DUBLIN CITY UNIVERSITY

SEMESTER 2 EXAMINATIONS 2017/2018

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):

Dr. Paul Clarke	(Ext. 7021)
Dr. Samia Kamal	(External)
Dr. Robert Gleasure	(External)
Dr. Hitesh Tewari	(External)

TIME ALLOWED: 3 Hours

INSTRUCTIONS: **Answer question 1 and any three 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) **[10 Marks]**
Outline the principles of Rapid Application Development, including a brief description of each principle.

Q 1(b) **[7 Marks]**
In your opinion, should Rapid Application Development be classified as an agile software development process? Justify your opinion with clear reasoning.

Q 1(c) **[9 Marks]**
In your own words, describe Brooks' law, clearly explaining why it is considered to be generally valid.

Q 1(d) **[9 Marks]**
Discuss Meir (Manny) Lehman's Law of Increasing Complexity in the context of agile software development.

Q 1(e) **[5 Marks]**

In your opinion, are increased levels of explicit and mandatory software development process desirable? Justify your opinion with a clear explanation that includes examples.

[End of Question1]

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

Q 2(a) **[6 Marks]**
Briefly outline the Agile Manifesto for software development.

Q 2(b) **[6 Marks]**
In your own words, describe what is involved in Continuous Software Engineering.

Q 2(c) **[8 Marks]**
In your opinion, is Continuous Software Engineering a form of agile software development? Justify your response with clear reasoning.

[End of Question2]

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

Q 3(a) **[7 Marks]**
Identify and briefly explain the seven agile principles for lean software development as advocated by the Poppendieck & Poppendieck.

Q 3(b) **[8 Marks]**
In the context of lean software development, discuss any challenges that you see in terms of *waste identification*. Include specific examples in support of your discussion.

Q 3(c) **[5 Marks]**
Describe what is intended by the term *flow* in Lean Software Development, and in your opinion, is this flow concept beneficial in terms of overall software development productivity when compared with Scrum? Justify your response with clear reasoning.

[End of Question3]

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

Q 4(a) **[6 Marks]**
In the context of software reliability, identify and briefly explain three different types of fault management approaches.

Q 4(b) **[7 Marks]**
Outline the defect amplification model and offer your opinion as to the suitability of this model for agile software development environments. Justify your opinion with clear reasoning.

Q 4(c) **[7 Marks]**
In the context of CMMI, describe the meaning of the term *process capability* and demonstrate using a diagram how a process capability profile may be depicted.

[End of Question4]

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

Q 5(a) **[10 Marks]**

In the context of the invited industrial guest speakers from FINEOS and fourTheorem, clearly describe the software process adopted in these two companies.

Q 5(b) **[10 Marks]**

In your opinion, which process is superior, the software process enacted by FINEOS or that implemented by fourTheorem. Justify your response with clear argumentation.

[End of Question5]

[END OF EXAM]