R09

Code No: C5608

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

M.Tech I Semester Examinations, March-2011

EXTRA HIGH VOLTAGE TRANSMISSION

(POWER SYSTEMS HIGH VOLTAGE)

Time: 3hours **Max. Marks: 60**

Answer any five questions

All questions carry equal marks

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1.a) What are the problems encountered while transmitting power using EHV AC transmission?

b) Explain different mechanical considerations in the performance of EHV AC lines. [12]

2.a) What is a bundled conductor ? Explain its properties.

b) A 3- phase 750 KV horizontal line has minimum height of 14m, rag at mid span = 4m, phase spacing 17m. Conductors are 4x 0.035 m with bundle spacing if B= 0.4572m. Calculate per km, the values of zero, positive, and negative sequence inductances of a transposed line. [12]

3. Explain the diagonalization procedure of the capacitance matrix of transposed and un- transposed line. [12]

4. The outer cylinder of a cage is 2 meters in diameter. A single conductor 4cm in diameter is strung concentric with it and the arrangement is 30m long. Calculate
   i) The surface voltage gradient (gradient factor) on the conductor.
   ii) The capacitance of the arrangement, and
   iii) The surge impedance. [12]

5. Obtain different types of corona loss formulas and discuss their limitations and advantages. [12]

6. Explain the generation and characteristics of audible noise EHV A.C. lines. What are the factors on which the audible noise depends upon? State the limits for audible noise. [12]

7. Explain Cascade connection of shunt and series compensation in voltage control of EHV A.C lines. [12]

8. Explain various types of SVC schemes used in EHV A.C lines. [12]

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