# PRESIDENCY UNIVERSITY
## BENGALURU

## SCHOOL OF ENGINEERING
### MID TERM EXAMINATION - APR 2023

**Semester :** Semester IV - 2021

**Course Code :** MEC3006

**Course Name :** Sem IV - MEC3006 - Mechatronics

**Program :** MEC

**Date :** 12-APR-2023

**Time :** 2PM - 3.30PM

**Max Marks :** 50

**Weightage :** 25%

**Instructions:**
*(i) Read all questions carefully and answer accordingly.*
*(ii) Question paper consists of 3 parts.*
*(iii) Scientific and non-programmable calculator are permitted.*
*(iv) Do not write any information on the question paper other than Roll Number.*

## PART A

### ANSWER ALL THE QUESTIONS                    (5 X 2 = 10M)

1.  What are microprocessors?

(CO1) [Knowledge]

2.  What is combined system? Explain with suitable example.

(CO1) [Knowledge]

3.  Explain photo emission effect.

(CO1) [Knowledge]

4.  With suitable example explain pure mechanical system.

(CO1) [Knowledge]

5.  What is measurement system and what are the basic elements of mechatronic system?

(CO1) [Knowledge]

## PART B

### ANSWER ALL THE QUESTIONS                    (2 X 10 = 20M)

6.  Sensors that perform non-contact detection in comparison to sensors, such as limit switches, that detect objects by physically contacting them. Identify the type of sensors and explain with suitable diagram.

(CO2) [Comprehension]

7.  Mr. Putin wants to build a Mechatronics System which is doing task repeatedly. He has confusion between microprocessor and microcontroller. Suggest him which one to use and why? Also differentiate Between Microprocessor and Microcontroller.

(CO2) [Comprehension]

## PART C

### ANSWER THE FOLLOWING QUESTION                    (1 X 20 = 20M)

8.  NASA had sent perseverance rover on to the mars in 2020. For suppose, we have to design a rover of such type for ISRO, which type of control system (Open loop or Closed loop) do you prefer to use and why. Explain the control system you choose in detail.

(CO2) [Comprehension]