P4. Consider the following string of ASCII characters that were captured by Wireshark when the browser sent an HTTP GET message (i.e., this is the actual content of an HTTP GET message). The characters <cr><lf> are carriage return and line-feed characters (that is, the italized character string <cr> in the text below represents the single carriage-return character that was contained at that point in the HTTP header). Answer the following questions, indicating where in the HTTP GET message below you find the answer.

GET /cs453/index.html HTTP/1.1<cr><lf>Host: gaia.cs.umass.edu<cr><lf>User-Agent: Mozilla/5.0 (

Windows;U; Windows NT 5.1; en-US; rv:1.7.2) Gecko/20040804 Netscape/7.2 (ax) <cr><lf>Accept:ex

t/xml, application/xml, application/xhtml+xml, text/html;q=0.9, text/plain;q=0.8,image/png,\*/\*;q=0.5

M02\_KURO1557\_08\_SE\_C02.indd 168 12/02/20 4:08 PMPROBLEMS 169<cr><lf>Accept-Language: en-us,en;q=0.5<cr><lf>AcceptEncoding: zip,deflate<cr><lf>Accept-Charset: ISO-8859-1,utf-8;q=0.7,\*;q=0.7<cr><lf>Keep-Alive: 300<cr><lf>Connection:keep-alive<cr><lf><cr><lf>

A. What is the URL of the document requested by the server?

The URL of the document requested by the browser is, http://giai.cs.umass.edu/cs453/index.html. This is shown in the GET line, the first line of communication between the two communicating hosts.

B.What version of HTTP is the browser running?

The browser is running HTTP/1.1 shown directly following the GET message and before the first line return.

C. Does the browser request a non-persistent or a persistent connection?

The browser requests a persistent connection with the host. This can be understood because a message is sent stating “Keep-Alive”. This means that the connection should not terminate following the sending of the file requested. Had the server asked for the connection to close, then the connection would have been listed as non-persistent.

D. What is the IP address of the host on which the browser is running?

This question is unanswerable. The IP address is not contained in an HTTP message. In order to have such information, we would need access to the information present in IP datagrams.

E. What type of browser initiates the message? Why is the browser type needed an an HTTP request message?

The type of browser that initiated the message is Mozilla/5.0. The browser type is needed in an HTTP request message because the server may have to send a different types of the same object to different browsers (Kurose, 130 [INT’L Ed.]).