# Unit–4

# Introduction to Metrology, Limits and Fits

1. Metrology is the science of:
A) Manufacturing
B) Measurement
C) Casting
D) Welding

2. The standard unit of length in SI system is:
A) Centimeter
B) Inch
C) Meter
D) Millimeter

3. An instrument used to measure external dimensions accurately is:
A) Vernier Caliper
B) Try Square
C) Divider
D) Hammer

4. Micrometer is used for measuring:
A) Temperature
B) Pressure
C) Small dimensions accurately
D) Speed

5. The difference between the upper and lower limits of a dimension is called:
A) Allowance
B) Tolerance
C) Fit
D) Deviation

6. Which fit provides a guaranteed clearance between mating parts?
A) Interference Fit
B) Transition Fit
C) Clearance Fit
D) Force Fit

7. In an interference fit:
A) Hole is always larger than shaft
B) Shaft is larger than hole
C) Hole and shaft are equal
D) No tolerance is allowed

8. Which instrument has higher accuracy?
A) Steel Rule
B) Vernier Caliper
C) Micrometer
D) Measuring Tape

9. The actual size of a component must lie between:
A) Limits of size
B) Allowance
C) Fits
D) Datum lines

10. A fit between clearance and interference fit is called:
A) Running Fit
B) Push Fit
C) Transition Fit
D) Shrink Fit

# Fill in the Blanks

1. Metrology is the science of _____.

2. The SI unit of length is _____.

3. A Vernier Caliper is used to measure internal, external, and _____ dimensions.

4. A micrometer is also called a _____ gauge.

5. The permissible variation in a dimension is called _____.

6. The difference between maximum and minimum limits is called _____.

7. In a clearance fit, the hole is always _____ than the shaft.

8. The relationship between two mating parts is called a _____.

9. The maximum size permitted for a part is called the _____ limit.

10. The minimum size permitted for a part is called the _____ limit.