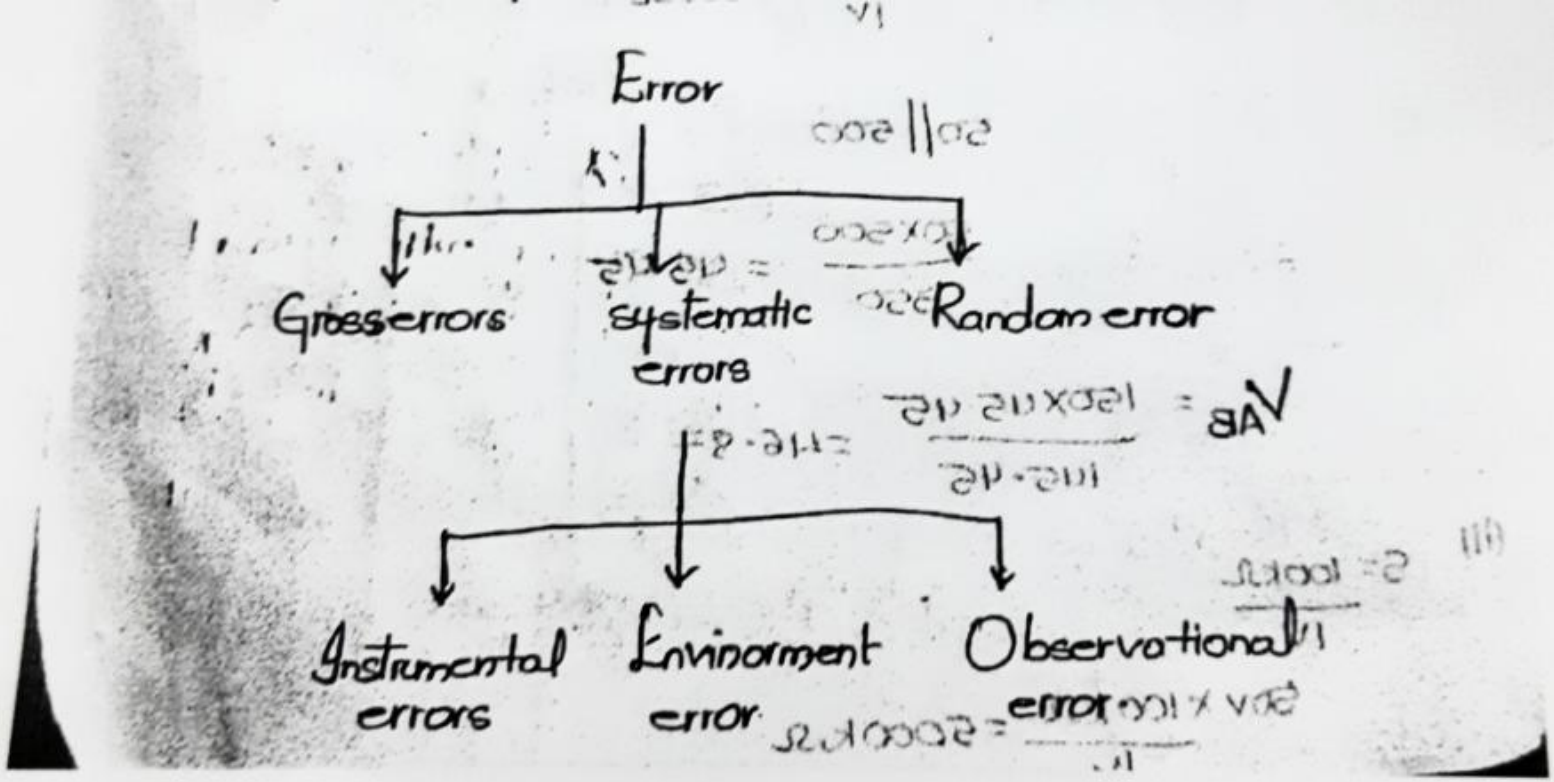
Error
Gross errors
systematic errors
Random error
Instrumental errors
Environment error
Observational error

Gross errors:— These are mainly due to human mistake such as improper reading, recording the reading differently in the calculation of results due to insufficient knowledge, improper use of an instrument.

→ This errors can't be treated mathematically and possible to eliminate Completely but these errors can be minimized by taken precautions.

→ By taking Care of reading and recording in the calculation of results.

→ By taking atleast 3 or more readings preferably by different person.

Systematic errors:

These errors are mainly due to short Coming of instruments characteristic of material used in instrument environmental effect, aging effect etc.

These are further classified as: Instrumental
Environmental
Observational

Instrumental error:— These errors are due to short coming of Instrument, misuse of instrument, loading effect etc

→ These error can be minimized by seleding a suitable instrument for a suitable application

→ Applying the Correction factor after finding the amount of instrumental error.

Environmental error:— These error due to Conditions external to the instruments such as temperature, pressure, external field magnetic or electrostatic fields, humidity or Vibration etc.

→ These errors can be minimized by using airConditioning temperature enclosures to keep the Surrounding Conditions Constant.

Use of magnetic or electrostatic shields to reduce the effect of external fields

→ Hermitically Celling of Certain Components to reduce the effect of humidity & dust

Observational error :-

These are introduced by the human

→ The most Common error is parallex error while reading a meter.

→ These Can be reduced by using instruments with mirror & knife edge pointer

→ Using an instrument with digital display

Random error :- These are due to unknown causes, even the instrument is calculated accurately then these errors are called random error

→ These Cannot be determined & they follows the law of probablity

→ The Only way to reduce these errors is by taking more observations & statistically analysis which gives the best approximation of reading