

SE - sem - IV - old - Electrical

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22/12/15

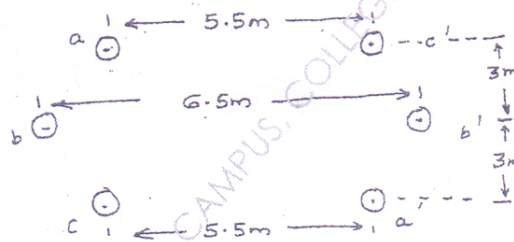
QP Code : 1534

(3 Hours)

[Total Marks :100

- N.B. : (1) Question no. 1 is compulsory.
(2) Answer any four from remaining six.
(3) Assume suitable data if necessary.

1. (a) Explain tuned power lines 5
(b) Explain advantages of p.u. system 5
(c) Explain step potential 5
(d) Explain proximity effect 5
2. (a) Derive an expression for inductance of a single phase line with solid conductors. Explain assumptions made. 10
(b) The three conductors of a 3 phase transmission line are arranged in a horizontal plane are 3m apart. The diameter of each conductor is 4cm. Determine inductance per phase per km of a line. 10
3. (a) Derive an expression for capacitance of a three phase line with symmetrical spacing. 10
(b) Determine the inductance of the double circuit line shown in fig. The self GMD of the conductor is 0.0069m. 10



4. (a) Explain measurement of earth resistance and soil resistivity. 10
(b) Obtain ABCD parameters of a line having medium length represented by π model. 10
5. (a) Find the sending end voltage and current for a 100km, 3 phase, 50Hz transmission line delivering 20MW at 0.8 pf lag at 66kV at receiving end. It has a resistance of 0.1 ohm per km, an inductive reactance 35.1 Ω and a capacitance of 0.9954 μF per phase. 10
(b) Explain any one method of grading of cable. 10

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6. (a) Explain voltage distribution over insulator string, hence explain methods to improve string efficiency. 10
- (b) A three phase line is supported by suspension string having three units. The voltage across the unit nearest to the line is 20kV and that across the adjacent unit is 15kV. Find (a) ratio of capacitance of joint to capacitance of disc. 10
(b) system line voltage (c) string efficiency.
7. (a) Explain methods of neutral earthing 10
(b) Explain tower footing resistance 5
(c) Explain skin effect. 5
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