(a) Provide five examples of resource-multiplexing in computer networks. In each case state the layer of the network stack where this takes place, which resource is multiplexed and the multiplexing mechanism. [2 marks each]

(b) A relative has contacted you for help; they believe the Internet is broken. The fault turns out to be that a piece of network-protection software had installed a specific IP address entry for an (alternative) default DNS server.

(i) What should have provided the correct DNS entry? [1 mark]

(ii) By concentrating on how DNS is intended to work, describe why network applications may not work correctly. [3 marks]

(iii) How would you diagnose this problem? [2 marks]

(c) DNS substitution may also be used maliciously.

(i) Outline how spyware might use an (alternative) DNS entry. [2 marks]

(ii) Describe a network-centric method for overcoming such treachery. [2 marks]