The University of Nottingham

SCHOOL OF COMPUTER SCIENCE

A LEVEL 3 MODULE, AUTUMN SEMESTER 2008-2009

Quality Assurance and Testing

Time allowed: ONE Hour and THIRTY Minutes

Candidates may complete the front cover of their answer book and sign their desk card but must NOT write anything else until the start of the examination period is announced

Answer four questions

No calculators are permitted in this examination

Dictionaries are not allowed with one exception. Those whose first language is not English may use a standard translation dictionary to translate between that language and English provided that neither language is the subject of this examination. Subject specific translation dictionaries are not permitted.

No electronic devices capable of storing and retrieving text, including electronic dictionaries, may be used.

DO NOT turn your examination paper over until instructed to do so

ADDITIONAL MATERIAL: None

INFORMATION FOR INVIGILATORS: None
1. There are three major differences between software products and other industrial products.
   (a) Identify and describe the differences.  
   (b) Discuss the ways in which these differences affect SQA.

2. It is clear that a software development project carried out by a software house for a specific customer is carried out under content and timetable obligations, and is subject to the customer–supplier relationship.
   (a) Discuss whether a customer–supplier relationship is expected when the software developed is to be sold to the public as a software package.
   (b) Discuss whether a customer–supplier relationship is expected when software is developed for “in-house” use, as in the case where a software development department develops an inventory program for the company’s warehouses.
   (c) Some managers claim that the closer relationships are to a formal pattern, the greater the prospects are for the project’s success. Discuss whether implementing customer-supplier relationships in the situations mentioned in (1) and (2) are a benefit for the company (referring to the internal customer and supplier) or an unnecessary burden to the development team.

3. (a) Explain the main advantages and disadvantages of automated software tests in your own words.
   (b) Referring to your answer to (a), suggest what project characteristics are most suitable for automated testing. List your assumptions.
   (c) Referring to your answer to (a), suggest what project characteristics are most unsuitable for automated testing. List your assumptions.

4. One of the objectives of reviews is to identify deviations from templates, style procedures and conventions. Explain the importance of enforcing templates and sticking to style procedures and conventions.
5. With regards review methods:
   (a) What are the four main review methods?  
   (b) What are the four direct objectives attached to the four review methods?  
   (c) What are the two indirect objectives regarding the various review methods?  
   (d) For each objective, indicate the review technique or techniques that contribute(s) the most to achieving that objective.

6. (a) Explain in your own words why big bang testing is inferior to any method of incremental testing conducted for software packages that are not small.  
       (b) Considering the terms path coverage and line coverage,  
           i) Explain in your own words what the terms mean and list the main differences between these coverage metrics.  
           ii) Explain why the implementation of path coverage is impractical in most test applications.