Reg. No. : | | | | | | | | | | |

Question Paper Code: 33603

B.E. / B.Tech. DEGREE EXAMINATION, MAY 2018

Third Semester

Instrumentation and Control Engineering

01UIC303 – SENSOR AND TRANSDUCERS

(Common to Electronics and Instrumentation Engineering)

(Regulation 2013)

Duration: Three hours Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 2 = 20 Marks)

1. Why calibration needed for any measuring instrument?
2. Define static calibration.
3. Differentiate between resolution and threshold.
4. Define Resolution.
5. List the applications of inductive transducers.
6. Define gauge factor.
7. What is SQUID?
8. Define Hall effect.
9. State the features of smart sensors.
10. List the application of seismic sensor

PART - B (5 x 16 = 80 Marks)

11. (a) Explain the factors considered for selection of transducer for a particular application. (16)

Or

(b) Discuss in detail about the types of errors. (16)

12. (a) Define the following terms: Accuracy, Precision, Hysteresis, Linearity, Range and Span. (16)

Or

(b) What do you mean by standard test inputs? Derive an expression for step response of second order transducer in under damped condition. (16)

13. (a) Explain the constructional details and principle of operation of RTD with necessary diagram. Also give its advantages and disadvantages. (16)

Or

(b) Explain in detail about the construction and principle of operation of LVDT. State its applications. (16)

14. (a) Explain how angular displacement is measured using digital transducer. (16)

Or

(b) Discuss the working principle of fiber optic transducer with its application. (16)

15. (a) With a neat block diagram, explain about the functioning of a smart sensor. (16)

Or

(b) (i) What is a Nano sensor? Explain the different manufacturing techniques used in Nano sensors. (8)

(ii) Describe the working of an IC sensor which is used for measuring temperature. (8)