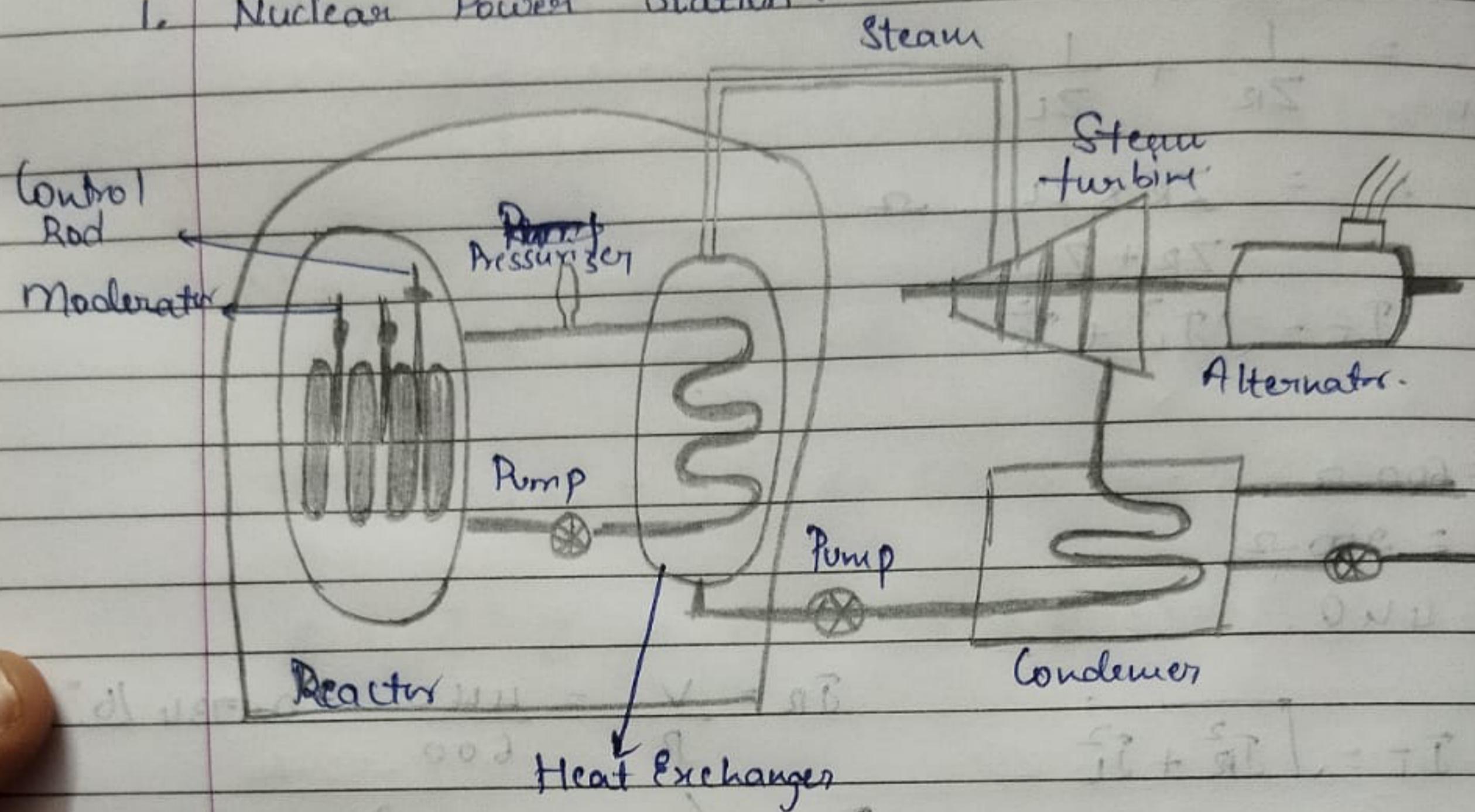


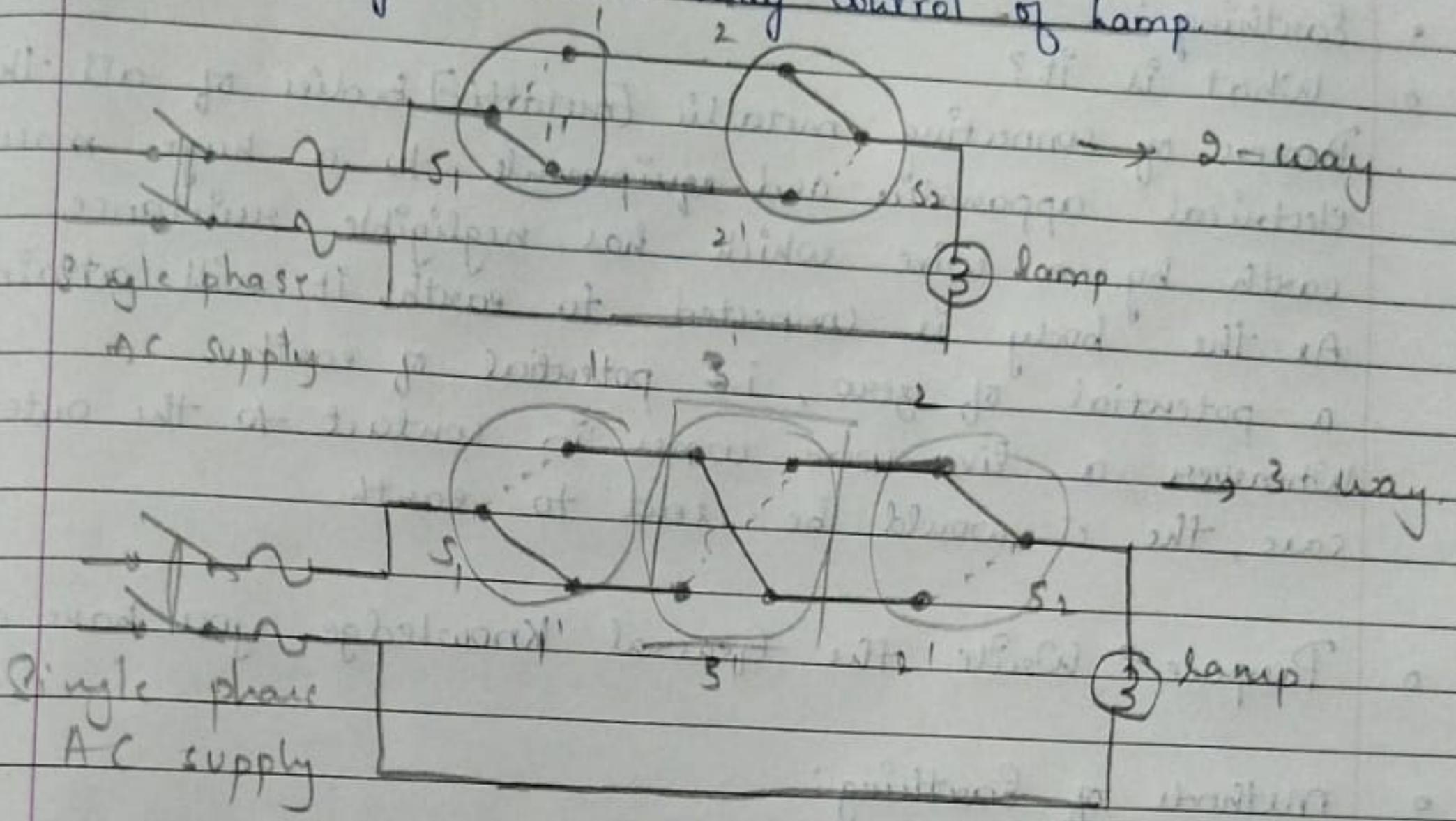
Unit - 5

1. Nuclear Power Station :



- Nuclear power plant generates electricity using nuclear power.
- It is thermal power station, where source of heat is nuclear reactor.
- As any thermal power station, thermal power i.e. heat is used to generate steam → Steam drives steam turbine → Steam turbine connected to generator → Thus electricity generated
- Nuclear energy originates from splitting of uranium atom, process called fission.
- This heat energy drives steam → Steam turbine → Elect. [some old story]
- Fuel isn't burnt, thus no green house gas emission

Two-Way & Three Way Control of Lamp.



- A light or lights can be controlled by 2 or more than 1 switch.
- Usual practice in homes is to use single switch, 2-way & 3-way switch. The single pole switch is aka SPST i.e. single pole single throw switch.
- 2-way means having 2 switches at different locations to control. They are wired in such a way that, controlling either of the switch we can control the lights.
- 2-way switch → Simple single pole changeover switch with 3 terminals. Typically labelled as com, 1. & 2 or com, 1', 2'.
- This arrangement, often found in stairways [1 switch up & down]
- 3-way control means having 3 switches at 3 different locations to control one lamp. It consists of 2 SPST & 1 intermediate switch.
- 3-way is used in big godowns & manufacturing industries.

• Earthing :

◦ What is it?

Process of connecting metallic [nonmetallic] bodies of all electrical apparatus and equipments to a huge mass earth by a wire which has negligible resistance. As the body is connected to earth, it will attain a potential of zero, i.e. potential of earth. Whenever a live wire comes in contact to the outer case, the i^- would be sent to earth.

