Roll No. | | | | | | | | | | | | Total No. of Pages : 02

Total No. of Questions : 08

M.Tech.(Power System) (E-I) (Sem.–2)

EHVAC TRANSMISSION

Subject Code : PEE-514

M.Code : 38814

Time : 3 Hrs. Max. Marks : 100

INSTRUCTIONS TO CANDIDATES :

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

Q1 What are the various configurations of tower? Explain with neat diagrams and compare them from the point of view of applications with reasoning. (20)

Q2 (a) Derive the expressing determining the thermal rating of EHVAC Line transmission? (10)

(b) Explain the importance of current carrying capacity and temperature rise in conductor for design of line. (10)

Q3 (a) Discuss the method of line of charge and their properties. (10)

(b) Derive the formula based on voltage gradient for corona loss. (10)

Q4 (a) Derive expression for capacitance of long objects under transmission lines. (10)

(b) Discuss the electrostatic effect due to 3 phase single and double circuit EHV AC Lines. (10)

Q5 Compute the *rms* values of ground level electrostatic field of a 400KV line at its maximum operating voltage of 420KV (L-L) given in the following details :

Single circuit horizontal configuration H = 13 m, S = 12m, Conductor 2 × 3.18cm, B = 45.72cm. Vary the horizontal distance along ground from the line centre from 0 to 3H = 39H. (20)

Q6 (a) Explain the lightening arresters and protective characteristics in details. (10)

(b) A 750KV bushing is protected by gaps, which withstand 2PO power frequency voltages. Determine their 50% flash over value under 50Hz, lightening impulse voltage if :

(i) Rod plane gap is used and

(ii) Rod-rod gap is wed. (10)

Q7 What are the criteria for designing EHV lines based on steady state limits and other parameter. (20)

Q8 (a) Surge Arrester (5)

(b) Transient over voltage in EHV AC (5)

(c) Radio Interference (5)

(d) EHV AC Circuit Breakers. (5)

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.