

ITS 323 – QUIZ 7A ANSWERS

First name: _____ Last name: _____

ID: _____

Total Marks: _____

out of 10

Question 1 [3 marks]

TCP at Host A sends 6 DATA segments, one immediately following another, to Host B. Each DATA segment has a transmission time of 10/2/15/5ms. Host B sends an ACK segment for each DATA segment received. Each ACK has a transmission time of 1ms. The one-way propagation time between A and B is 15/15/20/30ms. After transmitting an entire DATA segment, TCP starts a retransmission timer, with timeout value of 100/40/100/100ms.

If the third (3rd) DATA segment is lost, at what time does the retransmission of this DATA segment start if:

- a) TCP Basic Retransmission is used (no Fast Retransmit)? [1 mark]

Answer:

Time starts after first three segments are transmitted: 3 x DATAtransmission

Time expires after Timeout

Retransmission starts after: 3 x DATAtransmission + Timeout

DATAtransmission	10	2	15	5
Timeout	100	40	100	100
Answer	130ms	46ms	145ms	115ms

- b) TCP Basic Retransmission and Fast Retransmit are used? [2 marks]

Answer:

The third Duplicate ACK will be received when the 6th transmitted DATA frame is ACKed. The retransmission will start at this time.

6 x DATAtransmission + Propagation + ACKtransmission + Propagation

DATAtransmission	10	2	15	5
Propagation	15	15	20	30
ACKtransmission	1	1	1	1
Answer	91ms	43ms	131ms	91ms

Question 2 [3 marks]

Multiple choice. Choose only one answer.

- a) Which field in the TCP header is used for flow control?
- Sequence number
 - Acknowledgement number
 - Window**
 - Urgent pointer
- b) A Root DNS Server would most likely know the IP address of the DNS Server managing which domain?
- .com**
 - .co.th
 - .ac.th
 - .root.com
- c) A Root DNS Server would most likely know the IP address of the DNS Server managing which domain?
- .co.th
 - .com.au
 - ns.root.th
 - .th**
- d) Which HTTP request method is most likely used when submitting data from an HTML form to a server?
- GET
 - PUT
 - OPTIONS
 - POST**
 - HEAD
- e) After setting up a connection with ISN=0, a TCP sender receives 10,000 bytes from the application, and divides the data into segments each with 2,000 bytes of data. What is the sequence number in the TCP header of the third segment?
- 2000
 - 2001
 - 4000
 - 4001**
 - 6000
 - 6001
- f) After setting up a connection with ISN=0, a TCP sender receives 10,000 bytes from the application, and divides the data into segments each with 2,500 bytes of data. What is the sequence number in the TCP header of the third segment?

- i. 2500
- ii. 2501
- iii. 5000
- iv. 5001**
- v. 7500
- vi. 7501

Question 3 [2 marks]

The following shows the contents of a HTTP Request message and the resulting HTTP Response message.

Request

```
GET /~steven/tu130/ HTTP/1.1
Host: ict.siit.tu.ac.th
User-Agent: Mozilla/5.0 (Windows) Gecko Firefox/3.0.2
Accept: text/html,application/xhtml+xml
Accept-Language: en-gb,en;q=0.7,th;q=0.3
Accept-Encoding: gzip,deflate
Accept-Charset: UTF-8,*
Keep-Alive: 300
Connection: keep-alive
Referer: http://ict.siit.tu.ac.th/~steven/
```

Response

```
HTTP/1.0 200 OK
Date: Thu, 25 Sep 2008 09:08:17 GMT
Server: Apache/2.2.4 (Ubuntu) PHP/5.2.3-lubuntu6.4
Last-Modified: Mon, 07 Jul 2008 09:07:14 GMT
ETag: "3c22ff-286c-66bf3480"
Accept-Ranges: bytes
Content-Length: 10348
Content-Type: text/html
X-Cache: MISS from proxy5.siit.tu.ac.th
X-Cache-Lookup: MISS from proxy5.siit.tu.ac.th:8080
Via: 1.0 proxy5.siit.tu.ac.th:8080 (squid/2.6.STABLE6)
Connection: keep-alive
```

```
<html xmlns="http://www.w3.org/1999/xhtml" >
<head>
<title>Integrated Science and Technology (TU 130)</title>
<link rel="StyleSheet" href="../css/site.css" type="text/css" />
</head>
<body>

<h1>Integrated Science and Technology (TU 130)</h1>

<<< ... the remainder of the HTML - not shown in this Quiz question ... >>>

</html>
```

a) What is the size of the requested file? [0.5 mark]

Answer

10348 bytes (from the Content-Length field in the Response)

b) What was the URL that the user clicked on (or typed into their browser)? (Give the full URL) [0.5 mark]

