

ANNA UNIVERSITY COIMBATORE

B.E. / B.TECH. DEGREE EXAMINATIONS : MAY / JUNE 2010

REGULATIONS: 2007

FOURTH SEMESTER : EEE

070280031- GENERATION TRANSMISSION AND DISTRIBUTION

TIME : 3 Hours

Max.Marks : 100

PART – A

(20 x 2 = 40 MARKS)

ANSWER ALL QUESTIONS

1. Why all transmission and distribution systems are 3 phase systems?
2. Mention the transmission voltages that are used in India?
3. What are service mains?
4. State the advantages and disadvantage of steam power station.
5. What is skin effect?
6. What is meant by transposition of line conductors?
7. What is a bundle conductor? Mention the advantages of using bundled conductors.
8. Define proximity effect.
9. What are the units of ABCD (generalized) constants of a transmission line?
10. Mention the limitations of nominal T and π methods in the line problems.
11. What is power circle diagram?
12. What is the reason for the sag in the transmission line?
13. List the four parameters by which the performance of transmission lines are governed.
14. What is meant by charging current of a cable?
15. What is surge impedance loading?
16. Why the working voltage level of belted cables is limited to 22 kv?
17. Why power loss occurs in the dielectric of a cable?
18. Mention the demerits of HVDC transmission.

19. What are the advantages of SL cables over H- type cables?

20. What are the advantages of adopting EHV/UHV for transmission of ac electric power?

PART – B

(5 x 12 = 60 MARKS)

ANSWER ANY FIVE QUESTIONS

- 21.(a) Draw and explain the structure of modern electric power system with various voltage levels. (8)
- (b) What do you mean by interconnection power stations? What are the advantages of interconnected system (4)
22. Draw and explain the schematic arrangement of steam power station.
- 23.(a) Derive an expression for loop inductance of a single phase overhead transmission line. (8)
- (b) Calculate the loop inductance per km of a single phase transmission line consisting of two parallel conductors 1.5m apart and 1.5cm in diameter. Calculate also the reactance of the transmission line if its operating frequency is 50 Hz. (4)
24. Show how regulation and transmission efficiency are determined for medium lines using (i) nominal T method (ii) nominal π method.

25. Using rigorous method, derive expression for sending end voltage and current for a long transmission line.
26. Elaborate various methods to improve the string efficiency.
27. Discuss and compare radial and ring main distribution system. What is the role of interconnectors in distribution system?
28. Write Short notes on the following FACTS devices STATCOM, SVC, TSCS, UPFC.

*******THE END*******