

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

Paper ID : 121669

Roll No.

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?

- (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?

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.

- (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.