

2101276

BACHELOR OF VOCATION

Robotics and Automation

Subject: Sensors Applications in Manufacturing

Subject Code: ECE-602

Semester: Third

January 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

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

- A. What is the difference between sensor and transducer?
- B. What are active and passive RFID tags.
- C. Define the term sensitivity in robot sensors.
- D. What are ultrasonic sensors what are they used for.
- E. What are cryogenic temperature sensors. Mention its applications
- F. What are proximity sensors and where are they installed in cars.
- G. What are the main components of color sensors.
- H. Differentiate between active and passive sensors with examples.
- I. Give full form of LIDAR.
- J. What are retroreflective photo sensors.

SECTION -B (ESSAY TYPE QUESTIONS)
(5x5=25 Marks)

1. Which are the major sensors used in process industries. Explain any five in detail with their relative application.
2. How RGB color classification system reduce dependency on manpower and hence increase manufacturing in industrial manufacturing and robotics.
3. How are RFID tags helping robots in packaging industry. Explain in detail?
4. What is multi objective approach for selection of sensors in manufacturing?
5. Explain the principal of sensing. How can one evaluate the sensor?
6. Explain the role of sensors in cryogenic manufacturing applications.
7. Describe the classification of sensors and the factors to be considered for its selection.
8. Explain
 - a) Eddy current losses.
 - b) Inductive proximity sensor

END OF PAPER