DUBLIN CITY UNIVERSITY

AUGUST/RESIT EXAMINATIONS 2016/2017

MODULE: CA4004 – Soft. Eng.:Process,Principles & Methods (C)

PROGRAMME(S):

CASE	BSc in Computer Applications (Sft.Eng.)
EC	BSc in Enterprise Computing
ECSAO	Study Abroad (Engineering & Computing)

YEAR OF STUDY: 4,O

EXAMINER(S):

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Dr. Robert Gleasure
Dr. Ian Pitt
Dr. Samia Kamal

TIME ALLOWED: 3 Hours

INSTRUCTIONS: You MUST answer question 1 and any 3 other questions.

PLEASE DO NOT TURN OVER THIS PAGE UNTIL YOU ARE INSTRUCTED TO DO SO.
The use of programmable or text storing calculators is expressly forbidden.
Please note that where a candidate answers more than the required number of questions, the examiner will mark all questions attempted and then select the highest scoring ones.

There are no additional requirements for this paper.

QUESTION 1 ***[TOTAL MARKS: 40]***

Q 1(a) **[6 Marks]**
Provide a definition for the term "software development process".

Q 1(b) **[6 Marks]**
Identify and briefly explain three disadvantages to having a documented software development process.

Q 1(c) **[9 Marks]**
Some may claim that a documented process is preferable to an undocumented process. Discuss this claim, providing clear rationale and examples as you see appropriate.

Q 1(d) **[8 Marks]**
Identify and describe four different reasons why software might be rewritten from scratch as opposed to maintaining the existing source code.

Q 1(e) **[6 Marks]**
Making use of a diagram, outline and discuss the "Build and Fix" software development lifecycle model, and identify a context where you consider it to be useful. Clearly justify your selection of a suitable context.

Q 1(f) **[5 Marks]**
It has been claimed that there is an absence of a theory for software engineering. Discuss the merits of this claim, and whether or not you believe it to be justified.

[End of Question 1]

QUESTION 2 ***[TOTAL MARKS: 20]***

Q 2(a) **[8 Marks]**
Identify and briefly explain four benefits of formally specifying a software system.

Q 2(b) **[8 Marks]**
Identify and briefly describe two different formal specification techniques.

Q 2(c) **[4 Marks]**
Briefly describe the roles of splitters and comparators in self-monitoring architectures.

[End of Question 2]

QUESTION 3 ***[TOTAL MARKS: 20]***

Q 3(a) **[10 Marks]**

Identify and briefly describe five guidelines for security engineering.

Q 3(b) **[10 Marks]**

In the context of the two industrial speakers who presented to the class during the semester, discuss the role of situational context in software development process adoption. Clearly identify two dominant situational context factors from each organization, elaborating on its impact on software process enactment.

[End of Question 3]

QUESTION 4 ***[TOTAL MARKS: 20]***

Q 4(a) **[6 Marks]**

Identify the central values of the agile manifesto.

Q 4(b) **[8 Marks]**

In your opinion, should the Spiral model be classified as an Agile software development approach? Justify your opinion with clear rationale.

Q 4(c) **[6 Marks]**

In your opinion, is risk management an important part of the software development process? Justify your response with three or more clear reasons.

[End of Question 4]

QUESTION 5 ***[TOTAL MARKS: 20]***

Q 5(a) **[5 Marks]**

In your own words, provide a description for the terms *iteration* and *increment*, explaining how these two terms are related.

Q 5(b) **[4 Marks]**

In your opinion, why are prototypes sometimes used in software development? Provide two clear reasons to justify your opinion.

Q 5(c) **[6 Marks]**

Identify Lehman's laws of software evolution, offering a brief description for each law.

Q 5(d) **[5 Marks]**

What, if any, uses of software engineering terminology might benefit from improvement? Justify your response with clear reasoning and examples.

[End of Question 5]

[END OF EXAM]