BIRKBECK COLLEGE
(University of London)

MSc EXAMINATION

SCHOOL OF BUSINESS, ECONOMICS AND INFORMATICS

INFORMATION SYSTEMS

COIY059H7

15 credits

WEDNESDAY 29 MAY 2013

2:30 pm – 4:30pm

INSTRUCTIONS

Candidates must answer THREE questions in Total

TWO questions must be selected from Section A

ONE question must be selected from Section B

No credit will be given for additional questions answered

There are five questions on this paper

All questions are worth 33 marks

Marks for sub-questions are shown on the right below the sub-question

One mark is reserved for a well presented paper

The paper is worth 100 marks in total

No electronic equipment may be used

Time allowed: Two hours

Candidates must NOT bring any supplementary material into the examination.

Section A

Question 1

a. The figures below represent two management reports from Coadalot's project management system. Stating the rules for deriving Codd's normal forms use Codd's normalisation to normalise the report to the Third Normal Form showing the intermediate forms. Do not show foreign keys.

Hint: notice the differences in the hourly rate column for the same employees.

(33 Marks)

Coadalot Project Report

Project Code   01432
Project Title   Crown Salaries Project
Project Manager   T Lee   **Project Budget**   £25.250

Employee Number	Employee Name	Department No	Department Name	Hourly Rate
3241	A Smith	1	Business Analysis	£25
5623	C Yu	3	Design	£25
1367	D Onojoku	4	Coding	£20
7124	E Begum	5	Testing	£32

No. of Staff on Project = 4   **Average Hourly Charge** = £25.50

Coadalot Project Report

Project Code   01435
Project Title   Crown Accounts Receivable Project
Project Manager   S Anderson   **Project Budget**   £54.000

Employee Number	Employee Name	Department No	Department Name	Hourly Rate
3241	A Smith	1	Business Analysis	£35
4123	B Jones	2	Architecting	£75
5623	C Yu	3	Design	£25
1367	D Onojoku	4	Coding	£20
7124	E Begum	5	Testing	£25

No. of Staff on Project = 5   **Average Hourly Charge** = £36.00

Question 2

a. SpecRavers is an ophthalmic optician practice selling spectacles to the general public in Someland. When a prospective patient (Patient) enters one of their branches they may speak to an ophthalmic intern (Intern) training to be an optician and ask immediately for an appointment with an ophthalmic optician (Optician) who will perform a diagnosis and may:

   a. Advise they have excellent sight;
   b. Recommend correcting lenses and write a prescription;
   c. Make an appointment with the eye hospital.

When the patient first speaks to the intern, the intern will capture some identifying information from the potential patient, including their Someland National Insurance Number and credit card details. The salesperson will check the Someland National Insurance on-line database (SNIDB) to verify whether the potential patient needs to be charged for a consultation with the optician as Someland Nationally Insured citizens are allowed one free optician consultation every two years. (Someland National Health provide a tailored module to perform this check against the SNIDB which should be modelled as a use case integrated within your system boundary).

During a diagnosis the optician will record the specification of lenses, send a message to the Eye Hospital system requesting any external appointments required, create a lens specification and may record optional selections (e.g. coatings, variable or multiple focus etc.) according to the patient's wishes. Before or after a consultation the patient may select from a range of spectacle frames with the assistance of the intern. The intern may also specify options according to the patient's wishes and must record some biometric data.

When the patient has fully agreed to an order, the intern triggers a requisition to the constructing company which builds a pair of spectacles to the specification. After a few days the patient returns after the delivery of the spectacles and has them fitted and adjusted by the intern who records the adjustments, the collection, and processes the final payment.

Draw a high level use case model of a proposed integrated system to support a branch of SpecRavers showing the use cases that associate the actors in this scenario with the four external systems. Your answer should include at least one <<include>> association and one <<extend>> association. Amongst other model elements use the actor names shown in parentheses in paragraph one of this scenario.

(27 marks)

b. Explain the three kinds of relationship modelled in the use case diagram.

(6 marks)

Question 3

a. Kurt Lewin's change management model is often cited for technology driven organisational change projects and described as Unfreeze-Move-Refreeze. Explain what should happen and be put in place when a major organisational computer based system transitions from being developed to "refreezing" in a new organisational form.

(33 marks)

Section B

Question 4

a) Your friend Steve Gates has developed new software to control how printers optimise use of ink. He doesn't know how to protect his innovation and comes to you for advice. What can you tell him about copyrighting and patenting software in the UK?

(13 Marks)

b) Steve's day job is with Applesoft, and he mentions that he actually developed his new software as a bespoke solution for an Applesoft client. How does this colour your advice for Steve?

(13 Marks)

c) Your friend has put together an album of family photos that she wants to put on Facebook. She's used a U2 song as a background music track for the album slide show. What advice could you give her about copyright infringement? What is YouTube's position on copyright infringement?

(7 marks)

Question 5

a) Some people believe that the IS profession should be regulated, and the title of software engineer reserved. Describe exactly what reserving title and function mean, and set out your views on the advantages and disadvantages of this proposal.

(20 marks)

b) You're concerned because your Council is planning to demolish a local library and build in its place an incinerator for burning books and other unnecessary carbon-based reading materials. What regulations can help you find out how the Council made its decisions, and how it assessed the impact of such decisions?

(13 marks)