

ELEC-E8413 POWER SYSTEMS

EXAM 15.5.2017

1. Referring voltage, current and impedance from transformer secondary to the primary.
2. Explain the reactive power balance of a transmission line.
3. Use of surge arresters for overvoltage protection.
4. Calculate the positive sequence reactance / km of a three phase power line having conductors in the same horizontal plane. The conductor diameter is 7 mm and the distance between outer conductors and the middle conductor is 1.1 meters. The height of the line is 10 meters and the soil resistivity is 2300 Ωm .
5. The maximum heating of a conductor is 80 degrees, mass 145 kg/km, specific heat capacity 910 Ws/ $^{\circ}\text{C kg}$ and resistance 0,673 ohm/km. Compute the maximum 1 second short circuit current.

Answers accepted in English, Finnish and Swedish.

Questions are available only in English.