Chapter 1 Practice Problem Solutions

1.1

A digital signal can only have a value that is within a finite set of possible values. There are infinite possible values that an analog signal can have.

Some possible examples of digital phenomena:

1. The light switch being either on or off
2. The page number that a book can be open to
3. The channel a television is set to

Some possible examples of analog phenomena:

1. The weight of an object
2. The brightness of a light source
3. The distance between two objects

1.2

00, 00, 01, 10, 11, 10, 01

Note: Commas added between each 2-bit value for visual clarity

1.8

a. 4

b. 11

c. 1

d. 63

e. 42

1.9

    a. 10

    b. 64

    c. 204

    d. 31

    e. 1497

1.18

    a. F0

    b. FF

    c. 5A

    d. 136D

1.20

    a. E7

    b. C8

    c. A4

    d. 336D

1.21

    a. 1111 1111

    b. 1111 0000 1010 0010

    c. 0000 1111 0001 0000 0000

    d. 0001 0000 0000

Note: Spaces added between each set of 4 bits are for visual clarity. For quizzes and in computer programs these spaces should not be included

1.23

    a. 1011 0000 1100 0100

    b. 0001 1110 1111 0000 0011

    c. 1111 0000 0000 0010

    d. 1011 1110 1110 1111

    Note: Spaces added between each set of 4 bits are for visual clarity. For quizzes and in computer programs these spaces should not be included

1.25

    a. 16

    b. 1251

    c. 4080

    d. 512

B.1

    a. 1.1

    b. 11.001

    c. 1000.01

    d. 111.11