

Code No: 156DK**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD****B. Tech III Year II Semester Examinations, August - 2022****BASICS OF SENSORS TECHNOLOGY****(Common to CSE, IT)****Time: 3 hours****Max. Marks: 75****Answer any five questions****All questions carry equal marks**

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- 1.a) Define potentiometer. Explain about the resistive potentiometers in detail.
- b) Briefly explain about the dynamic characteristics of sensors. [8+7]
- 2.a) What is RTD? Explain the relationship between resistance and temperature for the RTD with temperature resistance curve.
- b) What are differential capacitive sensors? Explain the function of a capacitive sensor in a robot end Effectors. [7+8]
3. Explain the working of piezo electric sensors. State their applications. [15]
- 4.a) Explain about the measurement of force using Strain gauge load cell method.
- b) Explain how to measure rotational velocity using stroboscopic methods. [8+7]
- 5.a) What is Gauge factor? Derive an expression for Gauge factor in terms of poisson's ratio.
- b) Explain principle of operation of L.V.D.T. with its characteristics. [8+7]
- 6.a) With a neat diagram, explain in detail about Oscillating Type Consistency Meter.
- b) Explain in detail about differential pressure densitometer. [8+7]
7. Explain different methods for measuring consistency and viscosity. [15]
8. Explain in detail for following interfacing sensors.
 - a) Force sensors
 - b) Viscosity sensors
 - c) Variable frequency device. [5+5+5]

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