THIS PAPER IS NOT TO BE REMOVED FROM THE EXAMINATION HALL

UNIVERSITY OF LONDON

CO3353 ZA

BSc EXAMINATION

COMPUTING AND INFORMATION SYSTEMS and CREATIVE COMPUTING

Software Engineering Project Management

Friday 17 May 2019: 10.00 – 12.15

Time allowed: 2 hours and 15 minutes

DO NOT TURN OVER UNTIL TOLD TO BEGIN

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.

Calculators are not permitted in this examination.

UL19/0340

Question 1

Read the following scenario and then answer the questions below.

The University of Shires (UOS) is a large educational establishment in England. In recent years the student population has grown very rapidly. The rules and regulations for student enrolment on courses are continuously changing. To deal with this dynamic environment, UOS is developing a new integrated IT system that will include a student records system and a new timetabling system. UOS have taken into account that changes in the university environment in the future are inevitable. They are therefore considering only developing the basic functions of the system at the present time and will add further functionality later on. To date they have not decided whether they will use Agile Project Management methods or conventional project management methods.

a) Advise UOS on the implications of adding functionality after a system is in operation rather than during its development.

[8 marks]

b) Advise UOS on whether they should use Agile Project Management Methods or Conventional Project Management methods.

[8 marks]

c) Discuss the extent to which you believe good project management is important to UOS.

[5 marks]

d) Highlight to UOS some of the key issues that go wrong in software engineering project management.

[4 marks]

Question 2

a) Requirements validation is an important component of software engineering project management. Define what requirements validation means.

[3 marks]

b) Briefly discuss your views on why requirements validation is so important in the software engineering process.

[3 marks]

c) Imagine yourself as a software engineer project manager on a large project whose aim is to provide a new customer database to a retail organisation. The project will ultimately cost many millions of dollars and hence it is imperative to ensure that the requirements are correctly specified. Discuss some of the checks that could be put in place to ensure that the requirements are valid.

[15 marks]

d) Discuss the difference between validation and verification.

[4 marks]

Question 3

a) Critically assess the Use Case as a model for requirements gathering.

[6 marks]

b) Define what is meant by refactoring.

[3 marks]

c) Discuss the benefits of refactoring.

[8 marks]

d) Discuss 4 factors that affect the maintainability of software.

[8 marks]

Question 4

a) The process of identifying and recording requirements in software development is of extreme importance in that it provides an understanding of the scope of the project, the outputs that will be required and the way of assessing the outcomes that are achieved. These requirements are typically recorded in the software requirements specification document. Briefly describe the outline of each section that should be contained in the software requirements specification document.

[10 marks]

b) The aim of a Feasibility Study is to determine whether a project should go ahead. Both the customer and the supplier must be satisfied that the project is worth undertaking. However, the questions that the customer might ask about the project outcomes, outputs and business justification may differ from those that the supplier might be addressing. Outline some of the important questions that the customer might ask and those that the supplier might ask.

[6 marks]

c) Identify the differences between the business, user and system requirements in requirements engineering.

[9 marks]

Question 5

a) Testing of Software is critical in software engineering. For each of the following types of testing, identify the purpose of testing and who is involved in the testing process.

Development testing
Release testing
User testing.

[6 marks]

b) Define what is meant by software maintenance.

[4 marks]

c) Discuss three different types of software maintenance.

[12 marks]

d) Predicting the number of changes required for a system requires an understanding of the relationship between the system and its external environment. Discuss three issues that need to be addressed in order to evaluate the relationship between a system and its environment.

[3 marks]

END OF PAPER