

SATHYABAMA UNIVERSITY

(Established under section 3 of UGC Act,1956)

Course & Branch :B.E - EEE

Title of the Paper :Transmission & Distribution Max. Marks :80

Sub. Code :414506/514405/614401

Time : 3 Hours

Date :26/04/2010

Session :FN

PART - A

(10 x 2 = 20)

Answer ALL the Questions

1. What are the limitations of increasing the transmission voltage level to very high value?
2. What are the limitations of Kelvin's law?
3. List the advantages of bundled conductors.
4. What do you mean by self G.M.D?
5. What is the effect of load power factor on regulation and efficiency of a transmission line?
6. What is tuned power line?
7. What are the advantages of underground cable when compared to over head transmission system?
8. Define string efficiency.
9. What is the role of arcing ground?
10. Write the function of lightning arresters.

PART – B

(5 x 12 = 60)

Answer All the Questions

11. (a) Draw and explain the line diagram of a typical transmission and distribution scheme. Indicate clearly the voltage levels used at different stages.

(b) Compare A.C systems and D.C. systems used in transmission and distribution.

(or)

12. Briefly explain with help of neat diagram of the following

(a) SVC

(b) STATCOM

13. (a) Derive the expression for inductance of a single phase two wire line.

(b) Calculate the loop inductance per km of a single phase transmission line consisting of two parallel conductors 1.5m apart and 1.5 cm in diameter. Calculate also the reactance of the transmission line if it is operating at a frequency of 50 Hz.

(or)

14. (a) Derive the expression for capacitance of a single phase line.

(b) A single phase transmission line has two parallel conductors 5m apart, radius of each conductor being 1.5cm. Calculate the capacitance of the line per km. Given that $\epsilon_0 = 8.854 \times 10^{-12}$ F/m.

15. A 3 phase line delivers 3000 Kw at a p.f of 0.8 lagging to a load. If the sending end voltage is 33 kV, determine

(a) Receiving end voltage

(b) Line current

(c) Transmission efficiency.

The resistance and reactance of each conductor is 5 ohm and 8 ohm respectively.

(or)

16. Explain the procedure to draw the receiving end and sending end power angle diagram.

17. (a) List the types of insulators. (4)
(b) Draw and explain the construction details of pin type insulator. Also state its merits and demerits. (8)
(or)
18. (a) Name the types of underground cables. (3)
(b) Draw and explain the general construction of under ground cables. (9)
19. Write short notes on
(a) Peterson coil
(b) Surge absorbers
(or)
20. Explain in detail any two causes for over voltages.