

Question 1

- IP Address: 150.203.161.98
- Command: dig www.cecs.anu.edu.au A

Question 2

- CNAME: rproxy.cecs.anu.edu.au
- Command: dig www.cecs.anu.edu.au CNAME
- IP of web server: 150.203.161.98
- An alias would be useful for this server as people are more used to typing in “www” in the URL to access the website, rather than the real name. Also, whoever owns it can run multiple services with different domain names, but still point to the same address. E.g. mail.google.com, maps.google.com, docs.google.com all point to google.com.

Question 3

- In the Authority section, it tells me what DNS servers can provide an authoritative answer to my query.
 - In the output, I can see that there are four DNS servers ns1 / ns2 / ns3 / ns4.cecs.au.edu which are responsible for the domain name.
- In the Additional section, it simply lists the IP addresses of DNS servers in the Authority Section.
 - As expected, there are four IP addresses listed with respect to the four DNS servers with authority.

Question 4

- The local IP address is 192.168.1.93.
- Found this in System Preferences of my Macbook, but this address is within the reserved range of 192.168.0.0 to 192.168.255.255 for private networks.

Question 5

- DNS Name Servers:
 - ns1.cecs.anu.edu.au. IP = 150.203.161.4
 - ns2.cecs.anu.edu.au. IP = 203.161.36
 - ns3.cecs.anu.edu.au. IP = 150.203.161.50
 - ns4.cecs.anu.edu.au. IP = 150.203.161.38

Question 6

- DNS Name: www.engineering.unsw.edu.au
- DNS Query: dig -x 149.171.158.109 +short

Question 7

- No there is NOT an authoritative answer.
- In the flags line of the DNS response message, there is no “AA” or Authoritative Answer flag.

Question 8

- Yes there is an authoritative answer as the flag “AA” exists in the DNS response message.

Question 9

- DNS Query to receive an Authoritative Answer for mail servers:
dig @ns1.yahoo.com yahoo.com MX
- Basically I queried yahoo’s Authoritative Name Server with the domain name + Mail Exchange record type.

Question 10

- Query 1: dig @198.41.0.4 lyre00.cse.unsw.edu.au .au Authoritative NS
- Query 2: dig @58.65.254.73 lyre00.cse.unsw.edu.au .edu.au Authoritative NS
- Query 3: dig @37.209.192.5 lyre00.cse.unsw.edu.au .unsw.edu.au Authoritative NS
- Query 4: dig @129.94.0.192 lyre00.cse.unsw.edu.au .cse.unsw.edu.au Authoritative NS
- Query 5: dig @129.94.242.2 lyre00.cse.unsw.edu.au lyre100.cse.unsw.edu.au A record
- Total of FIVE queries to find the IP of my machine = **129.94.210.20**

Question 11

- Yes a physical machine can have multiple names and IP addresses associated with it.
- An IP can have several names associated with it, the “aliases”.