EXAMINATION

Course: Advanced Distributed Systems (5DV153)
Teacher in charge: P-O Östberg

Semester: HT-14
Date: 2014-12-15
Time: 13:15–14:00

Name: 

Personal ID number: 

Unique code for this examination: 32

Note!
Examinations are graded anonymously. As this sheet will be removed before graders receive the examination, students are advised to make sure that the above code is present on all exam pages submitted to the examination supervisory staff. Memorize your code as it will be used in result publication.

Furthermore,

• Answer questions on the allocated paper.

• When needed, motivate your answer by stating your interpretation of the question / statement, and explaining your answer.

• Use the back of the papers for motivations if needed.

Till skrivningsbevakaren: Avskilj detta försättsblad och stoppa i kuvert som skickas till Yvonne Löwstedt, Datavetenskap.
Question 1  True or False (20 points)

Mark each of the statements below as true or false. Correct answers reward 1 point, incorrect answers reward -1 point, leaving a statement blank rewards 0 points (i.e. does not affect your grade). A minimum of 0 points and a maximum of 20 points can be awarded this question, negative sums will not carry over to affect your grade.

a. Service discovery and late binding techniques are used to enforce tight coupling of services.

b. HTTPS is a hybrid encryption protocol that provides end-to-end security contexts.

c. REST web service security is built on standardized XML-based protocol extensions.

d. Public key encryption algorithms are typically much faster than stream cipher algorithms.

e. REST service interfaces are designed in terms of CRUD operations.

f. The Data Encryption Standard (DES) is an example of an asymmetric encryption algorithm.

g. Birthday attacks exploit the mathematics of the birthday paradox to force hash collisions.

h. JSON is a standardized message format for binary web services.

i. The GridFTP protocol extends the FTP protocol with features such as striped file transfers and secure communication mechanisms.

j. The BOINC high-throughput computing framework uses classad-based matchmaking to match compute jobs to compute nodes (resources).
k. The feasibility of a brute force attack is primarily determined by two factors: the cost of (individual) tests and the size of the search space (the number of tests that need to be performed).

l. The Kademilia DHT encompasses the notion of node distance in its lookup function.

m. Virtual organizations are used in Grid computing infrastructures to organize and define relationships between compute nodes.

n. Payload data is sent directly between nodes (i.e. not via intermediaries) in Chord.

o. Coarse-grained communication patterns tend to have fewer and larger messages than fine-grained communication patterns.

p. Hash functions are designed to have a high avalanche effect.

q. High-performance computing focuses on capacity computing patterns.

r. Flooding-based peer-to-peer systems scale poorly.

s. XML Schemas define type sets for XML documents, and can be used to validate XML documents.

t. High-throughput computing applications typically exhibit high degrees of data parallelism and asynchronicity in communication.