

Chapter 4 test: Transmission Circuits

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Class: ELT 211 _____ Date: _____

Carefully read each question, and circle the letter next to the correct answer.

1. What invention made AC transmission possible?
 - a. The transformer
 - b. Converter stations
 - c. ACSR conductor
 - d. Air core reactor

2. Three phase AC systems operate at what frequency in the U.S. and Canada?
 - a. 30 Hz
 - b. 50 Hz
 - c. 60 Hz
 - d. 80 Hz

3. What has happened to AC transmission voltages since the early 1900's?
 - a. Voltage have dropped
 - b. Voltages have risen
 - c. Voltages have stayed the same
 - d. Voltages have peaked

4. What factors should be considered in determining the necessity the larger amounts of money for an underground transmission system?
 - a. City ordinances
 - b. The congestion, and the appearance of the area where the circuit is to be installed.
 - c. The need to provide mechanical protection for the circuit
 - d. All of the above

5. DC transmission systems can be bipolar or monopolar.
 - a. True
 - b. False

6. What serves as the link between AC and DC systems?
 - a. Coupling capacitors
 - b. Disconnect switches
 - c. Converter stations
 - d. Surge arrestors

7. Almost all AC transmission lines have how many phases?
 - a. One
 - b. Two
 - c. Three
 - d. Four

8. Three phase motors are usually cheaper and more efficient than two phase, or single phase motors.
 - a. True
 - b. False

9. Why are transmission lines operated at such high voltages?
- For safety purposes
 - For clearance purposes
 - To deliver more power with a particular size of conductor
 - To avoid radio and TV interference
10. What is usually the load limiting factor of transmission circuits?
- Thermal conditions of the conductors
 - Voltage capacity of the conductors
 - Tower construction
 - Distance
11. Convection cooling by ambient air allows overhead conductors to carry _____.
- Lower currents than underground conductors
 - Higher currents than underground conductors
 - Lower voltages than underground conductors
 - Higher voltages than underground conductors
12. What kind of cable is used for underground transmission and subtransmission circuits?
- Crosslinked polyethylene
 - Ethylene propylene rubber
 - High pressure oil filled
 - All of the above

13. What advantage do underground DC circuits have over underground AC circuits?
- Lower cost
 - No induction losses
 - Easier installation
 - Better cooling
14. What limits the use of underground DC circuits?
- The cost of converter stations
 - Distance
 - Electric field generation
 - Safety
15. When considering a right of way for a transmission line, what factors should be considered?
- Visual impact
 - Corona generation, and associated radio and television interference
 - Natural land conditions
 - All of the above
16. When lines are constructed they should parallel streets and highways as much as possible.
- True
 - False
17. What is the reason for procuring a right of way much wider than necessary for line construction?
- For future expansion
 - For ease of access
 - More is better
 - To prevent tall trees from falling into the line

18. Are electric fields hazardous to humans?

- a. The effect of electric fields is compounded after years of exposure
- b. Only at extremely high voltages
- c. Exposure to electric fields is dangerous at any level
- d. No

19. Ionization of the air around energized high voltage transmission line conductors, when the voltage gradient exceeds the air withstand limits, establishes what condition?

- a. Corona
- b. Magnetic field
- c. Inductive reactance
- d. Homeostasis

20. Two converter stations can be located adjacent to each other to connect two AC transmission lines.

- a. True
- b. False