Common Casting defects :-

Mould Shift :- It results in a mismatching of the top & bottom parts of a casting, usually at the parting line.

Causes :- It occurs due to :-
- Misalignment of pattern parts, due to worn or damaged patterns.
- Misalignment of moulding box or flask equipment.

Remedies :- This defect can be prevented by ensuring proper alignment of the pattern, moulding boxes, correct mounting of pattern on pattern plates etc.

Core Shift :- It is an abnormal variation of the dimensions which are dependent on core position.

Causes :- Misalignment of cores in assembling cored moulds
- Undersized or oversized core prints.
- By using incorrect size of chaplet.

Remedies:- This defect can be eliminated by providing the core at the proper place and must be gripped properly in the sand.

Swell:- It is an enlargement of the mould cavity by molten metal press. resulting in localised or general enlargement of the casting.

Causes:- Due to insufficient ramming of sand.
- Due to insufficient weighting of the mould during casting.
- Due to pouring of molten metal too rapidly.

Remedies:- The swells are avoided by the proper ramming of sand & uniform of molten metal into the mould.

Sand Wash:- It usually occurs near the in-gates as rough lumps on the surface of a casting. The sand that has been washed away appears on the upper surfaces of the castings as rough holes or depressions.

Causes:- Soft ramming of sand
- Weak Sand
- Poor pattern
- Insufficient draft.

Remedies:- This defect is avoided by the proper ramming of sand.

Hot Tear :- It is an internal or external ragged discontinuity in the metal casting resulting from hindered contraction occurring just after the metal has solidified.

Causes :- Abrupt changes in section, inadequate fillleting of inside corners, & improper placement of chills.

Poor collapsibility of mould & core materials which will place extra stress on certain details.

Improper pouring temperature.

Remedies :- In order to eliminate this defects, abrupt changes in section should be avoided. The pouring temp. should be correct & there should be even rate of cooling.

Sand Blow or Blow Hole :- It is excessively smooth depression on the outer surface of a casting. This defect is also called blow hole.

Causes :- This defect occurs due to high moisture content in moulding sand.
Low permeability of sand.
Hard ramming of sand
Defective gating system.

) Hot working	Cold working
• Working temp. is above the recrystalization temp.	• Working temp is below the recrystalization temp.
• Hardening due to plastic deformation is completely eliminated by recovery & new grain formation.	• No hardening due to low temp.
• Poor surface finish due to oxidation.	• Better Surface finish.
• Density of metal is increased due to new grain formation.	• No such effect in the density of metal.
• Lighter equipment is used.	• Heavier equipment is used.
• Less loading is required.	• Large application is required
• Eg ⇒ Hot forging, hot rolling, hot spinning, hot extrusion, hot drawing etc.	• Eg ⇒ Cold rolling, Cold extrusion, press work like - bending, shearing etc.