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Total No. of Pages : 01

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M.Tech.(Pow Engg.) (E-I) (Sem.–2)

EHVAC TRANSMISSION

Subject Code : PEE-514

Paper ID : [E0490]

Time : 3 Hrs. Max. Marks : 100

INSTRUCTION TO CANDIDATES :

1. Attempt any FIVE questions out of EIGHT questions.
2. Each question carries TWENTY marks.

Q1. Explain the term bundled conductor. Describe a typical bundled conductor used for 400 kVA AC overhead line. Explain the properties of the materials used in overhead transmission line.

Q2. Describe a typical rigid tower for a 400 kVA single circuit line.

Q3. What is the significance of temperature rise on the life of conductor and losses in transmission line? Describe the Kelvin's law of economic cross-section of conductor.

Q4. Explain the terms: transient stability, steady state stability and voltage stability. How are they related with transmission systems?

Q5. A 3 phase overhead line has conductor spacing of 5.5 m and conductor diameter of 3 cm. Atmospheric pressure is 740 mm of Hg and temperature is 10°C. Conductor surface irregularity factor is 0.9. Line is operated at 420 kV at 50 Hz. Calculate fair weather corona loss per phase by peeks formula.

Q6. Define the electrostatic field of EHV line. Draw and explain the electrostatic field of 3 phase double circuit AC line.

Q7. Explain the operation of surge arrester and the protective characteristics. A surge voltage has peak value of 6000 kV p. The protective level of the surge arrester is 450 kV p. The surge impedance is 500 Ω. Calculate surge current through the arrester.

Q8. Write short notes on the following :

i) Series compensation.

ii) Types of circuit breakers for EHV AC system.