

BT-7/M21**47167****MECHATRONICS****Paper–ME-403 N****Time allowed : 3 Hours****Maximum Marks : 75**

Note : Attempt **five** questions in all, selecting at least **one** question from each unit. All questions carry equal marks.

UNIT-I

1. (i) Define the term “Mechatronics” and give four examples of Mechatronics system? 7
- (ii) Explain what is meant by sequential control and illustrate your answer by giving the example? 8
2. What are Boolean Algebra and Boolean Number? Explain the method of obtaining the Boolean expression from the truth table. 15

UNIT-II

3. Explain Hall Effect Transducers and their application with neat sketch. 15
4. What is the essential difference in construction between a Poppet Valve and Spool Valve? State the reason why popped valve design is mainly confined to small air valves. 15

UNIT-III

5. Sketch and explain the various kinds of cams. 15
6. What is an architecture of a Microprocessor? Explain the procedure of how external devices can be connected to a microprocessor. 15

UNIT-IV

7. What are the advantages of PLC over a relay control system? Draw the symbol and state the equivalent PLC instructions for each of the following:
 - (i) NO contact
 - (ii) NC contact
 - (iii) Relay output
 - (iv) Timer
 - (v) Counter15
8. Define Industrial Robot. What are the basic elements of a Robot? Explain them briefly. Also give the classification of a Robot. 15