FAQs

1. **Describe mechanical treatment of steel**

- The mechanical treatment of steel, through its influence on the structural units of the metal, is as important as any phase in the production of a suitable finished product.
- It has the most profound result in **perfecting the physical internal structure of the metal, as well as in shaping it for the use desired.**
- The four great methods of shaping metal are: (1) pounding or hammering; (2) rolling; (3) squeezing in hydraulic process; and (4) drawing as in the making of thin bars and wires. (5) Forging

2. **Write briefly about two types of mechanical treatment of steel**

- Hammering - Hammering is the **most ancient method**, and is used largely still, in connection with the crucible process. Hammers have been built to very large size, but are **subject to certain mechanical defects** and cannot compete with other methods of forming in the shaping of most objects.
- Rolling of the metal is the **most rapid of all the processes for shaping**. If the metal is **used at a rather high temperature**, it will offer little resistance, to shaping and can be passed **through the rolls at an extremely rapid rate.**

3. **Write a few notes on market forms of steel**

- Different types of steel are produced according to the properties require for their application, and **various grading systems are used to distinguish steels based on these properties.** Steel can be broadly categorized into four groups based on their chemical compositions:
- **Carbon Steels**
- **Alloy Steels**
- **Stainless Steels**
- **Tool Steels**

4. **Write a few notes about carbon steel**

- Carbon Steel can be segregated into three main categories: **Low carbon steel** (sometimes known as mild steel); **Medium carbon steel**; and **High carbon steel**.
- Low Carbon Steel (Mild Steel): Typically contain 0.04% to 0.30% carbon content. This is one of the largest groups of Carbon Steel. It covers a great diversity of shapes; from **Flat Sheet to Structural Beam.**
- Medium Carbon Steel: Typically has a carbon range of 0.31% to 0.60% and a manganese content ranging from .060% to 1.65%. This product is **stronger than low carbon steel**, and it is more difficult to form, weld and cut
- High Carbon Steel: Commonly known as "carbon tool steel" it typically has a carbon range between 0.61% and 1.50%. **High carbon steel is very difficult to cut, bend and weld**. Once heat treated it becomes extremely hard and brittle.

5. Describe briefly stainless steel

- Stainless steels generally contain between 10-20% chromium as the main alloying element and are valued for high corrosion resistance. **With over 11% chromium, steel is about 200 times more resistant to corrosion than mild steel**.
- These steels can be divided into three groups based on their crystalline structure:
- ***Austenitic****:* Austenitic steels are non-magnetic and non heat-treatable,
- ***Ferritic:*** Ferritic steels contain trace amounts of nickel, 12-17% chromium, less than 0.1% carbon, along with other alloying elements, such as molybdenum, aluminum or titanium.
- ***Martensitic****:* Martensitic steels contain 11-17% chromium, less than 0.4% nickel and up to 1.2% carbon