



Measurement Lab MDP 141

Assignment 2

Generalized Measurement system

1. Compare between the different methods of measurements
2. Why the measurement by indirect methods is more common than by direct method?
3. Why the electrical signal is preferred in measurement
4. Using a block diagram show the three different stages of a generalized measurement system.
5. Using a block diagram show the six components of a generalized measurement system.
6. Explain the function of each of the following measurement system elements(components):
 - Primary sensing element
 - Variable conversion element
 - Variable manipulation element
 - Data transmission system

- Data processing element
- Data presentation element

7. What is the sensor; what are the main important sensor characteristics.

8. For the following measurement system; mention the system main six elements with their functions.

- Bourdon Pressure gauge
- Mercury column barometer
- Dial indicator
- Pressure thermometer

9. State TRUE or FALSE and correct the false one

- Measurement is a comparison of a given unknown quantity with a standard value adopted as a unit.
- The word measurement is used to designate the physical parameter being measured.
- Indirect measurement is common for the measurement of length, mass and time.
- The human sense is capable to make direct comparison of all quantities.
- The human sense is sensitive enough to make direct comparison with the required high accuracy
- Remote reading can be performed by direct method.
- Most used transducers convert the measured signal into a mechanical movement.

- The measured physical quantity is directly sensed by the variable converting elements.
- The measured signal is amplified using the data processing element.
- The data representation element is responsible for transmitting the amplified measured signal.
- In Bourdon tube pressure gauge, the transmission system consists of a spring and a pinion.
- In diaphragm pressure transducer, the sensing element is the strain gauge attached to the diaphragm.
- In a computer vision system, data analysis is done within the camera system.