Printed Pages : 2

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121658

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

PAPER ID : 121658

Roll No.

B. Tech.

(SEM. VI) THEORY EXAMINATION, 2014-15
MECHATRONICS

Time : **2** Hours]   [Total Marks : **50**

1   Attempt any FOUR parts :   3.5×4=14

(a)   Explain the building block of Electric drive system.

(b)   Explicate the servo mechanism with suitable application.

(c)   Illustrate hydraulic actuation system with suitable example.

(d)   Compare the AC and DC stepper motor.

(e)   Write short note on pressure control valves used in hydraulic and pneumatic system.

(f)   Derive the mathetnatical model of spring, mass and Damper system.

2   Attempt any TWO parts :   6×2=12

(a)   Explain the operation of LVDT with its characteristics. Also elucidate how it is used as displacement transducer.

(b) What is meant by data acquisition system? Also explain the various operations taking place in signal conditioning system.

(c) Explain the typical capacitive type level transducer in detail.

3   Attempt any TWO parts :   6×2=12

(a) Describe the architecture of PLC in detail. Also - write the Ladder logics for controlling traffic system.

(b) Explain the I/0 ports and Timer functions of a micro-controller. Also write simple codes to control the level of water tank.

(c) Sketch the ladder logic diagram for universal gates.

4   Attempt any 'TWO parts :   6×2=12

(a) In a. reactor the temperature control plays a crucial role, to control the temperature of reactor design ladder logic to activate the alarm if the temperature exceeds 1500° C and it should sound till the temperature falls below 1250° C.

(b) Design a mechattonic system for Fuel feed Rate in automobiles. Consider the different criteria involved and justify each assumption made.

(c) Write a case study for electromechanical system. which is employed in automobiles.

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