CHAPTER 16

Stream Control Transmission Protocol (SCTP)

Exercises

1.

general header	12 bytes
DATA chunk #1 header	16 bytes
DATA chunk #1	22 bytes
padding	2 bytes
DATA chunk #2 header	16 bytes
DATA chunk #2	22 bytes
padding	16 bytes
Total	**92 bytes**

3.

general header	12 bytes
COOKIE-ECHO chunk	204 bytes
DATA chunk	36 bytes
Total	**252 bytes**

5.

a. Fragments: 21, 24, 26, 27

b. First fragment: **21**

c. No last fragment given

d. At least 3 middle fragments (22, 23, and 25) are missing

7. The host sends a SHUTDOWN ACK and goes to the **SHUTDOWN-ACK-SENT** state.

9.

a. ordered, because the U flag is not set

b. B = **0**, E = **0** means this is a middle fragment

c. length is 21, so 3 bytes of padding are needed

d. TSN = 5

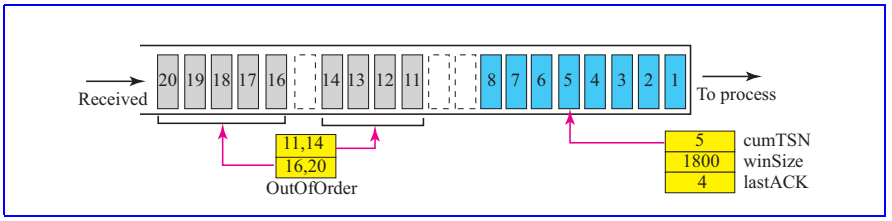
e. SI = 3

f. SSN = 10

g. message is 48656C6C67

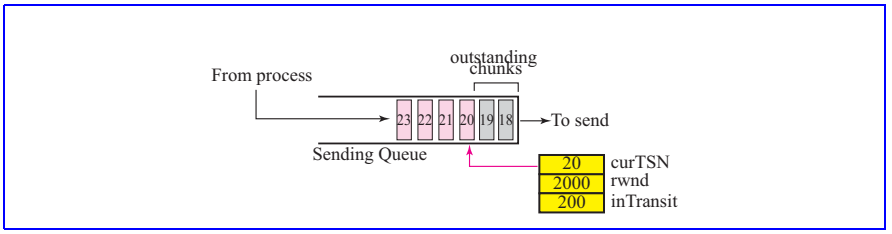
11. See Figure 16.E11. **Note that the value of cumTSN must be updated to 8.**

Figure 16.E11 *Solution to Exercise 11*



13. See Figure 16.E13. Chunks 18 and 19 are sent but not acknowledged (200 bytes of data). 18 DATA chunks (1800 bytes) can be sent, but only 4 chunks are in the queue. Chunk 20 is the next chunk to be sent.

Figure 16.E13 *Solution to Exercise 13*



15. See Figure 16.E15. We have filled the fields with available information. Each packet has the general header and the appropriate control chunk. Note that only the SHUTDOWN chunk has the cumTSN ACK, which acknowledges the receipt of the last packet.

Figure 16.E15 *Solution to Exercise 15*