

UNIVERSITY OF DUBLIN
TRINITY COLLEGE
FACULTY OF ENGINEERING & SYSTEM SCIENCES
DEPARTMENT OF COMPUTER SCIENCE

M.Sc. in Computer Science

Hilary Term 2007

Code & Name of Exam

Date of Exam

Location

Time of Exam

Name of Lecturer (Lecturers)

Attempt * questions
(all questions carry equal marks)

Question 1:

You have been hired by a software development company in order to setup a new code quality and security review team.

- a) Describe how you would set out to analyse the security of an existing product of theirs? (10)
- b) Describe how you would setup processes so that future projects would result in fewer security problems. (10)
- c) The company are considering acquiring an embedded systems development company; what questions would you ask of their staff in order to evaluate the potential acquisition? (5)

Question 2:

- a) Give an overview of the current situation with spam, including describing the reasons why spam is possible; the problems caused; currently deployed countermeasures and some of the methods spammers use to avoid those countermeasures. (15)
- b) How might a digital signature like DKIM scheme provide an additional anti-spam countermeasure? What pitfalls might such a scheme bring with it? (5)
- c) Invent a new way to get spam to someone's desktop. (5)

Question 3:

You are asked to design a secure method for backing up large sets of files (e.g. audio libraries/"My Pictures"/entire filesystems). As part of this you need a secure connection which, in turn requires some form of key management (e.g. TLS, Kerberos, IPSec/IKE).

- a) Describe in detail how your selected key management scheme works (10)
- b) Describe how you would integrate use of this scheme into the overall backup application. (5)
- c) What performance problems would you expect to encounter using this scheme? (5)
- d) What reliability/resilience problems would you expect to encounter using this scheme? (5)

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