

**-:INSTRUMENTATION:-
MEASUREMENTS AND MEASUREMENT SYSTEMS**



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BASICS OF MEASUREMENT

Significance of

MEASUREMENTS

2 Things quickly assess the nation's progress

➤ Type of data being measured

➤ Type of data acquired



2 MAJOR FUNCTIONS OF ALL BRANCHES OF ENGINEERING



Design of equipment and processes



Proper operation and maintenance of equipment and processes

REQUIRES INFORMATION

INFORMATION IS SUPPLIED BY SUITABLE MEASUREMENTS

2 METHODS OF MEASUREMENT

UNKNOWN QUANTITY = MEASURAND

directly compared against a **Standard**



Direct

Indirect



engineering applications
use **Measurement Systems**

Standard = Physical Embodiment



Measurement systems use **Indirect methods**

common form the measurement of
*physical quantities like length, mass
and time.*



transducing element



quantity to be
measured in an
analogous form



some intermediate means



results of the measurement

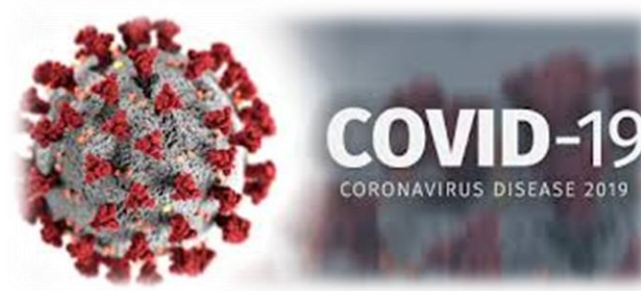
not always possible, feasible and practicable



In most of the cases, they are inaccurate
because they involve human factors.



MEASUREMENT involves INSTRUMENT



IR Thermometer



Rapid CORONA test kit



Stethoscope for a Doctor