CHAPTER 19

Domain Name System (DNS)

Exercises

1.

a. PQDN (It does **not** end with dot.)

b. FQDN (It does end with dot.)

c. PQDN (It does **not** end with dot.)

d. FQDN (It does end with dot.)

3. The following shows the individual fields.

QR	OpCode	AA	TC	RD	RA	Three 0's	rCode
0	**0000**	**0**	**0**	**1**	**0**	**000**	**0000**

The flag is then $(00000001\ 0000000)_2$ or $\mathbf{(0100)_{16}}$.

5. The flag 0x8F80 means $(\mathtt{10001111\ 10000000})_2$. This means

QR	OpCode	AA	TC	RD	RA	Three 0's	rCode
1	**0001**	**1**	**1**	**1**	**1**	**000**	**0000**

This is a response message from an authoritative server. The request was an inverse request with recursion desired and recursion was available. The message is truncated.

7. The size of a question record is not fixed because query name field is variable in length.

9.

Query name = **3** a t c **4** f h d a **3** e d u **0** = 14 bytes **Query type** = 2 bytes
Query class = 2 bytes **Question Record** = 14 + 2 + 2 = 18 bytes

11. Assuming that the domain name field is a pointer, the record is 22 bytes in length.

13. **Query name** = 10 c h a l l e n g e r 3 a t c 4 f h d a 3 e d u 0 = 25 bytes

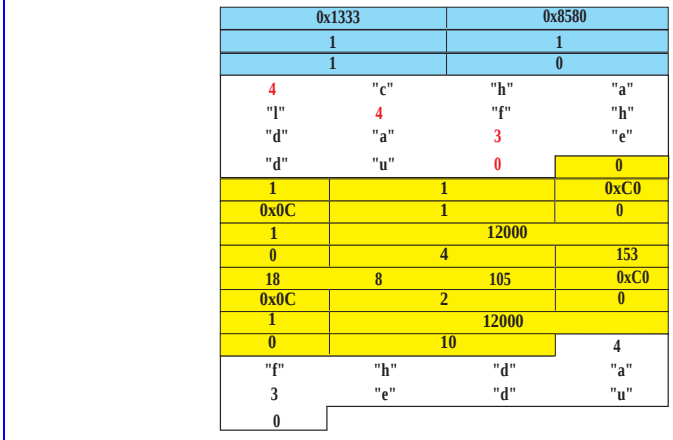
Header = 12 bytes **Query type** = 2 bytes **Query class** = 2 bytes

Query Message = 25 + 12 + 2 +2 = 41 bytes

15. The size of the response message depends on the number of digits in the requested IP address.

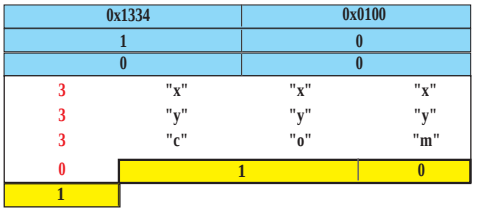
17. See Figure 19.E17.

Figure 19.E17 *Solution to Exercise 17*



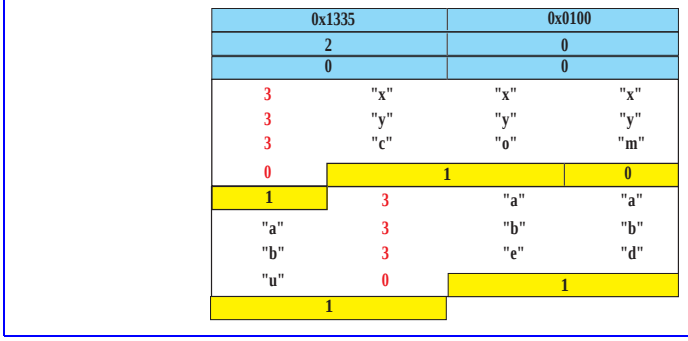
19. See Figure 19.E19.

Figure 19.E19 *Solution to Exercise 19*



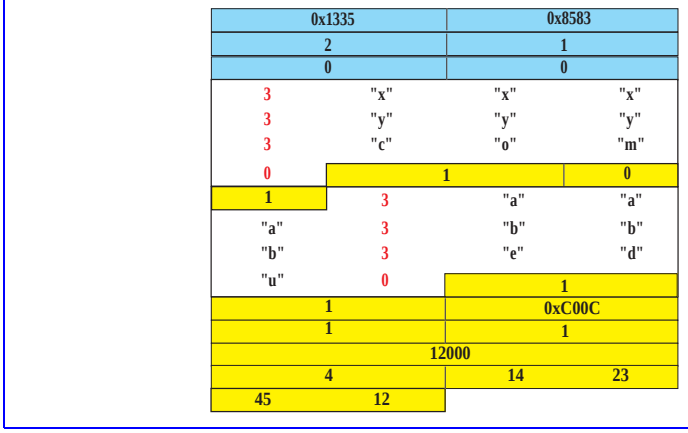
21. See Figure 19.E21.

Figure 19.E21 *Solution to Exercise 21*



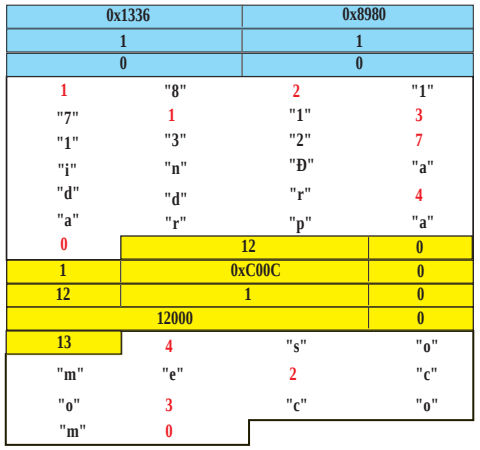
23. See Figure 19.E23.

Figure 19.E23 *Solution to Exercise 23*



25. See Figure 19.E25.

Figure 19.E25 *Solution to Exercise 25*



27. See Figure 19.E27.

Figure 19.E27 *Solution to Exercise 27*