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)