CHAPTER 7

Transmission Media

Review Questions

1. The transmission media is a separate entity located beneath the physical layer and controlled by the physical layer.
3. Guided media have physical boundaries, while unguided media are unbounded.
5. In twisted-pair cable and coaxial cable, the signal is in the form of an electric current. In fiber-optic cable the signal is in the form of light.
7. STP has a metal casing that prevents the penetration of electromagnetic noise.
9. Coaxial cable can carry higher frequencies than twisted pair cable and is less susceptible to noise.
11. In multimode, multiple beams of light from one source travel through the core in different paths. In graded-index multimode, the core's density is not constant but is higher in the center and decreases gradually to a lower density at the edge. In single mode, a step-index fiber is used with a highly focused source of light.
13. Noise resistance, less signal attenuation, and higher bandwidth
15. Ground propagation, sky propagation, and line-of-sight propagation.
17. In sky propagation radio waves radiate upward into the ionosphere and are then reflected back to earth. In line-of-sight propagation signals are transmitted in a straight line from antenna to antenna.
19. An IrDA port allows a wireless keyboard to communicate with a PC through infrared waves.

Multiple-Choice Questions

21. a
23. c
25. a
27. b
29. c

31. b
33. a
35. a
37. d
39. b
41. c
43. a
45. a

Exercises

47. dB = 10 $\log_{10}$ (90 / 100) = –0.46 dB
49. As the bandwidth increases, the effective distance decreases (due to increase in attenuation).
51. 6.67 x 10^{13} Hz