

**BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(MID SEMESTER EXAMINATION)**

**CLASS: BE
BRANCH: EEE/ECE/MECH/PROD**

**SEMESTER: VII
SESSION : MO/2019**

SUBJECT : MEC1047 SENSOR AND TRANSDUCER

TIME: 1.5 HOURS

FULL MARKS: 25

INSTRUCTIONS:

1. The total marks of the questions are 30.
 2. Candidates may attempt for all 30 marks.
 3. In those cases where the marks obtained exceed 25 marks, the excess will be ignored.
 4. Before attempting the question paper, be sure that you have got the correct question paper.
 5. The missing data, if any, may be assumed suitably.
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- Q1 (a) Differentiate between Sensor, Actuator, Switches and Transducer with suitable example. [2]
(b) Discuss and explain classifications of transducer by giving examples in each class. [3]
- Q2 (a) What are the different characteristics on which transducers are characterized? [2]
(b) Explain about the characteristics of sensor observed in laboratory testing. [3]
- Q3 (a) Explain the types of potentiometer transducer. [2]
(b) What is Guage factor? Also explain different types of Strain Guage. [3]
- Q4 (a) Explain the working principle of Electrostatic Transducer. [2]
(b) Explain the material properties related to piezoelectric sensor and its deformation modes. [3]
- Q5 (a) Explain temperature measurement technique using Pulse-echo transit time difference. [2]
(b) What is thermoemf sensor? Explain different types of TC and its construction. [3]
- Q6 (a) Explain the working of radiation thermometer with suitable diagram. [2]
(b) Discuss the uses of nuclear radiation and details of Geiger counter. [3]

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