CHAPTER 17

Domain Name System (DNS)

Exercises

- 1.
 - a. PQDN
 - b. FQDN
 - c. PQDN
 - d. FQDN
- 0000000100000000 = 0x0100
- 5. 10001111110000000 = 0x8F80

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.

```
Query name = 3 at c 4 fh 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 17.1.

Figure 17.1 Exercise 17

0x1333 1		0x8580 1	
4	"c"	"h"	"a"
"]"	4	"f"	"h"
"d"	"a"	3	"e"
"d"	"u"	0	0
1	1		0xC0
0x0C	1		0
1	12000 4 153		
0	4	4	
18	8	105	0xC0
0x0C			0
1	12000		
0	10		4
"f"	"h"	"d"	"a"
3	"e"	"d"	"u"

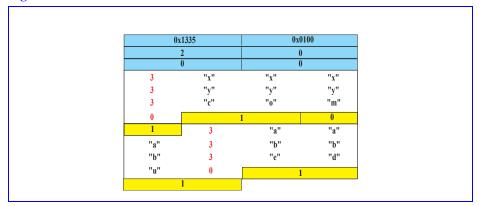
19. See Figure 17.2.

Figure 17.2 Exercise 19

0x1334		0x0100	
	1	0	
	0		
3	"x"	"x"	"x"
3	"y"	"y"	"y"
3	"c"	"0"	"m"
0	1		0
1		'	

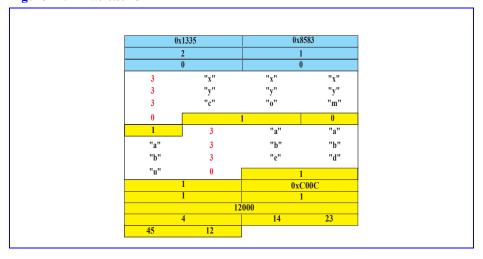
21. See Figure 17.3.

Figure 17.3 Exercise 21



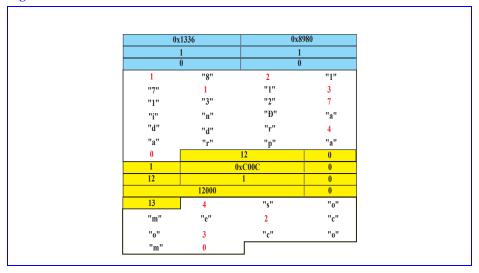
23. See Figure 17.4.

Figure 17.4 Exercise 23



25. See Figure 17.5.

Figure 17.5 Exercise 25



27. See Figure 17.6.

Figure 17.6 Exercise 27

	53		Ephemeral port number	
	53		Checksum	
	0x1334		0x8180	
1		1		
	0		0	
3	"x"	"x"	"x"	
3	х "v"	х "v"	х "v"	
3	3	,	J	
3	"c"	"0"	"m"	
0	1		0	
1	0xC00C		0	
1	1		0	
	12000		0	
4	201	34	23	
12				