Part 1:  
  
1. The source IP address of my laptop is 10.0.1.192. The NAT protocol makes it to where no web server will have access to my computer’s IP.

2. The flag is 0x018 (PSH, ACK). This is on a packet that is being sent to the computer.

Part 2:

1. The results of test-ipv6.com:

* Your IPv4 address on the public Internet appears to be 38.147.37.3
* Your Internet Service Provider appears to be NORTHLAND-CABLE
* No IPv6 address detected
* You appear to be able to browse the IPv4 Internet only. You will not be able to reach IPv6-only sites.
* To ensure the best Internet performance and connectivity, ask you ISP about native IPv6.
* Your DNS serve (possible run by your ISP) appears to have IPv6 Internet access.

2. There is no IPv6 traffic in Wireshark.

Part 3:

1. DHCP is in the application layer.

2. 2 packets are detected by Wireshark.

3. First packet: 0.0.0.0. Second packet: 10.0.0.1

4. First packet: 255.255.255.255. Second packet: 10.0.1.192.

5. The Maximum DHCP Message Size is the maximum size that the DHCP client is willing to accept. The minimum legal value is 576 bytes.

Part 4:

1. The ICMP protocol has headers that include the Type (type of message), Code (sub-type of message), the checksum, the IP header of the original packet the message is created in response to, and at least 8 bytes of the data contained by the IP packet.

2. The seq number is being used to identify the message that a response is referring too. The response time is calculated by the time received – the time sent.

3. A long string of 48 bytes.

Part 4 (part 2):  
  
1. The packets that are being sent have ttl values that increase and there is an error message that is received: “Destination Unreachable”.

2. It does look like I am receiving error messages when I run traceroute as each packet says Destination Unreachable. This is expected however as it means that there is no message ICMP time exceeded message that can be returned as the packet has reached its destination.

3. The ttl value changes based on the destination IP address. This is because the ttl value will increase with each router that it has to go through in order to figure out the number of routers it took to get to the final destination.

4. Traceroute looks at the ttl to determine which router it is on as it is essentially a counter for number of routers from the source to the destination router.