Ollscoil Chathair
Bhaile Átha Cliath
Dublin City University

SEMESTER 2 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) **[6 Marks]**
In your own words, provide a definition for the software development process.

Q 1(b) **[5 Marks]**
In your own words, provide a brief explanation of regression testing.

Q 1(c) **[8 Marks]**
In your opinion, is it preferable to have regression testing performed manually or automatically? Provide a clear explanation for your selection.

Q 1(d) **[6 Marks]**
In your opinion, what is the most radical innovation in Kanban from a software development perspective? Justify your response with clear reasoning.

Q 1(e) **[15 Marks]**
Identify what are in your opinion the five most important differences between commercial software development and undergraduate programming assignments. For each difference identified, clearly indicate why it has an implication for the software development process and include specific examples of process activities.

[End of Question1]

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

Q 2(a) **[10 Marks]**
Identify a technique that could be employed in determining the extent of agility that is appropriate in any given software development setting. Provide a clear description of your advocated approach and include a diagram if appropriate.

Q 2(b) **[10 Marks]**
Identify the sectors or domains in which Capability Maturity Frameworks are adopted. Comment on the reasons why these frameworks might be conferring advantages in these specific domains.

[End of Question2]

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

Q 3(a) **[9 Marks]**
In your own words, provide a detailed explanation for DevOps.

Q 3(b) **[6 Marks]**
In your own words, describe what is intended by the term "hooks" in the context of source code control systems such as Git.

Q 3(c) **[5 Marks]**
In your opinion, what are the major benefits of "hooks" as provided by source code control systems? Justify your response with clear reasoning and examples as appropriate.

[End of Question3]

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

Q 4(a) **[10 Marks]**
In your own words, clearly explain the primary concepts related to Function as a Service (FaaS). Include examples and diagrams as appropriate.

Q 4(b) **[10 Marks]**
In your opinion, which type of software process (e.g. agile, waterfall, V-model, iterative and incremental, continuous software engineering) is best suited to the development of FaaS based software systems? Justify your response with clear reasoning and examples.

[End of Question4]

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

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

Identify five distinct dependability properties of software systems, providing an explanation for each of the five properties.

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

In the context of dependable software systems, describe the Airbus flight control system architecture. Make use of a diagram as appropriate, clearly describing each component.

[End of Question5]

[END OF EXAM]