① Define the following terms

a) Dynamic Range
b) Bandwidth
c) Settling time
d) Variable Reluctance Transducer

a) Ratio between smallest and highest possible values.

b) Max speed or frequency at which a device can operate.

c) Time that signal reaches ± 2% of its steady-state value and remains there.

d) Altering the reluctance of magnetic flux by non-magnetized ferro-magnetic medium

2) For an automobile with total weight of 2000 Kg, we are designing a suspension system for each wheel. The damping and stiffness constant for each wheel are 800 N.s/m and 500 N/m respectively. what is the %ge overshoot of the suspension system?

a) $100\, e^{-0.75\pi}$

b) $100\, e^{-\pi}$

c) $100\, e^{-0.5\pi}$

d) $100\, e^{-1.33\pi}$

3) Which one(s) of the following transducers are NOT passive? Active !!

a) piezoelectric
b) photo voltaic
c) Ac Induction Tachometer
d) Permanent Magnet Transducer
e) Potentiometer

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* Difference between Eddy Current and Variable Inductance proximity Sensor !!
  - → Loops of Electrical Currents induced within a Conductive Material
  - → Change in Reluctance due to displacement

* Main difference between Semi-Conductor strain gauge Vs Metal foil strain gage for measuring very low strains, since they have very high Sensitivity (gage factor) S_s

* Which one of these is NOT a feature of LVDT ?
  - Linear Variable Differential Transformer
  - Piezo electric

1) Low Mechanical Wear
2) Low electrical Loading
3) High Input Impedance / Low input Impedance
4) Fine Resolutions Available