An Answer Sheet for use with Section A is attached

Two hours

UNIVERSITY OF MANCHESTER
SCHOOL OF COMPUTER SCIENCE

QUESTION PAPER MUST NOT BE REMOVED FROM THE EXAM ROOM

Software Engineering 2

Date: Thursday 21st May 2009
Time: 14:00 – 16:00

Please answer ALL Questions in Section A
and ONE Question in Section B

Attach the Answer sheet for use with Section A to your answerbook

The use of electronic calculators is permitted provided
they are not programmable and do not store text
Section A

Section A comprises of multi-choice questions and therefore cannot be published
Section B

Answer ONE question ONLY in this Section

B1.  a) An analyst has discovered two classes where one appears to be a superclass and the other a subclass. What type of relationship is used to model this association on a structural model? What is the notation that is used? Draw an example of how this would be illustrated on a class diagram.  

(5 marks)

b) Draw a class diagram for a new patient billing system based on the following scenario: Whenever new patients are seen for the first time, they complete a patient information form that asks their name, address, phone number, and insurance carrier, which are stored in the patient information file. Patients can be signed up with only one carrier, but they must be signed up to be seen by the doctor. Each time a patient visits the doctor, an insurance claim is sent to the carrier for payment. The claim must contain information about the visit such as the date, purpose, and cost. It would be possible for a patient to submit two claims on the same day (hint: Possible classes in this system are Patient, Doctor, Insurance Carrier, Visit, Claim).  

(10 marks)

c) What is a sequence diagram used for? Why would an analyst choose a sequence diagram over a communication diagram?  

(7 marks)

d) List the steps that an analyst should go through to build a sequence diagram.  

(8 marks)

B2.  a) When designing a human-computer interaction layer it is important to ensure that all input data is validated to ensure its accuracy. Explain, briefly, what is meant by the terms completeness check, format check, range check, and consistency check when validating input data.  

(12 marks)

b) Calculate modulus-11 check digits for both of the 6 digit numeric codes below:

347834  
134255  

(12 marks)

c) Explain, briefly, the main advantage of an n-tiered architecture (where n >=3).  

(6 marks)

END OF EXAMINATION