

Printed Pages—3

EEN021

(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : 2501

Roll No. 

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**B. Tech.**

(SEM. VI) THEORY EXAMINATION 2011-12

**MECHATRONICS***Time : 2 Hours**Total Marks : 50***Note : Attempt *all* questions.**

1. Answer any *two* parts of the following : **(5×2=10)**
  - (a) What do you mean by “FORCE” and “PRESSURE” in mechatronics ? What are the transducers used for measurement of force and pressure in mechatronics ?
  - (b) What do you understand by “DISPLACEMENT” and “POSITION” in mechatronics ? Also explain the various types of transducers or sensors that are used for measurement of displacement and position.
  - (c) Explain the following :
    - (i) Data Acquisition
    - (ii) Signal Conditioning Amplification.
  
2. Answer any *two* parts of the following : **(5×2=10)**
  - (a) What do you mean by “SERVOMECHANISM” and “CLOSED LOOP CONTROLLERS” ? Also mention its utilities in industrial fields.
  - (b) Write short notes on the following :
    - (i) AC STEPPER MOTOR
    - (ii) DC STEPPER MOTOR
    - (iii) FLUID SYSTEMS.

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- (c) What do you mean by "HYDRAULIC SYSTEMS"? Also mention its advantages and limitations.
3. Answer any *two* parts of the following : (5×2=10)
- (a) Discuss the concepts of pressure control valves and cylinders. Also explain the process control valves and its applications.
- (b) What are the applications of microprocessors and micro-controllers in mechatronics engineering? Explain the pin configuration of programmable logic controllers.
- (c) Write short notes on the following :
- (i) MASS & DAMPER
- (ii) ELECTRICAL DRIVES
- (iii) ELECTRICAL ACTUATION SYSTEM.
4. Answer any *two* parts of the following : (5×2=10)
- (a) Discuss the Automobile Engine Control System with the help of block diagrams. Also mention its salient features.
- (b) What do you mean by "INDUSTRIAL ROBOT"? Also discuss their control features. Explain the advantages and disadvantages of industrial ROBOT.
- (c) Discuss the electro-mechanical disc-control system with the help of block diagrams. Also mention its advantages and limitations.
5. Answer any *two* parts of the following : (5×2=10)
- (a) What are the importances of "COMPUTER PRINTER"? Also mention its limitations and advantages.

- (b) Explain the “MICRO-MECHANICAL SYSTEMS” with the help of neat diagrams. Also explain its limitations and significances.
- (c) Write short notes on the following :
- (i) VCR
  - (ii) NC Machine
  - (iii) Fax Machine.