

## WORKING

Fission reaction is carried out in a controlled way by limiting the number of neutrons. To slow down the neutrons the fissionable material ( $^{235}\text{U}$  or  $^{239}\text{Pu}$ ) is stacked with heavy water or graphite called moderator. The neutrons produced during fission are passed through the moderator whereby they lose some of their energy. Cadmium rods are inserted in the moderator. These have the characteristics to absorb neutrons & thus control the rate of chain reaction. The energy released in the controlled chain reaction is obtained as heat. This heat can be used to produce steam by circulating a coolant water round the reactor. Steam is finally sent to steam turbines to generate power.

## Hence MAIN PARTS OF NUCLEAR REACTOR

1. Control rods
2. Moderator
3. Fissionable material
4. Reactor coolant
5. Shield

## ADVANTAGES

1. It's a low-carbon energy source.
2. Fewer gas emissions.
3. Reliable and cost-effective.

## DISADVANTAGES

1. It is expensive to build.
2. Produces radioactive waste.
3. Chances of security threats.