

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.