail Register section, timing & control unit. (10)
- VI. a) How we convert "Digital to analog" signal and "Analog to digital" signals?
b) Write a note on peripheral interface adapter. (2x5)
- VII. a) Explain the working of car engine management system.
b) Explain different components of microcontroller. (2x5)

x-x-x