**What are the problems in differential protection of transformer and how to overcome them.**

**1. Difference in lengths of pilot wires** on either sides of the relay. This is overcome by connecting adjustable resistors to pilot wires to get equipotential points on the pilot wires.

2. D**ifference in CT ratio error** difference at high values of short circuit currents that makes the relay to operate even for external or through faults. This is overcome by introducing bias coil.

3. **Tap changing alters** the ratio of voltage and currents between HV and LV sides and the relay will sense this and act. Bias coil will solve this.

4. **Magnetizing inrush current** appears wherever a transformer is energized on its primary side producing harmonics. No current will be seen by the secondary. CT’s as there is no load in the circuit. This difference in current will actuate the differential relay. A harmonic restraining unit is added to the relay which will block it when the transformer is energized.