Exam Software Engineering (400071)
29 June 2005

Part of this exam is centered on the following case study:

An auction house wants to go on-line. The on-line auction system must allow all users to offer antiques, collector items and fine arts for sale to the highest bidder. All the information about the auctioned items is stored in a database. Both customers and the auction staff can access the database. The auction staff maintains the auctioned items database. The auction floor is open for anybody for browsing, but a customer who wants to sell an item (seller) or to bid on an item (buyer), has to be registered as a member.

An auction takes place according to the following scenario: the seller opens an auction by providing an item, a lowest price at which he or she wants to sell this item and the closing date of the auction. The bidding starts at the lowest price given by the seller. Any interested buyer can place a bid for an item only if it is higher than the previous current bid. When the closing date is reached, the auction is declared closed and the buyer with the highest bid is declared winner. The buyer and the seller are then put into contact for the actual payment and the physical delivery of the item.

Note: this problem description may be ambiguous and incomplete. In answering the questions, you are free to complete it (if needed) and to briefly motivate your assumptions.

Questions about the theory

1. Explain one of the five eXtreme Programming principles. Also compare the chosen XP principle to planning-driven software development in general. [1 point]
2. Which is the main difference between traditional models and evolutionary models? [1 point] (select one from the following possible answers):
    - 3.a) Traditional models are planned in advance, with all phases, inputs and outputs and resource allocation; evolutionary models are not.
    - 3.b) Traditional models produce documentation, evolutionary models not.
    - 3.c) Traditional models focus on the development of an initial version of the software product, evolutionary models focus on the continuous change of a software product.
3. Which of the following testing activities are carried out during design? [1 point] (select one or more answers from the following possible answers):
    - 7.a) check consistency between design and implementation.
    - 7.b) determine the test strategy.
    - 7.c) evaluate the software architecture.
    - 7.d) test the design.
    - 7.e) generate the functional test data.

Questions related to the case study

4. Provide the list of functional requirements of the case study, and organize them in a MoSCoW list. [2 points]
5. For the case study, provide the data model in UML. [2 points]
6. For the case study, provide the description for one use case corresponding to one requirement given in answer 4). The description must include the normal course of events (c.o.e.), one alternative c.o.e. and one exceptional c.o.e. [1.5 points]
7. Select and model a design view able to show how the list of functional requirements given in answer 4) are realized by your design. [1.5 points]

Exam rules:
- No books or reference material.
- No calculator or similar electronic device.