Quiz #2 (20 minutes, 30 points)

1. [7 points] What was the original motivation for using NAT? Explain whether NAT is a good solution for that original problem.

    Motivation: IPv4 address depletion.
    Good: Allows reuse of addresses. No need to change hosts/routers.
    Bad: Hosts cannot be reached from outside. Breaks some applications. IPv6 is better.

2. [3 points] 5 PCs are going to share one public IP address. What type of NAT is this?

    IP masquerading, or
    NAPT, or
    PAT

3. [5 points] What's the role of a DHCP relay agent? Why is it needed?

    DHCP relay agent forwards DHCP packets between different subnets. It is needed when there are subnets that rely on DHCP servers on another subnet to configure hosts.

4. [4 points] What is the difference between a DNS domain and a DNS zone?

    DNS domain: any subtree in the logical tree of DNS namespace.
    DNS zone: a node or a subtree in DNS tree that is managed by a single organization.

    * Saying that one is a subset of another does not capture the essence of the terms very well.

5. [3 points] How do DNS resolvers or servers find out about root servers?

    Statically configured

6. [8 points] What is the advantage of using a DNS cache from the client point of view? What is the advantage from the authoritative server's point of view? What is the disadvantage of using a DNS cache, again from client's view and server's view?

	Resolver's view	Authoritative server's view
Advantage of DNS cache	Faster response time	Smaller number of requests
Disadvantage of DNS cache	May get stale record	Cannot 'push' updates immediately (But "no real disadvantage" is also an accepted answer.)