St clements University Higher Education School-Nice

HighLight computer Group

IQY Technical college

Each-10marks
ALL-100 marks

BAE501 Advanced Power system

(1) Line to Line voltage is 11KV, Inductive Reactance = 5Ω capacitance/ph to neutral = 0.01μF calculate restriking voltage.

(2) A 3ϕ inter connector with an equal voltage at each end has a rating per phase of 16.5 KVA and resistance of Line & inductive reactance of 1.5% and 6.5% respectively. A phase difference between sending and receiving end voltage is 10°. calculate power transfer and show clearly the difference direction of power flow.

(3) One circuit of a 1ϕ line composes of 3 solid wires. Each 0.1" radius. The return circuit is composed of 2 wires. Each 0.1" in radius. The arrangement of the conductor is as shown. find the inductance due to current in each side of Line.

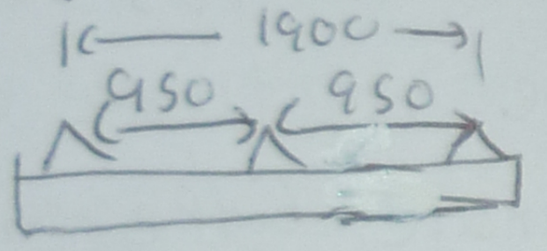
(4) A 25 MVA 13.2KV alternator with solid ground neutral has $X_d'' = 0.25$ Pu, $X_2 = 0.35$ Pu, $X_0 = 0.1$ Pu L-G Fault occurs. Find fault current & Line to Line voltages.

(5) Each unit of string of three suspension insulator has a capacitance to neutral equal to 10% of it's self capacitance, calculate the voltage across each insulator. Find string efficiency

(6) measurement on a two terminal pairs network yield the following values.

$Z_{SO} = Z_{RO} = 20\Omega$. $Z_{SS} = Z_{RS} = 5\Omega$ Find A, B, C D constants of the network.

(7) 19 Strands, copper, 2mm diameter



find line inductance/km

(8) 11.5 kV, 32.75 mUA, 0.8PF, 100 mUA base

$X_d = 70.14\%$ $X_d' = 79.1\%$ $X_d'' = 57.3\%$

$X_d = 0.7014\%$ $X_d = 0.54\%$ $X_d'' = 0.573$

(9) what are the requirements on voltage waveforms in hybrid renewable generation units in stand alone mode

(10) Explain the basic principle of power flow control.