

B. Voc Robotics and Automation
Subject: Sensors Applications in Manufacturing
Subject Code: ECE-602
Semester: First
Session: September 2022
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 short answers 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 in the question paper.
6. Whenever necessary, the diagram drawn should be neat and properly labelled

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SECTION – A (OBJECTIVE TYPE QUESTIONS)
(10 × 1 = Marks)

- A. What are the performance characteristics of a good control system?
- B. What do you understand by open loop control and feed forward control?
- C. What are the functions of limit switches? Write its applications.
- D. What do you understand by flexible manufacturing system?
- E. What are the advantages and disadvantages of resistive thermometers?
- F. What are the suitable materials for magneto-strictive transducer?
- G. What is data acquisition system? What are the types of data acquisition system?
- H. Give one application of analog low pass filter.
- I. Name the sensors required in robot visual sensing task.
- J. Define the principle of piezoelectric microphones.

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

1. Explain the weighed resistor digital to analog converter.
2. Explain several types of DAC error sources and representations.
3. Discuss the relationships among displacement sensing, distance sensing, position sensing, and proximity sensing.
4. Explain any of the bar code sensors and laser sensors with applications.
5. Explain the following: a) RFID b) electromagnetic identifier c) electro-magnetic identifier.

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6. Why is motion sensing important in trajectory-following control of robotic manipulators? Identify five types of motion sensors that could be used in robotic manipulators.
7. A weight sensor is used in a robotic wrist. What would be the purpose of this sensor? How can the information obtained from the weight sensor be used in controlling the robotic manipulator?
8. What is the selection approach for the temperature sensors in manufacturing plants? Explain.

END OF PAPER