

Reg. No. :

--	--	--	--	--	--	--	--	--	--

Question Paper Code: 41633

B.E. / B.Tech. DEGREE EXAMINATION, MAY 2017

Third Semester

Instrumentation and Control Engineering

14UIC303-SENSORS AND TRANSDUCERS

(Common to Electronics and Instrumentation Engineering)

(Regulation 2014)

Duration: Threehours

Maximum: 100 Marks

Answer ALL Questions.

PART A - (10 x 1 = 10 Marks)

- Unit symbol of kinematic viscosity is represented as
 - m / s^2
 - m^2 / s
 - Ns / m^2
 - Nm / s^2
- Self generating type transducers are _____ transducers.
 - Active
 - Passive
 - Secondary
 - Inverse
- Which one is an ability to detect changes in the measured quantity?
 - linearity
 - sensitivity
 - precision
 - accuracy
- The smallest change in measured variable to which instrument will respond is
 - resolution
 - accuracy
 - precision
 - sensitivity
- Material used for the temperature range of operation (160-400)°C
 - platinum
 - copper
 - tungsten
 - nickel
- Capacitive transducers are normally employed for _____ measurements
 - Static
 - Dynamic
 - Transient
 - Both static and dynamic
- A Hall element can be used to transducer magnetic flux into
 - voltage
 - current
 - vibration
 - none of these

(b) With an example of a first order transducer, determine its step and frequency response characteristics. (16)

18. (a) Explain in brief about semiconductor strain gauges. (16)

Or

(b) Describe the construction, working, characteristics and uses of LVDT. (16)

19. (a) Define piezo-electric effect. Explain how a piezo-electric crystal is used for the measurement of force with necessary derivations. (16)

Or

(b) With neat sketch, describe the working of linear and angular digital displacement encoders. (16)

20. (a) State the construction, principle of operation of vibration Instrument for vibration measurement. (16)

Or

(b) Draw the architecture of MEMS sensor and explain its functioning. (16)
