**Wireshark Assignment (ARP)**

1. MAC address of source: 00:d0:59:b9:4d:28 (my computer)

2. Destination ethernet address is 00:06:25:df:bf:df. It is not the ethernet address of gaia.cs.umass.edu. It is the address of my Cisco switch, which is the link used to get off the subnet.

3. The hex value for the Frame type field is 0x0800. It indicates that the protocol used is IPv4.

4. The ASCII “G” appears 55 bytes from the start of the ethernet frame. There are 14 Bytes Ethernet frame, and then 20 bytes of IP header followed by 20 bytes of TCP header before the HTTP data is encountered.

5. The hex value for the CRC field is present in at the end and has the value :

“0x0d0a 0d0a”.

6. The source address 00:06:25:df:bf:df is neither the Ethernet address of gaia.cs.umass.edu nor the address of my computer. It is the address of my Cisco Switch, which is the link used to get onto my subnet.

7. The destination ethernet address is 00:d0:59:b9:4d:28 (ethernet address of my computer).

8. The hex value for the Frame type field is 0x0800. It indicates that the protocol used is IPv4.

9. The ASCII “O” appears 55 bytes from the start of the ethernet frame. Again, there are 14 bytes of Ethernet frame, and then 20 bytes of IP header followed by 20 bytes of TCP header before the application layer data(http here).

10. The hex value for the CRC field is at the end of the data (Ethernet footer):

“0x0d0a 0d0a”.

11. The Internet Address column contains the IP address, the Physical Address column contains the MAC address, and the type indicates the protocol type.

12. The hex value for the source address is 00:d0:59:a9:3d:68. The hex value for the destination address is ff:ff:ff:ff:ff:ff, the broadcast address.

13. The hex value for the Ethernet Frame type field is 0x0806, for ARP. It indicates that the protocol used is ARP.

14. a) It begins from the 21st byte from the start.

b) Hex value for opcode field within the ARP-payload of the request is 0x0001, for request.

c) Yes, the ARP message containing the IP address 172.20.33.166 for the sender.

d) The field “Target MAC address” is set to 00:00:00:00:00:00 to question the machine whose corresponding IP address (172.20.33.1) is being queried.

15. a) The ARP opcode field begins 20 bytes from the very beginning of the Ethernet frame.

b) The hex value for opcode field within the ARP-payload of the request is 0x0002, for reply.

c) ”Sender MAC address” , with Ethernet address 00:06:25:df:bf:df for the IP address 172.20.33.1

16. Source MAC address: 00:06:25:df:bf:df

Destination MAC address: 00:d0:59:b9:4d:28

17. No reply in the trace. ARP requests are broadcast but ARP reply is unicast. So, we won’t be able to receive the message.