ELEC-E8409 HIGH VOLTAGE ENGINEERING

EXAM 12.12.2016

1. Breakdown in gas. Explain Townsend's mechanism and Streamer mechanism.

2. Explain Paschen's Law

3. Explain the dielectric response measurements (using DC) in the diagnostics measurements of power cables, and the interpretation of the measurement results.

4. Different condition diagnostics methods used for power transformers.

5. A current transformer is linked to 20 kV open-wire line. The primary coil inductance is 100 µH. Wave impedance of the line is 500 ohm. A step wave of amplitude 110 kV arrives to the current transformer. Show using equations and approximate drawings both the voltage in transformer's 20 kV terminals against ground and also the voltage between the terminals, i.e. across the CT primary coil.

Answers accepted in English, Finnish and Swedish.

Questions are available only in English.