THIS PAPER IS NOT TO BE REMOVED FROM THE EXAMINATION HALLS

UNIVERSITY OF LONDON **CO3353 ZB**

BSc Examination

COMPUTING AND INFORMATION SYSTEMS, CREATIVE COMPUTING and COMBINED DEGREE SCHEME

Software Engineering Project Management

Thursday 17 May 2018: 10.00 – 12.15

Time allowed: 2 hours and 15 minutes

There are **FIVE** questions on this paper. Candidates should answer **THREE** questions. All questions carry equal marks and full marks can be obtained for complete answers to **THREE** questions. The marks for each part of a question are indicated at the end of the part in [.] brackets.

Only your first **THREE** answers, in the order that they appear in your answer book, will be marked.

There are 75 marks available on this paper.

A handheld calculator may be used when answering questions on this paper but it must not be pre-programmed or able to display graphics, text or algebraic equations. The make and type of machine must be stated clearly on the front cover of the answer book.

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Question 1

a) Identify the **FOUR** main activities undertaken by a project manager in the requirements engineering process.

[4 marks]

b) Provide a brief description for each of the activities you have identified in your answer to question 1a.

[8 marks]

c) It is generally recognised that software development is a difficult and risky process. Discuss **THREE** major sources of risk in project development.

[6 marks]

d) Define what is meant by the term *Refactoring* in software engineering.

[3 marks]

e) Identify **FOUR** ways in which refactoring supports software maintainability improvement.

[4 marks]

Question 2

a) Project managers increasingly find themselves in a position where they need to delegate tasks to other members of their team. However, it is important that they remain informed of what is taking place during the development process. One way of doing this is to ensure that the manager is given reports on the progress of the project.

Identify **THREE** types of progress reports.

[6 marks]

b) For each of the reports you have identified in your answer to question 2a, discuss the information that they may contain.

[9 marks]

c) Project management may be approached from many perspectives; there is no universal right or wrong way of managing a software development project. Despite variations in the way that a project is managed, there are many instances when recognised standards are put in place throughout the process of the project.

Define what is meant by a standard.

[2 marks]

d) Discuss some of the reasons why standards may be beneficial to software project management.

[8 marks]

Question 3

a) Changing user requirements frequently results in changes to functionality, not only during development but also once the system has been deployed. Adding functionality after a system is in operation is expensive. Discuss why is it more expensive to add functionality after a system is in operation than during development .

[8 marks]

b) Compare Agile project management methods with conventional project management methods.

[8 marks]

c) Discuss why good project management is important in the software development process.

[9 marks]

Question 4

a) Discuss the concepts of *artefacts* and *milestones* in the context of software engineering project management.

[9 marks]

b) A project manager needs to ensure that their team is able to demonstrate a number of characteristics. Identify and briefly discuss **FOUR** of the more important of these characteristics.

[8 marks]

c) Organisations today frequently introduce process improvement initiatives. It is important that they decide, before embarking on such an initiative, how they will determine whether the process improvement initiative has been successful. Identify **FOUR** criteria which may be used to determine whether the initiative has been successful.

[8 marks]

Question 5

a) Discuss **THREE** tangible benefits of a software engineering project.

[6 marks]

b) Discuss **THREE** intangible benefits of a software engineering project.

[6 marks]

c) Lehman and Belady conducted a series of empirical studies of the evolution of large software systems, resulting in Lehman's Laws of system change. Identify and explain **FOUR** of these laws.

[8 marks]

d) A major component of a costing calculation for software development is to estimate the scale of the problem. Discuss **TWO** basic methods for estimating the scale of the problem.

[5 marks]

END OF PAPER