PVP 14

Code: ME7T1

IV B.Tech - I Semester – Regular/Supplementary Examinations
October – 2018

MECHATRONICS
(MECHANICAL ENGINEERING)

Duration: 3 hours Max. Marks: 70

PART – A

Answer ***all*** the questions. All questions carry equal marks
11 x 2 = 22

1.

a) Give the definition of Mechatronics.

b) List out the types of Mechatronics systems.

c) Explain the principle of sensor.

d) Explain the function of direction control valve.

e) Describe the working of mechanical switch.

f) What is transfer function?

g) Give the function of thermal building system model.

h) Classify different types of control systems.

i) Explain the function of PLD controller.

j) Draw the Logic gate symbol.

k) What are the uses of Fuzzy Expert Systems?

PART – B

Answer any ***THREE*** questions. All questions carry equal marks. 3 x 16 = 48 M

2. a) Explain the Mechatronic design process and give the applications of Mechatronic systems. 8 M

   b) Give the classification of sensors and explain working of any one. 8 M

3. a) Explain the principle of operation of a D.C. Motor actuation system. 10 M

   b) How do you specify Stepper Motor? Explain the working principle of Stepper motors. 6 M

4. a) Describe the operation of mechanical system building blocks. 8 M

   b) Enumerate the differences between first and second order dynamic systems. 8 M

5. a) Describe the working of closed loop control system with a sketch. 6 M

   b) Explain the architecture of 8085 microprocessor with a sketch. 10 M

6. a) With neat diagram explain programmable logic controller (PLC). 8 M

b) Explain fuzzy logic systems with applications. 8 M