1. What is flooding? Explain the need for sequence number and age. (5 points)

2. Highlight the fundamental differences between distance vector and link-state routing approaches. (6 points)

3. An IP packet received by a router carries a payload of size 1500 bytes. The layer-2 protocol used by the router does not support payload sizes greater than 500, and thus needs to fragment the IP packet. Indicate the contents of the IP packets before and after fragmentation. Make some reasonable assumptions, and specify the values in the IP headers of every packet (the old packet and each fragment). (10 points)

4. Explain the advantages and disadvantages of NATs (a detailed answer, at least 10 to 15 lines, is expected) (9 points)

5. What are some compelling reasons that motivated IPv6? Why do you think IPv6 is not prevalent yet? (5 points)