Q The iron and steel manufacturing sectors can rely on the lightest element to reach the net-zero goals. Discuss?

India's commitment to reach net-zero greenhouse gas emissions by 2070 could not be achieved until its manufacturing sectors reach net-zero. Steel industry contributes 9% of the country's total GHG emissions.

The possible solution is to rely on lightest element like Green Hydrogen, obtained from splitting of water using solar and wind power.

Hurdles:

- cost of producing green steel is significantly higher (According to CEEW hydrogen based steel is 50-70% expensive).
- lack of capacity in the existing coal-based blast furnace and rotary kiln does not support hydrogen
- inadequate supply chain of green hydrogen.

- lack of market and public awareness for green steel.

Solutions:

- the current high cost of producing green steel can be reduced by using blend of grey hydrogen with green hydrogen and grid electricity with renewable power.
- shifting towards natural gas-based shaft furnaces
- strong resilient supply chain for both grey and green hydrogen.
- Govt. tenders and Govt. funded infra projects should specify the carbon intensity of steel, it will create market and public awareness for green steel.

Green hydrogen combined with renewable energy for power could achieve 60% reduction in emissions. The scale and potential of the sector would provide a significant opportunity for ushering in the green hydrogen economy and achieve India's net-zero target by 2070.