CHAPTER 20

SMTP

Exercises

1.

MIME-version: 1.1

Content-Type: Text/Plain

Content-Transfer-Encoding: 7bit

3.

$1000 \times 8 / 24 = 333.3$ ====> 334 blocks of 24 bits. Each block becomes 32 bits.
There are $334 \times 32 / 8 = 1336$ bytes in the encoded message.
There are 336 redundant bytes.
The ratio of redundant bytes to the entire message length is $336 / 1336 = 0.25$.

5.

The efficiency in Exercise 3 is $1,000/1,336 = 75\%$.
The efficiency in Exercise 4 is $1,000/1,200 = 83\%$.
The efficiency is improved 8%.

7.

a. Original:

| 01010111 | 00001111 | 11110000 | 10101111 | 01110001 | 01010100 |

b. Encoded:

| 01010111 | 00001111 | **=F0** | **=AF** | 01110001 | 01010100 |

c. Bit Pattern:

| 01010111 | 00001111 | 00111101 | 01000110 | 00110000 |
| 00111101 | 01000001 | 01000110 | 01110001 | 01010100 |

9.

a. Original:

01010111   00001111   11110000   10101111   01110001
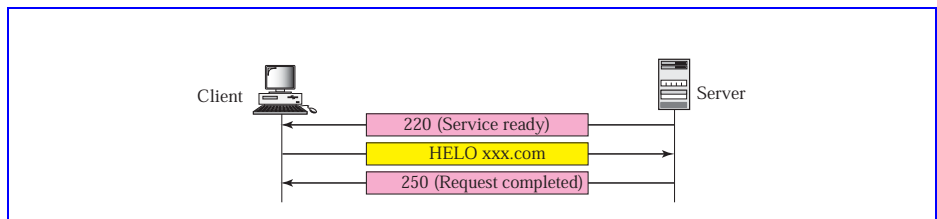
b. Encoded:

01010111   00001111   **=F0**   **=AF**   01110001

c. Bit Pattern:

01010111   00001111   **00111101**   **01000110**   **00110000**
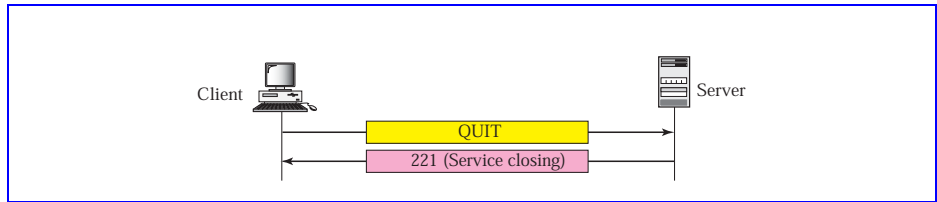**00111101**   **01000001**   **01000110**   01110001

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

13. See Figure 20.1.
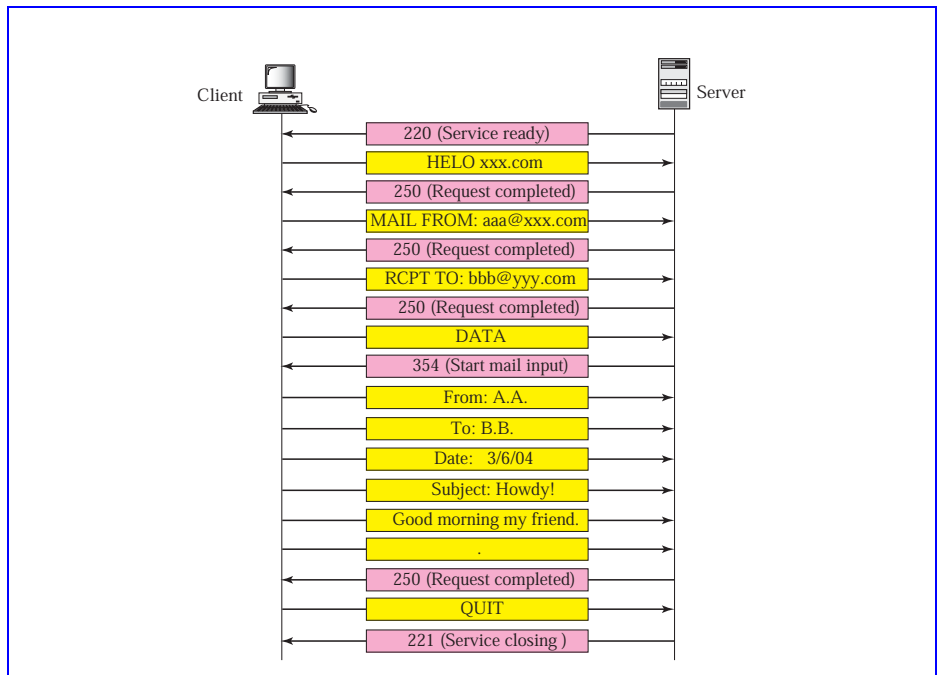
Figure 20.1   *Exercise 13*

15. See Figure 20.2.

Figure 20.2   *Exercise 15*

17.

    a. First a connection is established with yyy.com. Figure 20.3 shows the messages exchanged during this connection.

Figure 20.3   *Exercise 17, part I*

    b. First a connection is established with xxx.com. Figure 20.4 shows the messages exchanged during this connection.

Figure 20.4   *Exercise 17, Part II*

Client

Server

220 (Service ready)	←
HELO yyy.com	→
250 (Request completed)	←
MAIL FROM: bbb@xxx.com	→
250 (Request completed)	←
RCPT TO: aaa@yyy.com	→
250 (Request completed)	←
DATA	→
354 (Start mail input)	←
From: A. A.	→
To: B. B.	→
Date: 3/6/04	→
Subject: Reply	→
Thanks. How are you?	→
.	→
250 (Request completed)	←
QUIT	→
221 (Service closing)	←