1) Because when you connect to a domain’s IP, it is usually stored on several servers, so it returns a set of IP addresses, from where the several servers are located.

2) If you have multiple TCP connections to a website, you can download data faster, because each connection can aid in downloading data simultaneously. There is also less chance for the download to fail, since there are multiple connections. Requests can also be processed faster. Since there are many connections, the web server performance may be impacted. The amount of bandwidth can also be impacted, since there are multiple connections running at the same time.

3) No, there are usually systems in place on the receiving end to make sure the data is received. It is not the duty of the sending computer to check this.

4) UDP would fix the issue of the large overhead of creating and destroying threads, although it would create another issue of losing data. You could create parallel threads for similar processes that are running at the same time.

5) N people communicate with N-1 people.

(N\*(N-1)) / 2 pairings

Since public key encryption is used, there must be 2N keys.

6) p=5 q=11 “hello”

a=1 b=2 K\_e = 7

n= 5\*11 = 55

f(n) = 4\*10 = 40

H=8 E=5 L=12 L=12 O=15

H=(8^7)mod(40) E=(5^7)mod(40) L=(12^7)mod(40) O=(15^7)mod(40)

Encrypted: H=6 E=5 L=8 L=8 O=15

m=(c^d)mod(n)

Decrypted: H=8 E=5 L=12 L=12 O=15