Ollscoil Chathair
Bhaile Átha Cliath
Dublin City University

AUGUST/RESIT EXAMINATIONS 2018/2019

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	(Internal)	(Ext:7021)
Dr. Robert Gleasure	(External)	External
Dr. Samia Kamal	(External)	External
Dr. Hitesh Tewari	(External)	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) **[9 Marks]**
Describe your understanding of the terms “software development process” and “software development lifecycle model”.

Q 1(b) **[9 Marks]**
It has been observed that no single software development process is perfectly suited to all software development settings. Using clear examples and rationale, outline your opinion on this observation.

Q 1(c) **[9 Marks]**
Outline the structure of the Scrum daily stand up meeting, discussing the importance of individual aspects of this meeting.

Q 1(d) **[7 Marks]**
In your own words, describe the Shewhart Improvement Cycle. Make use of a diagram if appropriate.

Q 1(e) **[6 Marks]**
In your opinion, does the Shewhart improvement cycle hold any relevance for agile software development. Clearly outline your opinion and include specific examples in support of your view.

[End of Question1]

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

Q 2(a) **[8 Marks]**
Identify and briefly explain any four principles of lean software development.

Q 2(b) **[8 Marks]**
Using the four principles that you have identified in Q2(a) above, identify any issues that you foresee in applying each principle.

Q 2(c) **[4 Marks]**
In your own words, briefly describe the meaning of the terms “iteration” and “timebox”, clearly highlighting any significant differences that you can identify between these two concepts.

[End of Question2]

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

Q 3(a) **[8 Marks]**
Agile methods are sometimes referred to as being “lightweight”. Explain why this is the case and discuss whether or not this label is appropriate making use of specific examples.

Q 3(b) **[8 Marks]**
In your opinion, to what extent is DevOps just another agile software development method? Justify your response with clear reasoning.

Q 3(c) **[4 Marks]**
In your opinion, to what extent is formal systems development compatible with continuous software engineering? Justify your opinion with clear reasoning.

[End of Question3]

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

Q 4(a) **[5 Marks]**
In your own words, provide a definition for “software quality”.

Q 4(b) **[5 Marks]**
In your own words, describe what is intended by the term “software maintenance”.

Q 4(c) **[10 Marks]**
Identify and briefly explain five principles of "Infrastructure as Code" as advocated in in DevOps.

[End of Question4]

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

Q 5(a) **[8 Marks]**

In your own words, explain the concept of formal transformation as employed in software development. Make use of a diagram as appropriate.

Q 5(b) **[8 Marks]**

In your opinion, to what extent is risk management a common feature of commercial software development? Justify your response with clear reasoning and examples as appropriate.

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

In your opinion, to what extent is it possible to create software that achieves the competing goals of better, faster, and cheaper? Justify your opinion with clear reasoning.

[End of Question5]

[END OF EXAM]