COMP3297A
Software Engineering

Tutorial 1 – Quiz Preparation

Oct 3, 2025

Contents

Quiz Format

Time & Venue

Date:	10/10 (Fri)
Duration:	35 mins
Start time:	3:05 pm (Please arrive at 3:00pm)
End time:	3:40 pm
Venue:	CYPP3
Remarks:	Use of a calculator is not allowed

Content

Coverage:	L1 – L4
Style:	Closed book
Question Types:	MC & Short Questions

Contents

MC Question 1

Which of the following is/are key process in requirements engineering?

(1) Requirements specification
(2) Requirements elicitation and analysis
(3) Requirements validation

A. (1) and (2) only
B. (2) and (3) only
C. (1) and (3) only
D. (1), (2) and (3)

Solution:
D

(Refer to L2 Slide 24)

MC Question 2

Here are some documents/programs produced in the prototype development process:

(1) Outline definition
(2) Evaluation report
(3) Executable prototype
(4) Prototyping plan

Order them in ascending order of their completion time.

A. (4) → (1) → (2) → (3)
B. (4) → (1) → (3) → (2)
C. (1) → (4) → (3) → (2)
D. (1) → (4) → (2) → (3)

Solution:
B

(Refer to L2 Slide 35)

MC Question 3

Which of the following statement is/are true for the approaches to process improvement?

(1) The primary goal of the process maturity approach is to improve process predictability.
(2) The agile approach focuses on anticipating team member changes.
(3) The process maturity approach focuses on iterative development.

A. (1) only
B. (2) only
C. (3) only
D. None of the above

Solution:
A

(Refer to L2 Slide 30, L3 Slide 18)

MC Question 4

Which type of software process model suits best for developing a computer game that is able to respond quickly to changing requirements in different versions?

A. Waterfall model
B. Agile model
C. Integration and configuration
D. None of the above

Solution:
B

(The aim of agile methods is to reduce overheads in the software process and to be able to respond quickly to changing requirements. Thus the Agile model suits best.)

Short Question 1

State and explain TWO advantages and TWO disadvantages of each software process model:

(a) Waterfall model

(b) Incremental development

(c) Reuse-oriented software engineering

Short Question 1

- **Possible Answers**

Advantages:

Waterfall	Incremental	Re-use Oriented
Easier to maintain, as the model is plan-driven	Easier to get customer feedback, as development and validation are interleaved	Reduce development cost, as less software is developed from scratch
Helps coordinate work, as the model requires software specification clearly defined before development stage	Reduce cost of handling change requests, as development and validation are interleaved and changes can be incorporated	Reduce risk of system failure, as software reused is usually well-tested

Short Question 1

- **Possible Answers**

Disadvantages:

Waterfall	Incremental	Re-use Oriented
Harder to adopt/accommodate change in requirements, as one cannot go back to previous phase after it's completion	System structure may degrade easily, as software changes may not fit in the original structure	Reused component may not meet real needs of users, as it is not originally designed for meeting the custom needs of users
Too early to freeze software specification, as it requires detailed software specification before development	Process is not visible, as it is not cost-effective to produce documents for different versions of a system that develops quickly	Lost of control over evolution of reused system elements, as the source code may not be accessible

Short Question 1

- **Marking Principle**

  (1) Can both state and explain the advantage / disadvantage of that specific software development method

  (2) Points should be non-overlapping

  (3) Two-Sided Answers
  - For some aspects (E.g. Cost, development time), it can contribute to both the advantage / disadvantage of the method
  - However, if the stance is opposite to what is stated in the lecture notes (i.e. Common sense), justification needs to be given to get marks

Short Question 2

(a) State why the Agile approach is usually incompatible with legal contracts.

(b) State and explain TWO maintenance problems arise from software developed by the Agile approach.

Short Question 2

Part (a)

- **Possible Answers**
  - Legal contracts involve clear definitions of project outcomes and specification
  - Agile approach is incremental / Hard to confirm system requirements early

- **Marking Principle**

  (1) Can state the conflicting nature between Agile / Contracts

Short Question 2

Part (b)

- **Definition of Maintenance Problems**

  Issues that negatively affects software evolution / software changes

- **Possible Answers**
  - Lack of product documentation, as Agile approach focuses on minimizing documentation to speed up development process
  - Hard to maintain the continuity of the development team, as team members may leave for other jobs

- **Marking Principle**

  (1) Content needs to be a problem related to maintenance

Short Question 3

TechnologyFirst needs to help its client to develop a drone system for search and recovery operations.

Short Question 3

(a) Explain the steps TechnologyFirst should take to conduct requirements elicitation.

(b) Rewrite the following requirements of the drone system by employing a structured natural language method. You should also improve clarity and quality to address any ambiguities if necessary.

- It will be able to fly long distances.
- It will take high-resolution images.
- The drone will also be able to identify various objects, and match them to the target it is looking for.

(c) With reference to the requirements in part (b), explain two methods to conduct requirements validation for the drone system.

Short Question 3

Part (a)

- **Possible Answers**
  - Firstly, the company interacts with stakeholders to discover their requirements.
  - Next, the company should group and organise the requirements.
  - Then, the company should prioritise requirements and resolve conflicts.
  - Finally, the company should document the requirements.