Answer

<http://ict.siit.tu.ac.th/~steven/tu130/>

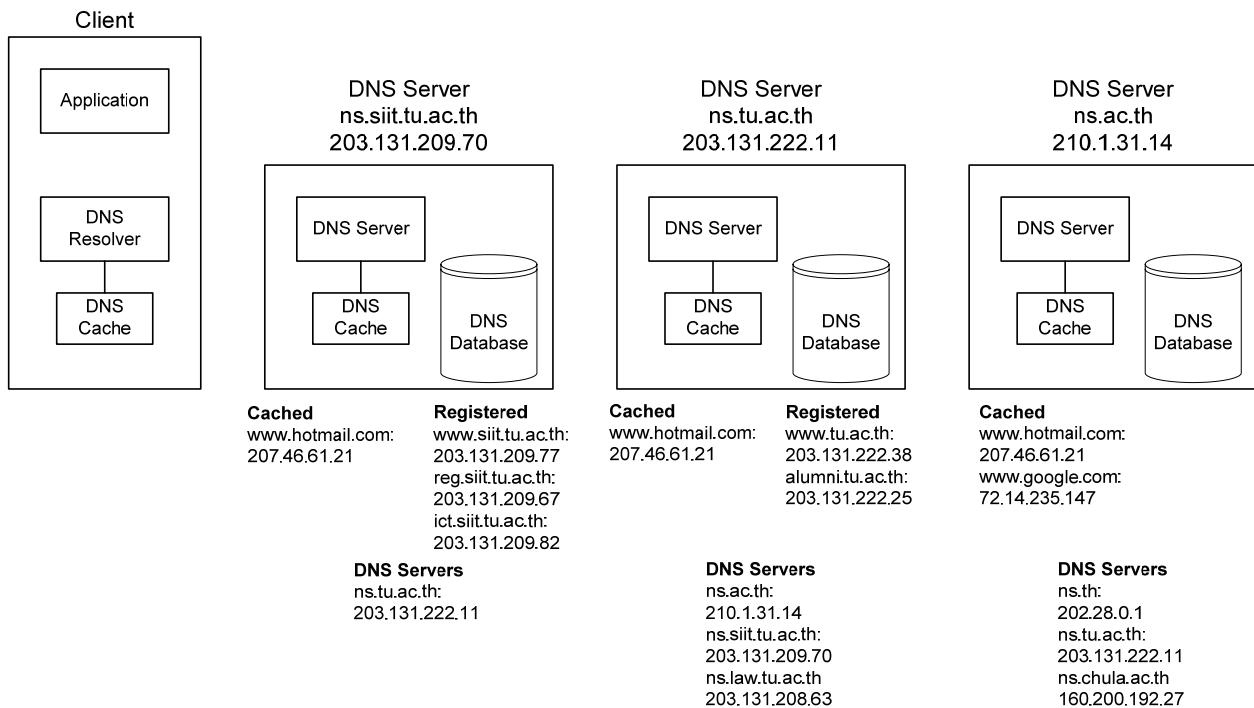
c) Was the requested file secured (that is, password protected)? Explain why or why not. [1 mark]

Answer

No. The Request does not include an Authorization field (that is, no user name or password were sent, and the file was still returned).

Question 4 [2 marks]

Consider the DNS configuration in the following figure. Assume the Client DNS Resolver is configured so that it knows the IP address of its local DNS server (ns.siiit.tu.ac.th, 203.131.209.70).



The time to send a DNS message between any two computers on the Internet is 10ms (e.g. from Client to ns.siiit.tu.ac.th is 10ms). Ignore any other delays (such as processing within each computer).

How long does the application wait for DNS protocol before it can send an IP datagram to the web server:

- a) www.google.com

Answer:

Client -> ns.siiit.tu.ac.th -> ns.tu.ac.th -> ns.ac.th (and return)

Total waiting time: 6 x delay

Delay 10ms 5ms

Answer 60ms 30ms

- b) www.siiit.tu.ac.th

Answer:

Client -> ns.siiit.tu.ac.th (and return)

Total waiting time: 2 x delay

Delay 10ms 5ms

Answer 20ms 10ms

c) www.hotmail.com

Answer:

Client -> ns.siiit.tu.ac.th (and return)

Total waiting time: 2 x delay

Delay	10ms	5ms
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Answer	20ms	10ms
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d) www.tu.ac.th

Answer:

Client -> ns.siiit.tu.ac.th -> ns.tu.ac.th (and return)

Total waiting time: 4 x delay

Delay	10ms	5ms
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Answer	40ms	20ms
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