

HTTP Tutorial Sample Solutions

Question 1

Explain the meaning of the text on each line of the two HTTP messages below. First message:

```
GET /local/list.txt HTTP/1.1
Accept: text/*
Host: www.inf.kcl.ac.uk
```

Second message:

```
HTTP/1.0 200 OK
Content-type: text/plain
Content-length: 51
```

```
Item 1 (notice empty line before this one)
Item 2
```

Sample solution

The first message is a request message. It specifies that the request method used is GET, the resource requested is /local/list.txt and the protocol is HTTP/1.1. These items constitute the start (request) line of the request message. The fields Accept and Host are part of the request headers of the message. They state the name of the host the message is intended for and the type of response accepted: all subtypes of the type text.

The second message is a response message. The status line informs the browser that the protocol the server uses is HTTP/1.0 and that the request was successful. The entity header describes one entity of type text/plain and its size: 51 bytes. The entity body follows after a blank line, with an application-specific meaning.

Question 2

A file named desirable.doc is stored in directory **/home/web/department/resources** on a host with IP address **137.73.9.232/23**. The domain names **www.smiles.ac.uk** and **all.smiles.ac.uk** both resolve to this IP address. On the host, HTTP server software is running on TCP port **9090**. This software is configured to map virtual host **www.smiles.ac.uk** to document root **/home/web/department/main** and **all.smiles.ac.uk** to document root **/home/web**. Write an HTTP URL for the file desirable.doc.

Sample solution

<http://all.smiles.ac.uk:9090/department/resources/desirable.doc>

Question 3

Translate the following sequence of hexadecimal numbers using base64 encoding:

- a) 48
- b) 48, 65
- c) 48, 65, 6C

base64 encoding table

0	A	8	I	16	Q	24	Y	32	g	40	o	48	w	56	4
1	B	9	J	17	R	25	Z	33	h	41	p	49	x	57	5
2	C	10	K	18	S	26	a	34	i	42	q	50	y	58	6
3	D	11	L	19	T	27	b	35	j	43	r	51	z	59	7
4	E	12	M	20	U	28	c	36	k	44	s	52	0	60	8
5	F	13	N	21	V	29	d	37	l	45	t	53	1	61	9
6	G	14	O	22	W	30	e	38	m	46	u	54	2	62	+
7	H	15	P	23	X	31	f	39	n	47	v	55	3	63	/

Sample Answer

a) Encoding steps:

- 48 = 01001000 in binary.
- In 4 x 6-bit chunks: 010010 000000 =
- In decimal: 18 0 = =
- In base64: SA==

b) Encoding steps:

- 48 = 01001000; 65 = 01100101 in binary
- In 4 x 6-bit chunks: 010010 000110 010100 =
- In decimal: 18 6 20 =
- In base 64: SGU=

c) Encoding steps:

- 48 = 01001000; 65 = 01100101; 6C = 01101100 in binary
- in 4 x 6-bit chunks: 010010 000110 010101 101100
- In decimal: 18 6 21 44
- In base 64: SGVs