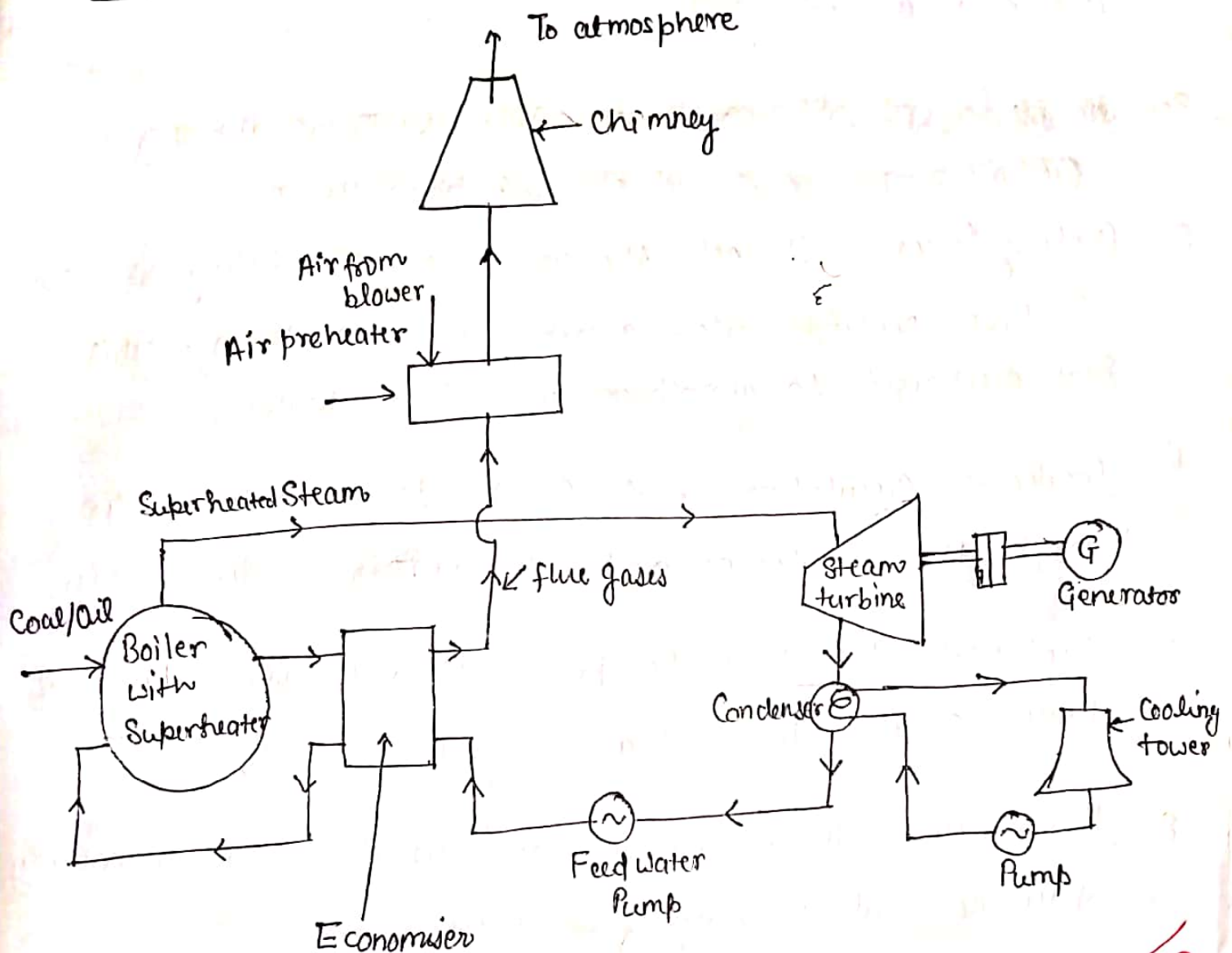


Unit → 8, Various Types of Power Plants

Thermal Power Plant:Layout of thermal Power PlantFunction of some important parts of a steam power Plant

- ① Boiler: → Water is converted into wet steam by the heat produced by burning coal/oil.
- ② Superheater: It converts the wet steam into superheated steam.
- ③ Turbine: → Steam at high pressure expands in the turbine and drives the generator to generate electricity.

④ Condenser :- ~~steam~~ It condenses steam used by the steam turbine. The condensed steam (known as condensate) is used as a feed water.

~~5. Cooling tower :- It cools the condenser circulating water. Condenser cooling water absorbs heat from steam. This heat is discharged to atmosphere in cooling water.~~

5. Cooling tower :- It cools the condenser circulating water. Condenser cooling water absorbs heat from steam. This heat is discharged to atmosphere in cooling water.

