

Roll No



**PRESIDENCY UNIVERSITY  
BENGALURU**

**SCHOOL OF ENGINEERING  
MID TERM EXAMINATION - NOV 2023**

**Semester :** Semester VII - 2020

**Course Code :** MEC3060

**Course Name :** Sem VII - MEC3060 - Robotics

**Program :** B. TECH

**Date :** 3-NOV-2023

**Time :** 9:30AM - 11:00AM

**Max Marks :** 60

**Weightage :** 30%

**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 FIVE QUESTIONS**

**5 X 2=10M**

1. What are sensors?  
(CO1) [Knowledge]
2. What are tactile sensors?  
(CO1) [Knowledge]
3. List different type of sensors.  
(CO1) [Knowledge]
4. What are Continuous-path (CP) control robot ?  
(CO1) [Knowledge]
5. Write a short note on robot motions.  
(CO2) [Knowledge]

**PART B**

**ANSWER ALL THE THREE QUESTIONS**

**3 X 10 = 30M**

6. What are the different operational functions and applications of robot vision system.  
(CO1) [Comprehension]
7. Sensors that are used for detection of **both metallic and non-metallic** which include liquid, plastic, wood, etc. Identify the type of sensor and with suitable diagram explain the working principle.  
(CO2) [Comprehension]

8. When an a.c flows in a coil an alternating magnetic field is generated in the coil. If a metal rod is placed in close proximity to this alternating magnetic field then a current is induced known as eddy current. Suggest and explain any type of sensor that works on the principle of eddy current.

(CO2) [Comprehension]

### PART C

#### ANSWER THE ONE QUESTION

1 X 20 = 20M

- 9.a) In the terminology of robotics, end effectors can be defined as a device which is attached to the robots wrist to perform a specific task. List and explain different types of End effectors. (CO1)
- 9.b) There are four common robot configuration or body and arm assembly means an arrangement of parts or elements in a particular form. With suitable diagram explain different configurations of robot. (CO2)