7.5 If a DNS packet is lost it results in an increase in name resolution time. When a DNS request is sent a timer is started, if no response is received before the timer expires the request is resent.

7.7 Yes, the machine could have multiple network interfaces, each of which would have their own IP but the machine will still have a single DNS.

7.9 The top level server could be split into multiple servers, each responsible for names starting with a certain range of letters, such as a server for a-d, a server for e-g, etc.

7.13 base64 will result in every 4 bytes for every 3 bytes in the file resulting in 4096 bytes.

In addition every CR+LF pair will add 2 bytes for every 80 bytes

(4096/80)=51.2

4096 + (52 \* 2) = 4200 bytes

7.16 The MIME partial subtype could be used. The partial subtype allows files to be delivered as separate pieces of mail then reassembled by the receivers email client.

7.26 The server can receive a request every 500 nano seconds and it can take up to 9msec for a server to process. Therefore to make sure the CPU is busy at all times the number of modules required is:

(9/1000 sec)/(500/1000000 sec) = 18 modules

7.28 Before performing a DNS lookup the browser checks to see if the URL contains four 8 bit numbers, separated by periods, if that is the case the browser knows it’s the IP address.

7.48 The bandwidth delay product is 50,000 bits. Therefore the high watermark should be at least 50,000 bits from the top and the low watermark should be at least 50,000 bits from the button.