[5254]-87
B.E. (Electronics) (Semester -I)
MECHATRONICS
(2008 Pattern) (Elective -I)

Time : 3 Hours]   *[Max. Marks : 100*
Instructions to the candidates:

1) Answer questions 1 or 2, 3 or 4, 5 or 6, 7 or 8, 9 or 10, 11 or 12.

2) Answers to the two sections should be written in separate answer books.

3) Neat diagrams must be drawn wherever necessary.

4) Figures to the right side indicate full marks.

5) Assume suitable data, if necessary.

SECTION - I

Q1) a) Explain the division of functions between mechanics and electronics.**[10]**

b) Explain coupling and joints of mechanical components and systems.**[8]**

OR

Q2) a) State and explain modelling procedure of Mechatronics.   **[10]**

b) What are the different Mechatronics Design approach.   **[8]**

Q3) a) Explain the modelling of Electromechanical system.   **[8]**

b) Draw and explain the structures of Beams and Springs in mechatronics.
[8]

OR

Q4) a) Explain simple dynamic models in Mechatronics.   **[8]**

b) Explain in detail proximity sensor.   **[8]**

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Q5) a) Discuss the selection criteria for force, pressure sensor in details. **[8]**

b) Explain different types of Electrical actuators with suitable example.**[8]**

OR

Q6) a) Explain in detail 4-quadrant servo drives. **[8]**

b) Draw and explain in detail flow and level sensor. **[8]**

SECTION - II

Q7) a) Discuss the role of controls in mechatronics. **[8]**

b) State and explain key element of controlled mechatronics systems. **[10]**

OR

Q8) a) Explain VART in detail. **[8]**

b) State and explain space analysis in mechatronics system. **[10]**

Q9) a) Draw and explain Block diagram of CNC machine. **[8]**

b) State the terminology and definitions of Serial Vs Parallel Transmission.
[8]

OR

*Q10)*a) Explain in detail general purpose by standard. **[8]**

b) Explain architecture of PLC in detail. **[8]**

*Q11)*a) Draw and explain multichannel data logger. **[8]**

b) Write short note on signal conditioning & signal conversion. **[8]**

OR

*Q12)*a) Explain the logging & storage for data logging. **[8]**

b) Write a short note on Data sharing and publishing. **[8]**

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