What Are The Major Causes Of Fault In Transformer?

As faults would generally occur in each and every device as in the transformer also due to a certain condition like mechanical, electrical or thermal stress. So due to these faults that occur in the transformer can cause a big failure to the device. Here we are looking to describe what are the major faults that occur in the transformers and what are the major causes that are as follows.

* Winding Failure
* Bushing Failure
* Tap Changer Failure
* Core Failure
* Tank Failure

So now one by one we will explain all the major faults that occur in the transformer and along with the causes that occur in the transformer.

1. **Winding Failure:-** Winding is one of the main parts of a transformer. At the distribution side transformer, there are two winding one is primary winding and the other is secondary winding. As failure occurs due to high voltage and low current as through *EMI (Electromagnetic Induction)* is stepped down and current is stepped up. That is one of the major reasons for winding failure.
2. **Bushing Failure:-** These are insulating devices that insulate a high voltage to pass an earth conductor. As loosening of the conductor would be one of the reasons for bushing failure and other reasons would be a sudden high fault voltage that causes bushing failure.
3. **Tap Changer Failure:-**One of the main tasks is to regulate the voltage level. As this can be easily done by just adding and removing the turns from the secondary winding of the transformer. Generally, failure arises due to run through a fault, **lack of maintenance causes, use of old capacitors and breakdown of motors**.
4. **Core Failure:-**The functioning of core in the transformer is to concentrate the flux. But when the failure would occur in the core part then it affects the transformer windings. Generally, the reason for the occurrence of failure is due to the mechanism of overheating.

**Major Causes for Failure in Transformer:-**

There are major 4 causes of failure in a transformer that are as follows.

1. Insulation Breakdown
2. Overheating due to overexcitation
3. Reduced cooling
4. Transformer Overload

Now we will one by one explain in detail all the major causes of failure in the transformer.

1. **Insulation Breakdown**:- One of the main reason of failure that occurs in insulation is due to the aging of insulation transit overvoltage and due to current forces and high current is one of the main reason of insulation breakdown and the other faults that are generally occurring are short circuits, earth faults.
2. **Overheating due to overexcitation:-**Overexcitation in a transformer may occur due to **start-up, shutdown** or as a result of load rejection. Along with that overheating generally, occur due to core saturation which causes damage to the transformer.
3. **Reduced cooling:-**This is also one of the main causes of failure in the transformer is due to reduced cooling as somehow less cooling goes to the transformer causes failure. So it is very much important that there should be a cooling mechanism inside a transformer so as to avoid failure in the transformer.
4. **Transformer Overload:-**Generally when we are dealing with the functioning of the transformer as voltage would vary and accordingly current also would vary. But the situation of transformer overload occurs when it works higher than her **expected value** this leads to transformer overload.