جامعة المنوفية - كلية الهندسة - قسم الكهرباء - امتحان الدراسات العليا (ماجستير)

دور مايو ٢٠١٦

المادة : كابلات الجهد العالي الزمن : ٣ ساعات

Answer these questions

1- A high voltage single core cable of length $l = 1$ km, diameter of conductor $d_1 = 2.5$ cm and the outer diameter $d_2 = 7.5$ cm. If $\varepsilon_r = 5$, $\tan\delta = 0.075$, $f = 50$ Hz and $V_{3\phi} = 11$ K.V.

(a) Find charging current and dielectric loss for this cable.

(b) Prove the formula you used

2- Drive the equation of discharge inception voltage due to void for high voltage cable insulation

3- For coaxial cable of length (l), internal radius (a) and external radius (b). If dielectric material constant is ε_r, surface charge (q) and potential difference is V. Prove that: the stored energy in this cable is:

$$W_E = \frac{qV}{2}$$

4- A high voltage cable of conductor radius 1 cm and overall radius 4 cm. If $E_{max} = 40$ K.V/cm Find:

operating voltage.

If the cable be graded so that $\varepsilon_{r_1} = 5$, $\varepsilon_{r_2} = 4$, $\varepsilon_{r_3} = 3$ and E_{max} is constant Find the operating voltage.

Prove the formula you used

تمنياتي بالتوفيق

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