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Name of Examination : **Winter 2020** - (Preview)

Course Code & Course Name : **IN203U - Transducers -I**

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Maximum Marks : **60**

Duration : **3 Hrs**

[Edit](#) [Print](#) [View Answer Key](#) [Close](#) **Answer Key Submission Type:** Marking scheme with model answers and solutions of numerical

Instructions:

1. All questions are compulsory.
2. Illustrate your answer with suitable figures/sketches wherever necessary.
3. Assume suitable additional data; if required.
4. Use of logarithmic table, drawing instruments and non programmable calculators is allowed.
5. Figures to the right indicate full marks.

1) Solve any three Sub-questions.

- a) What are sensors and Transducers? Discuss in detail role of each in measurement system. [5]
- b) Discuss different characteristics of transducers. [5]
- c) Explain with neat diagram construction, operating principle and characteristics of LVDT. [5]
- d) Explain operating principal of Piezoelectric transducer. Explain its applications in accelerometer. [5]

2) Solve any three Sub-questions.

- a) What is strain guage? Explain different types of strain guages. [5]
- b) Explain with neat diagram construction and working of Photoelectric tachometer for speed measurement. [5]
- c) What is Dynamometer? Discuss how it is used for Torque measurement. [5]
- d) Explain principles of eddy-current displacement transducer in detail. [5]

3) Solve any three Sub-questions.

- a) Discuss Seismic transducer in detail. [5]
- b) Explain working principle of ultrasonic transducer. Discuss how it is used for displacement measurement. [5]
- c) Discuss operation of Inductive transducer for torque measurement. [5]
- d) Discuss standards for smart sensor interface. [5]

4) a) Draw and explain architecture of Smart sensor. Discuss features of smart sensor. [5]

- b) i. Hall effect transducer. [5]
- ii. Magnetostrictive transducers [5]

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