2112E119

BACHELOR OF VOCATION
Mechanical Manufacturing
Subject: Basics of Mechatronics
Subject Code: MTE-601
Semester: Third
December 2021
Theory (External): 35 Marks
Time: 03 Hours

Instructions to the Students

1. This Question paper consists of two Sections. All sections are compulsory.
2. Section A comprises 10 questions of objective type in nature. All questions are compulsory. Each question carries 1 mark.
3. Section B comprises 8 essay type questions out of which students need to do any 5. Each question carries 5 marks.
4. Read the questions carefully and write the answers in the answer sheets provided.
5. Do not write anything on the question paper.
6. Wherever necessary, the diagram drawn should be neat and properly labelled

Roll Number

SECTION –A (SHORT/OBJECTIVE TYPE QUESTIONS)
(10x1=10 Marks)

A. What is the need for mechatronics?

B. What are the emerging areas of mechatronics?

C. Enlist various types of sensors.

D. What are the different types of strain gauges?

E. Enlist the basic components of PLC.

F. Enlist three basic commands of PLC.

G. What are different types of stepper motors?

H. What are the advantages and disadvantages of servo motors?

I. What are pneumatic systems?

J. What are different stages of design process?

SECTION – B (ESSAY TYPE QUESTIONS)
(5×5 = 25 Marks)

1. What is the concept of mechatronics approach?

2. Explain the classification of mechatronics in detail.

3. What are the static and dynamic characteristics of sensors?

4. Explain the working of
   a) LVDT
   b) Light sensor

5. Explain the basic structure of PLC.

6. Explain the following:
   a) Input and output processing of PLC.
   b) Selection of PLC.

7. Explain construction and working principle of a type of servo motor?

8. a) Explain the design process of mechatronics system.
   b) Differentiate between traditional and Mechatronics design concept.

===END OF PAPER===