- **Marking Principle**

  (1) Can explain the steps involved in requirements elicitation.

Short Question 3

Part (b)

- **Possible Answers**
  - The drone shall travel a maximum distance of 50km.
  - The drone shall take images with resolution 300 DPI.
  - The drone shall identify objects in a taken image, and match them to the target it is looking for.

- **Marking Principle**

  (1) Can rewrite the requirements in the correct format.

  (2) Can specify clear metrics for each requirement.

Short Question 3

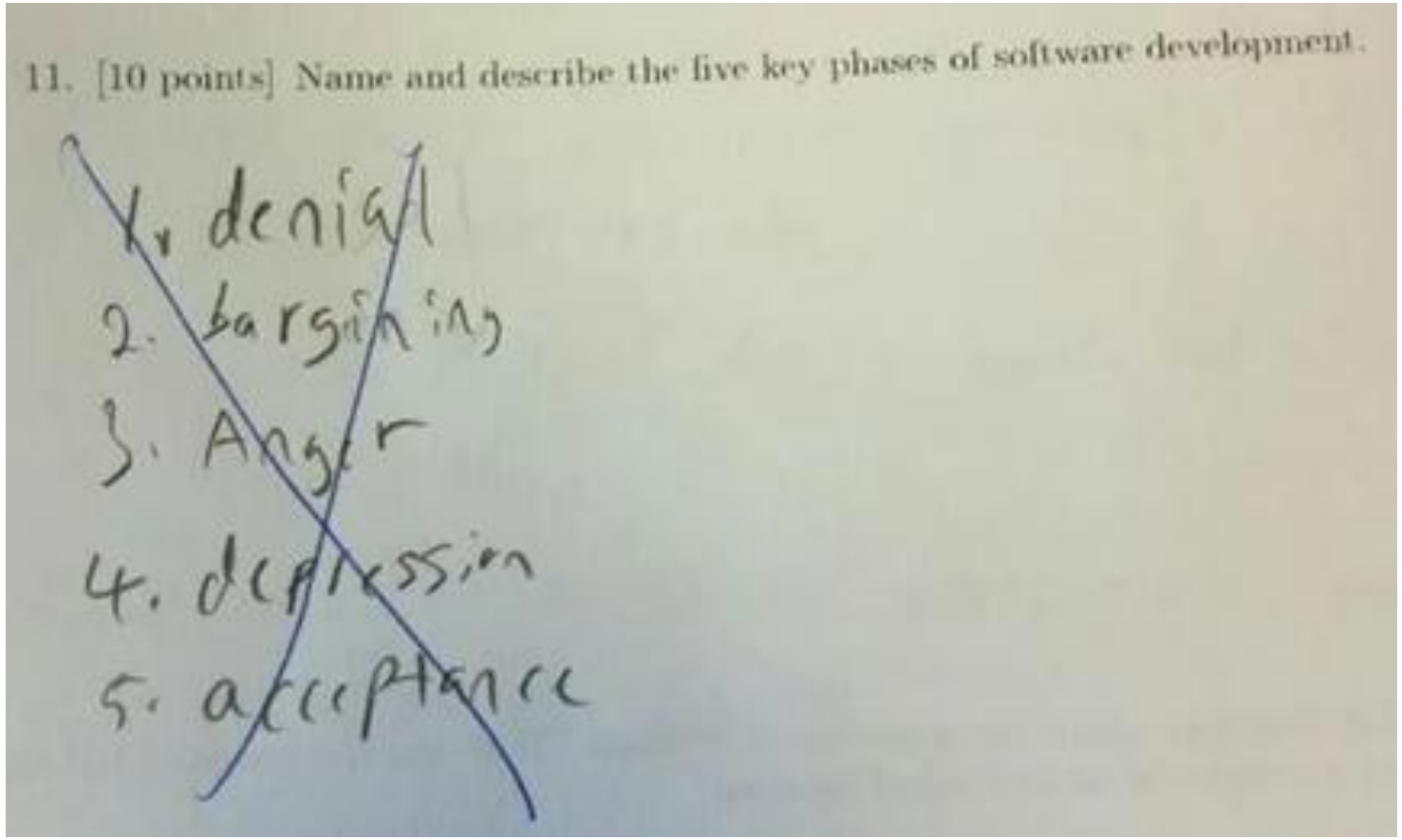
Part (c)

- **Possible Answers**
  - Completeness: Test if the drone can travel the maximum distance stated.
  - Realism: Check if the given budget can support the purchase of camera models which can satisfy the required photo resolution.

- **Marking Principle**

  (1) Can state two examples to apply the 5 principles of requirements checking.

Question Answering Tips



Multiple Choice Question:

1. Erase any extra answers!

Short Question:

1. Explain your answers. Don't only state random terms.

2. No overlapping points!

3. To prevent off-topic answers, recall the definition of technical terms in question wording before answering.

Enquiries

- Feel free to contact Leo and Jeff (Email: jeffsiu1@hku.hk) for enquiries / problems related to the midterm quiz.