Q. 12] The lanthanides were 1st discovered in 1787 when a unusual blak mineral was found in Ytterby, Sweeden. This mineral, now known as Gadolinite, was later separated into the various lanthanide elements. In 1794 professor Gadolin obtained yttria, an impure form of yttrium oxide, from the mineral. In 1803, Berzelius and Klaproth secluded the first cerium compound. Later, Moseley used an X-ray spectra of the elements to prove that there were 14 elements between Lathanum and Hafnium. The rest of the elements were later separated from the same mineral. These elements were 1st classified as 'rare earth' due to the fact that obtained by reasonably rare minerals, However, this is can be misleading since the Lanthanide elements have a practically unlimited abundance. The term lanthanides was adopted, originating from the 1st element of the series, Lanthanum.

Like any other series in the periodic table, such as the alkali metals or the Halogens, the Lanthanides share many similar characteristics. These characteristics include the following:

* Similarity in physical properties throughout the series
* Adoption mainly of the +3 oxidation state. Usually found in crystalline compounds)
* They can also have an oxidation state of +3 or +4, Through some lanthanides are most stable in the +3 oxidation state.
* Adoption of coordinating numbers greater than 6 usually (8-9) in Compounds.