Total No. of Questions : 8] SEAT No. :

P2296 [Total No. of Pages : 3

[5254]-630

B.E. (Electrical)

EHV AC TRANSMISSION

(2012 Pattern) (Semester – I)

Time : 2½ Hours] *[Max. Marks : 70*

Instructions to the candidates:

1) ***Answer all questions.***
2) ***Answer Q1 or Q2, Q3 or Q4, Q5 or Q6, Q7 or Q8.***
3) ***Neat diagram must be drawn wherever necessary.***
4) ***Figures to the right indicate full marks.***
5) ***Assume suitable data, if necessary.***
6) ***Use of calculator is allowed.***

Q1) a) Derive expression for capacitance of single phase two conductor line. **[8]**

b) Explain the field of a sphere gap. **[8]**

c) Describe measures taken to minimize the damage due to the different types of vibrations of the transmission line. **[4]**

OR

Q2) a) Derive expression for inductance of multi conductor lines & state Maxwells coefficients. **[8]**

b) Derive expression for maximum charge condition on a 3 phase line. **[8]**

c) Explain what is effect of temperature on overhead conductors? **[4]**

Q3) a) Derive expression for electrostatic induction on unenergied circuit of double circuit line. **[10]**

b) Discuss effect of high electrostatic field on : **[8]**

i) Humans

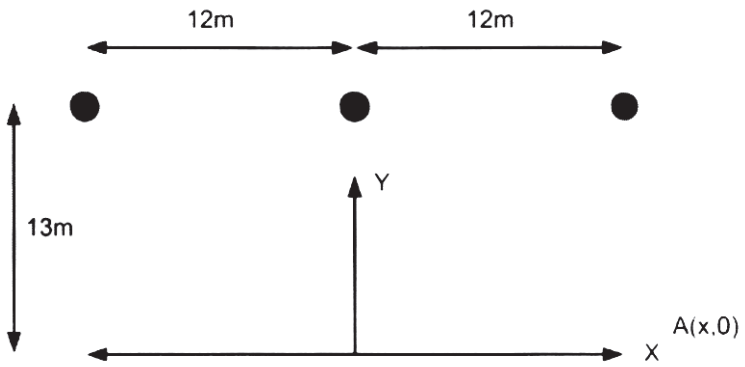
ii) Animals

iii) Plants

OR

P.T.O.

Q4) a) Compute the r.m.s value of ground level electrostatics field of a 400 kV Line at its maximum operating voltage of 420 kV given : single circuit configuration H = 13m, S = 12m, conductor 2*3.18cm diameter, B = 45.72cm, N = 2, Assume Di = Di **[10]**



b) Discuss effect of power frequency magnetic fields on human health and specify permissible limits. **[8]**

Q5) a) Explain audible noise operation & characteristic limits for audible noise in Corona. **[8]**

b) State and explain advantages & disadvantages of corona in brief. **[8]**

OR

Q6) a) State and explain the mechanism of corona formation & define terms **[8]**

i) Corona inception voltage.

ii) Visual corona voltage.

b) State and explain at least 4 formulae for power loss due to corona. **[8]**

Q7) a) State and explain factors to be considered during design of EHV line based upon steady state limits. **[8]**

b) Give classification of cable & explain any one in detail. **[8]**

OR

Q8) a) Define tan δ loss factor & derive an expression for insulation resistance of a cable. **[8]**

b) Explain in detail properties of cable insulation materials. **[8]**