S-18.2103 POWER SYSTEMS

Exam 16.12.2009

1. Explain how voltage, current and impedance are referred over a power transformer.

2. Derive the power angle equation for real power.

3. The spacing of a 20 kV line conductors is 1,1 meters in horizontal plane. The conductor radius is 7 mm. Calculate the reactance per km.

4. The earth fault current of a medium voltage network is 20,6 A. The maximum allowed touch voltage is 280 V for the tripping time used. What is the maximum earthing resistance allowed in a) basic case, b) if potential grading is used.

5. The maximum temperature rise of conductor is 80 degrees, the mass 145 kg/km, specific heat 910 Ws/°C kg and resistance 0,673 ohms/km. Calculate the allowed 1 second short circuit current.

Please answer to all the five questions !.