SATHYABAMA UNIVERSITY
(Established under section 3 of UGC Act, 1956)

Course & Branch: B.E - EEE
Title of the paper: Transmission & Distribution
Semester: V   Max. Marks: 80
Sub.Code: 414506   Time: 3 Hours
Date: 15-11-2008   Session: FN

PART – A   (10 x 2 = 20)
Answer All the Questions
1.   Mention the components of a distribution system.
2.   State Kelvin's law.
3.   What is meant by transposition of power conductors?
4.   List the advantages of bundled conductors.
5.   What is meant by surge impedance loading?
6.   At what condition, Ferranti effect occurs?
7.   What is the need for grading the cables?
8.   Define: Thermal Resistance.
9.   What is meant by arcing grounds?
10. Mention the reasons for insulation failure.

PART – B   (5 x 12 = 60)
Answer All the Questions
11. (a) Explain with neat sketches, the different types of HVDC systems.
                                                              (8)
     (b) Enumerate the advantages of Flexible AC Transmission Systems.
                                                              (4)
                              (or)
12. (a) Describe the single Bus bar arrangement with relevant diagram.

     (b) Classify the different types of substation.

13. A 3 phase 3 wire systems consisting of 1cm diameter conductors spaced 2m apart in a horizontal plane, supplies a balanced, load. Calculate the inductance per Km of each conductor. Derive the relevant formula used.
                              (or)

14. (a) A single phase overhead line 30km, long consists of two parallel wires each 5mm is diameter and 1.5m apart. If the line voltage be 50KV at 50Hz. Calculate the charging current with the line open circuited.

(b) Write short notes on "CORONA".

15. A 3 phase, 50Hz 100 km transmission line has the following data:

Resistance / phase / Km = 0.1 Ω.
Reactance / phase / Km = 0.5Ω
Susceptance / phase / Km = 10^{-5} Mho.

If the line supplies a load of 20 MW at 0.9 power factor lagging at 66KV at the receiving end. Calculate

(v) Sending end current
(vi) Sending end voltage
(vii) Regulation
(viii) Transmission efficiency.

Use Nominal - π method.

(or)

16. (a) Explain the step by step procedure to construct the receiving end circle diagram.

(b) Briefly explain the different methods of voltage control.

17. (a) Explain the different types of insulators.

(b) A string pof 4 insulators has self capacitance equal to 5 times the pin to earth capacitance. Calculate the voltage distribution across various units and string efficiency.

(or)

18. (a) Describe the construction of a single core underground cable with relevant sketches.

(b) Derive the expression for capacitance of a single core cable.

19. Explain the various methods of protection against over voltages.

(or)

20. Write short notes on
(a) Peterson Coil
(b)Surge absorbers.