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## CHAPTER 23

# *Electronic Mail: SMTP, POP, IMAP, and MIME*

### Exercises

1.

**MIME-version:** 1.1

**Content-Type:** Text/Plain

**Content-Transfer-Encoding:** 7bit

3.

a.  $1000 \times (8 / 24) = 333.3 \rightarrow 334$  blocks of 24 bits. Each block becomes 32 bits.

b. There are  $334 \times (32 / 8) = 1336$  bytes in the encoded message.

c. There are 336 redundant bytes.

d. The ratio of redundant bytes to the entire message length is  $336 / 1336$ .

5.

a. The efficiency in Exercise 3 is  $(1,000)/(1,336) = 75\%$ .

b. The efficiency in Exercise 4 is  $(1,000/1,200) = 83\%$ .

c. The efficiency is improved 8%.

7.

a. Original:

0101011	0000111	1111000	1010111	0111000	0101010
1	1	0	1	1	0

b. Encoded:

0101011	0000111	=F0	=AF	0111000	0101010
1	1			1	0

c. Bit Pattern:

01010111	00001111	00111101	01000110	00110000
00111101	01000001	01000110	01110001	01010100

9.

a. Original:

01010111	00001111	11110000	10101111	01110001
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b. Encoded:

01010111	00001111	=F0	=AF	01110001
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c. Bit Pattern:

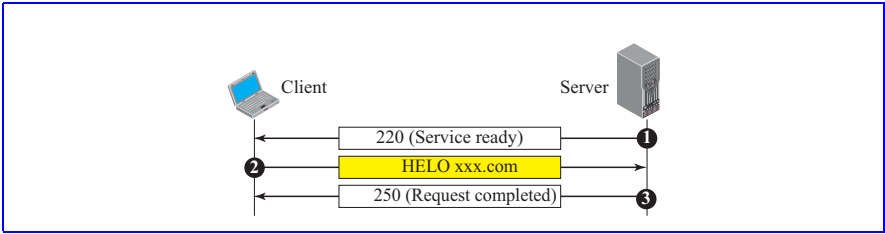
01010111	00001111	00111101	01000110	00110000
00111101	01000001	01000110	01110001	

11.

- a. The MAIL FROM: in the envelope contains the source e-mail address while the
- b. FROM in the header contains the name of the sender.

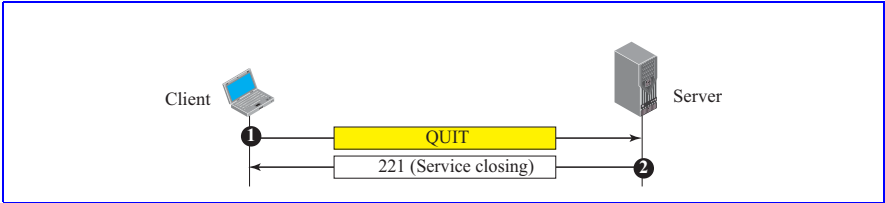
13. See Figure 23.E13.

Figure 23.E13 Solution to Exercise 13



15. See Figure 23.E15.

Figure 23.E15 Solution to Exercise 15



17. Figure 23.E17 shows both the original and the replay messages.

**Figure 23.E17** *Solution to Exercise 17*