6. Condenser Circulating water Pump :- It circulates water through the condenser and the ~~cooling~~ cooling water.

7. Feed water Pump :- It pumps water in the water tubes of boiler against boiler steam pressure.

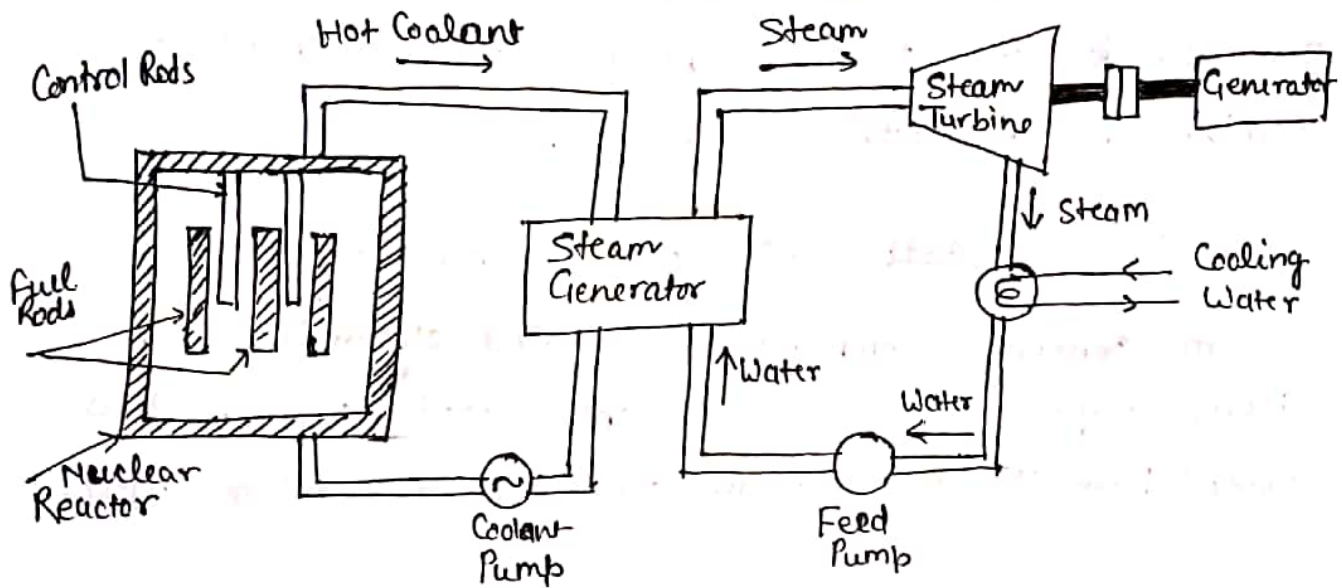
8. Economiser :- It economiser heat in flue gases is partially used to heat incoming feed water.

9. Air ~~pump~~ preheater :- In air preheater heat in flue gases (the products of combustion) is partially used to heat incoming air.

10. Chimney :- It release the waste flue gases into atmosphere.

Amil
31/03/2020

Nuclear Power Plant ⇒



Nuclear Power Plant

Nuclear Reactor ⇒ यह nuclear power plant का वह भाग है जहाँ nuclear fuel में nuclear fission की क्रिया होती है।

(a) Nuclear Fuel :- Nuclear fuel के रूप में Uranium (U_{235}), Thorium (Th_{232}) तथा Plutonium (Pu_{239}) का उपयोग किया जाता है।

(b) Control Rods :- ये nuclear fission process को regulate (control) करने का कार्य करते हैं। इसके लिए सामान्यतः cadmium तथा carbon का प्रयोग किया जाता है।

Hot Coolant :- Molten metal like liquid sodium or gas is used to transfer heat produced due to nuclear fission from the reactor to the steam generator.

Steam Generator :- It is used to produce steam from heating up water by the help of heat transferred by the coolant from the reactor to the steam generator.

Steam Turbine \Rightarrow The heated steam is utilised to drive the steam turbine. The steam turbine is coupled with the generator which converts the mechanical energy of turbine to an electrical energy.

Cooling tower \Rightarrow ~~Cool~~ Cooled water is used to cool the steam coming from the steam turbine. Here, vapour is condensed into liquid form and is fed back to the steam generator for another cycle.

Advantages:

1. The size of nuclear power plant is usually small compared to other power plants.
2. Low fuel requirement results in low fuel cost.
3. Most economical in large capacity.
4. Extremely flexible output control.

Disadvantages:-

1. Very high initial cost.
2. Greater technical requirement.
3. High maintenance cost.