

**PRIFYSGOL ABERYSTWYTH - ABERYSTWYTH UNIVERSITY**

DEGREE EXAMINATIONS 2012-2013 SEMESTER 1

FACULTY OF SCIENCE

**Computer Science, CS31310: Agile Methodologies**

**Time allowed: 2 hours**

*Calculators are not allowed in this examination.*

*Answer **THREE** from **FIVE** questions.*

*All questions carry equal marks.*

1. This question concerns Project Management in Agile Development

You work for *Cambrian Systems Ltd* and you develop bespoke software systems for customers. The company's preferred development methodology is Extreme Programming (XP).

You are preparing a bid for a project to build a website for a national newspaper. The managers of the newspaper have expressed concern that they will not have a fully functional website for the agreed budget if you adopt XP for the project.

Write a report to respond to these concerns. In your report discuss the following aspects:

- a) The approach to planning. [15 marks]
- b) The role of the customer and how to select an appropriate customer representative. [10]
- c) The relevance of using practices that support each other. [8]

2. This question concerns Feature Driven Development (FDD).

- a) Briefly describe the five processes of Feature Driven Development. [15]
- b) Feature driven development emphasises individual code ownership. This contrasts with the collective code ownership seen in extreme programming. Briefly discuss the relative merits of individual and collective code ownership. [12]
- c) Advocates of extreme programming have pointed out that individual code ownership leads to delays in implementing necessary changes and improvements. Individual code ownership may also mean that opportunities for improvement are missed because code is mainly viewed by its owners. How would you minimize these problems when code is developed according to Feature Driven Development? [6]

3. This question concerns model driven development.
  - a) Model Driven Architecture (MDA) entails creating a platform independent model(PIM) and one or more platform specific models (PSMs). Briefly describe what a PIM specifies, what a PSM specifies, how these models are related and how a PSM is obtained from a given PIM. [11]
  - b) Many software developers maintain that model driven development cannot possibly be agile. How is this view justified? [9]
  - c) Other developers maintain that agile model driven development is the natural next stage in the evolution of agile methods. How is this view justified? [9]
  - d) Briefly describe what is meant by *Model Storming* or *Just in Time Modelling*? [4]
4. This question concerns testing and refactoring in an Extreme Programming (XP) project.
  - a) Explain how testing and refactoring are used in XP. [8]
  - b) “*Refactoring can be avoided if you start with a good design.*” Discuss this statement. In your answer, state and justify whether or not you agree with this view. [12]
  - c) You have just paired up with a colleague to work on software for a new electronic till system. You are working on the following task.  
*Task 1.1 Make a list data structure that will hold a list of items purchased. The order of items is not important.*  
 Describe and provide a rationale for the steps that you would follow to add tests and associated implementation for this task. Illustrate this by describing two tests that you would introduce. Assume that you are using JUnit. You do not need to write syntactically correct code, pseudo code will suffice. [13]
5. In the article “*Get Ready for Agile Methods, with Care*”, Barry Boehm discusses the idea of a *home ground* for agile methods and plan-driven methods. Discuss the relevance of the home ground when selecting a suitable methodology. Use examples to illustrate your answer. [33]