◦ Purpose? Write the General Knowledge you have on

◦ Methods of Earthing:

1. Strip Earthing: → Use of 25 SWG [standard wire gauge] Cu wire.

→ These strips are buried in horizontal trenches.

→ Where? Earth bed: Rocky soil & excavation work difficult.

2. Water main: → Copper lead wires used which is wounded on pipe with help of [standard] steel binding wire & properly designed earthing clip. Cu wire is soldered by arc.

→ Before making connection to water main, ensure GI pipe is used throughout.

3. Rod Earthing: → Cheapest method of earthing and employed to sandy region.

→ Copper rod directly hammered to ground.

→ Earth lead joined to this with help of nuts & bolts.

4. Pipe Earthing: → Best mode of earthing.
 → Iron is cheapest material & serviceable @ salty region as well.
- Earthing electrode is galvanized & perforated.
 → Size: 3.81 38.1 mm - dia, 2m-length. 2.75m in case of dry soil.
 → Diameter has very little effect on resistance.
 → Tapered casting @ lower end - Easy to drive it in ground.
 → Another rod of 19.05mm dia, 2.15m length kept above it
 → Earthing lead connected.
 → Alternate layers of charcoal & sand, \rightarrow moisture.
5. Plate Earthing: → Earthing material dimension 60cm x 60cm x 6.35mm is used.
 → Facing vertically & buried atleast 3m below earth surface.
 → GI wire used for GI plate & Cu wire for Cu plate earthing.
 → Alternate layers of salt & charcoal used on the plate.
 Charcoal ① layer, Salt ② layer. $\begin{cases} \text{Moisture} \\ \text{Environmental.} \end{cases}$