FAILURE:

If a part / system does not function properly or does not satisfy the functional requirements, it means FAILURE.

There are a number of common **modes of failure**, which can be listed as:

1. Elastic yielding
2. Fracture (ductile rupture or brittle fracture)
3. Instability; buckling, torsional instability, creep buckling
4. Excessive elastic (or plastic) deformation
5. Fatigue failures
6. Creep failures
7. Contact failure; spalling, pitting, galling, seizure
8. Wear failures; adhesive, abrasive, corrosive, erosive, surface fatigue.
9. Corrosion failures
10. Fretting failures
11. Impact failures

There are many **causes of failure**.

1. Defective design
2. Deficiency in selection of materials
3. Imperfection in material
4. Manufacturing defects
5. Overload or other abuses in service (wrong application)
6. Wear-out
7. Incorrect installation
8. Inadequate maintenance and repair
9. Failure of other parts
10. Environmental factors (deterioration of properties with time of exposure to environment)
11. Gradual deterioration