CHAPTER 16

LAN Performance

Multiple-Choice Questions

  1. c
  3. a
  5. d
  7. c
  9. c
11. c
13. d
15. c
17. a
19. b

Exercises

21.

    a. 250 m
    b. 2×10^8 m/s
    c. 1.25 microseconds
    d. 10 Mbps
    e. This must be given.
    f. $L_{frame\text{-}bit}$ / 10 Mbps (It depends on average frame bit-length.)
    g. 12.5 bits
    h. 12.5 / $L_{frame\text{-}bit}$ (It depends on average frame bit-length)

23.

    a. 1000 m
    b. 2×10^8 m/s
    c. 5 microseconds

   d. Assume C = 16 Mbps
   e. It must be given.
   f. For C = 16 Mbps, $L_{\text{frame-bit}}$ / 16 Mbps (It depends on average frame bit-length.)
   g. For C = 16 Mbps, 80 bits
   h. For C =16 Mbps, 80 / $L_{\text{frame-bit}}$ (It depends on average frame bit-length.)

25. 0.714

27. half, double

29. 0.37

31.

   a. Theoretical
       $P_{\text{success}} = 0.369$
       $N_{\text{slot}} = 1.704$
       $\mu = 1/ (1 + 3.409 \times \boldsymbol{a})$ Note: it depends on the value of *a*.
   b. Actual $\mu = 1/ (1 + 5 \times \boldsymbol{a})$ Note: it depends on the value of *a*.