Internet Protocols Quiz #4

Name _____ Student ID _____

1. When a router receives an IPv4 datagram, it always performs three principal operations on the datagram based on the fields in the IP header. What are they?
   A. _____Decrement TTL_____ [5pts]
   B. _____Compute checksum_____ [5pts]
   C. _____Look up routing table_____ [5pts]
2. In IPv6, one of the three operations mentioned in Prob. 1 is no longer performed in the IP router. What is it? [5pts] _____Checksum computation_____
3. What is the 16-bit checksum value for a message (in hexadecimal) `E3 4F 23 96 44 27 99 F2`? _____1B00_____ (in hexadecimal) [15pts]
4. What is probably the only useful IPv4 option today? _____Router Alert_____ [5pts]
5. What does the fact that IP Header Length (IHL) field in the IPv4 header is not kept in the IPv6 header mean? _____IPv6 header has a fixed length_____ [10pts]
6. What is the IPv6 header length when no extension header is used in the packet? 40 bytes__ [5pts]
7. What is the correct order in the IPv6 datagram if it needs to carry the following extension headers? _____c-b-d-a_____ [10pts]

   a. TCP b. Routing c. Destination Options (without Routing Options) d. Fragment

8. Consider the following routing table. (Number the entries from 1 to 10, top to bottom.)

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활성 경로:
네트워크 대상      네트워크 마스크     게이트웨이       인터페이스    메트릭
          0.0.0.0          0.0.0.0      10.16.21.1    10.16.21.195     25
         10.16.21.0    255.255.255.0         연결됨    10.16.21.195    281
       10.16.21.195  255.255.255.255         연결됨    10.16.21.195    281
       10.16.21.255  255.255.255.255         연결됨    10.16.21.195    281
          127.0.0.0        255.0.0.0         연결됨       127.0.0.1    306
          127.0.0.1  255.255.255.255         연결됨       127.0.0.1    306
    127.255.255.255  255.255.255.255         연결됨       127.0.0.1    306
      163.152.161.0    255.255.255.0         연결됨  163.152.161.54    266
     163.152.161.54  255.255.255.255         연결됨  163.152.161.54    266
    163.152.161.255  255.255.255.255         연결됨  163.152.161.54    266
```

   A. How many entries match an IP datagram going to `163.152.161.54`? _____3_____[5pts]
   B. Which is the longest-prefix match? ____9th (or 163.152.161.54)_____ [5pts]
9. Once the binding is established between an MN and a CN in Mobile IPv6, what extension header is used in the datagram
   A. from MN to CN? _____Home Address option_____ [5pts]
   B. from CN to MN? _____Routing Header 2_____ [5pts]
10. Your destination address is `2001:db8:1::1`. If you have `2001:db8:1::2` and `2001:db8:3::2` as candidates for source addresses,
   A. Which should be chosen as the source address? _____2001:db8:1::2_____ [5pts]
   B. According to which rule? _____longest-prefix match_____ [10pts]