

Total No. of Questions : 8]

SEAT No. :

P3109

[Total No. of Pages : 2

[5354]-600-A
B.E. (Electronics)
MECHATRONICS
(2012 Pattern) (Elective - IV)

Time : 2½ Hours]

[Max. Marks : 70

Instructions to the candidates :

- 1) Answer questions Q1 or Q2, Q3 or Q4, Q5 or Q6, Q7 or Q8.*
- 2) Neat diagrams must be drawn wherever necessary.*
- 3) Figures to the right indicate full marks.*
- 4) Use of electronic pocket calculator is allowed.*
- 5) Assume suitable data, if necessary.*

- Q1)** a) Explain in detail with neat block diagram design process for Mechatronics system. **[8]**
- b) Explain V-model of design of self optimizing system. **[6]**
- c) What is integrated modeling and simulation in Mechatronics. **[6]**

OR

- Q2)** a) Write short notes on solenoids and chain and sprocket. **[8]**
- b) Explain in detail autonomous mechatronics system. **[6]**
- c) What is role of controls in Mechatronics system, explain in detail. **[6]**

- Q3)** a) Explain in detail GPIB interface. **[8]**
- b) With suitable example explain use of PLC in Mechatronics system. **[8]**

OR

- Q4)** a) Explain universal asynchronous receiver transmitter (UART) with suitable diagram. **[8]**
- b) Explain with neat diagram asynchronous serial data format used communication. **[8]**

P.T.O.

- Q5)** a) List common types of signal conditioning circuits with functions. [8]
b) What are different hardware options available for data-logging system. Explain one in detail. [8]

OR

- Q6)** a) Explain logging and storage component of data logging system. [8]
b) Explain in detail offline-analysis in data logging systems. [8]

- Q7)** a) Explain with basic principle and operation of inertial sensors. [10]
b) Explain in detail LIGA process of fabrication of MEMs. [8]

OR

- Q8)** Write short notes on any three. [18]
a) Mechanical properties of MEMs.
b) Micro channel heat sink.
c) Micro machined pressure sensor.
d) X-ray masks.

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