

## **Chapter 3: Agile Software Development**

**Your name:**

Answer all questions. 1 mark per question

1. What are the shared characteristics of different approaches to rapid software development?

*The processes of specification, design and implementation are inter-leaved.*

*The system is developed and delivered as a series of versions.*

*User interfaces are often developed using an interactive development system that supports rapid UI development.*

2. For what types of system are agile approaches to development particularly likely to be successful?

*Small and medium-sized software product development.*

*Custom software development in an organization where there is a clear commitment from customers to become involved in the development process.*

3. List the 5 principles of agile methods.

*Customer involvement,*

*Incremental delivery,*

*People not process,*

*Embrace change,*

*Maintain simplicity.*

4. List 4 questions that should be asked when deciding whether or not to adopt an agile method of software development.

*Any 4 from those below. Others are also possible (see Ch 3)*

*Is an incremental delivery strategy realistic?*  
*What type of system is being developed?*  
*What is the expected system lifetime?*  
*How is the development team organized?*  
*Is the system subject to external regulation?*  
*How large is the system that is being developed?*

5. What are three important characteristics of extreme programming?

*Requirements expressed as scenarios,*  
*Pair programming,*  
*Test-first development.*

6. What is test-first development?

*When a system feature is identified, the tests of the code implementing that feature are written before the code. Tests are automated and all tests are run when a new increment is added to the system.*

7. What are the possible problems of test-first development?

*Programmers may take short-cuts when developing tests so that the system tests are incomplete.*

*Some tests can be difficult to write incrementally.*  
*It is difficult to estimate the completeness of a test set.*

8. Briefly describe the advantages of pair programming.

*It supports the idea of common ownership and responsibility for the code.*

*It serves as an informal code review process.*

*It helps support refactoring.*

9. What is a Scrum sprint?

*A short (3-4 weeks) planning unit in which work to be done is assessed, features are selected for development, the software is implemented and delivered to system stakeholders.*

10. What are the barriers to introducing agile methods into large companies?

*Project managers may be reluctant to accept the risks of a new approach.*

*The established quality procedures in large companies may be incompatible with the informal approach to documentation in agile methods.*

*The existing teams may not have the high level of skills to make use of agile methods.*

*There may be cultural resistance if there is a long history of plan-driven development in the company.*