

Third exam of Computer Networks (XC), Degree in Informatics Engineering		19/12/2019	Fall 2019
NAME:	SURNAME:	GRUP	ID

Duration: 1hm. The test will be collected in 20 minutes. Please use the tick boxes for your answers.

Test. (3 points) Each question counts 0.5 points if no error, 0.25 if one error, 0 if more than one error.

<p>1. About name resolution:</p> <p><input type="checkbox"/> When a DNS resolver queries a NS for a record for which the server is authoritative, the NS server answers it without querying other servers.</p> <p><input type="checkbox"/> A DNS resolver might force to get authoritative answers only.</p> <p><input type="checkbox"/> A NS which provides for iterative resolution, performs resolution using the information within its own configuration file.</p> <p><input type="checkbox"/> A NS which provides for recursive resolution might query other NSs for the answer.</p>
<p>2. About DNS:</p> <p><input type="checkbox"/> Hostnames and IP addresses are not required to match one-to-one.</p> <p><input type="checkbox"/> The DNS consists of a hierarchy of domains with a common root distributed in several servers.</p> <p><input type="checkbox"/> NSs do not require DNS root server configuration provided that they perform iterative resolution only.</p> <p><input type="checkbox"/> NSs do require DNS root server configuration whenever they perform recursive or iterative resolution.</p>
<p>3. An email server is sending messages in its output queue. One of the messages is sent TO two users, in CC to other 3 users, and in BCC to another user, all six recipients are in the same domain. How many SMTP transactions needs the email server to perform?</p> <p><input type="checkbox"/> Three SMTP transactions, one for the users in the TO field, another for the users in the CC field, and another for the user in the BCC field.</p> <p><input type="checkbox"/> Six SMTP transactions, one for every recipient.</p> <p><input type="checkbox"/> One single SMTP transaction for all the recipients.</p> <p><input type="checkbox"/> Always two SMTP transactions, as recipients in the TO and in the CC fields with those in the BCC field cannot be mixed.</p>
<p>4. An email server is sending messages in its output queue. There are ten messages pending to send to recipients of two different domains. Which of the following statements are true?</p> <p><input type="checkbox"/> The email server resolves the IP address of the email server from one of the domains and perform one single SMTP transaction for all the messages.</p> <p><input type="checkbox"/> The email server resolves the IP address of the two email servers and perform two SMTP transactions.</p> <p><input type="checkbox"/> The email server always resolves the IP address of each email server and perform one SMTP transaction for every message to be sent.</p> <p><input type="checkbox"/> The email server resolves the IP address of the two email servers and perform ten SMTP transactions.</p>
<p>5. In HTTP:</p> <p><input type="checkbox"/> The GET method is mainly used to retrieve meta-data in response headers as not response body is sent.</p> <p><input type="checkbox"/> The POST method is used to apply modifications to an existing object/entity in the server.</p> <p><input type="checkbox"/> The POST method is used to send a new object/entity to the server.</p> <p><input type="checkbox"/> The PUT method is used to send a new object/entity or to apply modifications to an existing object/entity in the server.</p>
<p>6. In HTTP/1.1: Persistent connections with pipelining:</p> <p><input type="checkbox"/> The client might issue new requests even if previous objects have been not completely downloaded.</p> <p><input type="checkbox"/> The client issues a new request after the previous object has been completely downloaded.</p> <p><input type="checkbox"/> The client always creates a TCP connection for every object.</p> <p><input type="checkbox"/> The server closes the TCP connections after every object has been downloaded.</p>

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Third midterm, Xarxes de Computadors (XC), Grau en Enginyeria Informàtica		19/12/2019	Tardor 2019
FIRST NAME (UPPER CASE):	LAST NAME (UPPER CASE):	GROUP:	ID:

Time: 1hour. The quiz will be collected in 20 minutes.

Problem 1 (3.5 points)

In view of the message on the back, answer the following questions:

A) (0.75 points) What mail protocols and role can have mail.isoc.org, mx1.upc.es, mbox.upc.es?

B) (0.5 points) Which DNS records did the mail client resolve to send it (the first transfer of the submission)?

C) (0.75 points) List the MIME parts, indicating Type and Boundary, indented with "." and "(" to group them:

```

multipart/mixed 16A5 (
  .multipart/alternative 65E8 (
    ..text/plain

```

D) (0.5 points) What effect does "multipart / alternative" have?

E) (0.5 points) What effect can "Content-Transfer-Encoding: quoted-printable" have on the content?

F) (0.5 points) How many bytes will the file "1x1.png" have? (if there are 128 letters in the encoded content)

Return-Path: <sender@isoc.org>
Received: from mx1.upc.es by mbox.upc.es with SMTP id AAXY3
for <dest@upc.edu>; Wed, 11 Dec 2019 15:25:03
Received: from mail.isoc.org by mx1.upc.es with SMTP id xBBEP1
for <dest@upc.edu>; Wed, 11 Dec 2019 15:25:01
Received: from dync-3.isoc.org by mail.isoc.org with SMTP id C8413
for <dest@upc.edu>; Wed, 11 Dec 2019 15:15:25
To: dest@upc.edu
From: The sender <sender@isoc.org>
Subject: test
Message-ID: <5aede3f@isoc.org>
Date: Wed, 11 Dec 2019 15:15:25
MIME-Version: 1.0
Content-Type: multipart/mixed; boundary="16A5"

This is a multi-part message in MIME format.

--16A5

Content-Type: multipart/alternative; boundary="65E8"

--65E8

Content-Type: text/plain; charset=utf-8

Content-Transfer-Encoding: quoted-printable

A _test_

--65E8

Content-Type: multipart/related; boundary="ECB3"

--ECB3

Content-Type: text/html; charset=utf-8

Content-Transfer-Encoding: 8bit

<html><body><p>A <u>test</u> </p></body> </html>

--ECB3

Content-Type: image/png

Content-Transfer-Encoding: base64

Content-ID: <part1.29EE>

Content-Disposition: inline; filename="1x1.png"

iVBORw0KGgoAAAANSUgAAAAEAAAABQMAAAAl21bKAAAAA1BMVEUAAACnej3aAAAAAXRS
TlMAQ0bYZgAAAApJREFUCNdjYAAAAAIAAeIhvdMAAAASUVORK5CYII=

--ECB3--

--65E8--

--16A5

Content-Type: application/pdf

Content-Transfer-Encoding: base64

Content-Disposition: attachment; filename="test.pdf"

JVBERi0xLjUKJc0kw7zDts0fCjIMCBvYmoKPDwvTGVuZ3RoIDMgMgZpbHRMQoLJUVPRgo=

--16A5--

