Printed Pages: 3 NEN-024

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

Paper ID : 121669 Roll No. | 1 | 3 | 0 | 3 | 2 | 2 | 1 | 0 | 7 | 0 |

B. TECH.

Theory Examination (Semester-VI) 2015-16

MECHATRONIC

Time : 3 Hours *Max. Marks : 100*

Section-A

1. Attempt all parts. All parts carry equal marks. Write answer of each part in short. (2×10=20)

   (a) Name types of proximity sensors.

   (b) List down the key elements of mechatronics system.

   (c) What is the difference between process variable and control variable?

   (d) Draw the block diagram of Drive system.

   (e) What are the factors to be considered in selecting a PLC?

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(f) Why optisolator is used as input-output interface element in PLC?

(g) What is shift register?

(h) What are the functions of control valve?

(i) Give some applications of CNC machines.

(j) What are the basic steps of microelectromechanical processes in design?

Section-B

2. **Attempt any five questions from this section. (10×5=50)**

(a) Explain any two types of temperature measurement sensor.

(b) Explain functionality of pressure measuring system and pressure measuring transducer.

(c) With neat sketch, discuss the various types of stepper motors with their control.

(d) Explain the basic structure of a PLC.

(e) Explain how 3/2 valve is used in controlling the single and double acting cylinders.

(2)

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(f) Explain mechanical system model.

(g) Discuss the design aspects of line robot in terms of various mechatronics element involved.

(h) Explain the servo mechanism with suitable application.

Section-C

Note: Attempt any two questions from this section.

(15×2=30)

3. Explain the pneumatic power supply system and discuss on rotary actuators.

4. With suitable case study, explain the electromechanical disc-control mechatronics system.

5. Discuss in detail about mechatronics design of FAX machine.

(3)

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