Question One [40 Marks]

Question Two [9 Marks]

2.1 A software development team is busy with the design modelling activity for the shopping cart of an e-commerce website. Complete the following task set template: (6)

Task Set	
Work Tasks	
Work Products	
Quality Assurance Points	

2.2 "Software development is a social learning process" (Baetjer, 1998). Briefly discuss this statement. (3)

Question Three [9 Marks]

A software company develops systems using the V- model. However, one of their current projects is in bad shape. The project is off schedule and the budget has run out. Due to the project being off schedule some technical staff had to be redeployed to other priority projects. The customer finally had a chance to provide feedback and is not impressed. The CEO has called in the project lead to discuss problems.

3.1 List two problems that are being experienced in this project? (2)

3.2 The CEO has recommended a change in the process model. List two problems the CEO is trying to solve by changing the process model? (2)

3.3 List two possible dangers of changing the process model at this stage of the project? (2)

3.4 List three reasons why the spiral model is a better process model than the V- model for this project. (3)

Question Four [8 Marks]

A small company has over the years used the Waterfall process model that relies on highly detailed documented specifications and designs. Agile, which is a lightweight process model, is being considered in the pursuit of completing more projects per year and hence helping to grow the company.

Discuss four key features or practices of Agile Development that will promote more completed projects and hence growth of the business when compared to the Waterfall model. (8)

Question Five [10 Marks]

5.1 DeMarco and Lister (1998) comment on the importance of creating a *jelled* software team. Three of the attributes that they list are sense of purpose, sense of improvement, and sense of involvement. As a software manager, how would you ensure that each attribute is present in a software team? (6)

5.2 Two important Extreme Programming values are *effective communication* and *simplicity*. Briefly discuss how a software team can achieve each value. (4)

Question Six [8 Marks]

6.1 In context of requirements negotiation, describe a *win-win* result. (2)

6.2 An important work product of requirements engineering is the Analysis Model. Complete the following table for the three main types of elements that make up an analysis model:

Element type	Objective of element	e.g. UML work product
1. Scenario 2. Class 3. Behavioural		

(6)

Question Seven [8 Marks]

Some guidelines for quality software design is for the designer to reflect on his *past experiences,* find *ways to simplify* the design, create software with a *fluent structure* and factor in *good abstraction.*

Associate *underlined* words above to a fundamental design concept below. Give a reason for your choice:

7.1 Patterns (2)
7.2 Architecture (2)
7.3 Information Hiding (2)
7.4 Refactoring (2)

Question Eight [8 Marks]

8.1 The technical review of a completed WebApp has identified problems with
    availability and scalability.
8.1.1 Explain what is meant by availability and scalability? (2)
8.1.2 Suggest two reasons why this could have occurred? (2)

8.2 Webapp architecture describes an infrastructure that enables a web-based system or
application to achieve its business objectives.
8.2.1 In this light why do you think that the Model-View-Controller (MVC) architecture
    should be used to design WebApps? (2)
8.2.2 Briefly explain the functionality of MVC in a WebApp. (2)

TOTAL MARKS: 100

Marking memo is not available. Please submit responses to your lecturer for commentary.