BCS THE CHARTERED INSTITUTE FOR IT

THE BCS HIGHER EDUCATION QUALIFICATIONS
BCS Level 4 Certificate in IT

INFORMATION SYSTEMS

Tuesday 2nd April 2013 – Morning
Time: TWO hours

Section A and Section B each carry 50% of the marks. You are advised to spend about 1 hour on Section A (30 minutes per question) and 1 hour on Section B (12 minutes per question)

Answer the <u>Section A</u> questions you attempt in <u>Answer Book A</u>
Answer the <u>Section B</u> questions you attempt in <u>Answer Book B</u>

The marks given in brackets are **indicative** of the weight given to each part of the question.

Calculators are **NOT** allowed in this examination.

SECTION A
Answer TWO questions out of FOUR in Answer Book A. Each question carries 30 marks.

A1   A local doctors' surgery needs to provide an automated on-line monthly repeat medicine prescription request service to save unnecessary administration.

After a consultation, the doctor will enter the prescription details and number of prescriptions which can be collected; and give the first prescription to the patient. To access the service, patients must register by supplying their email address and confirm security questions. They will be allocated a random password which can only be changed by the surgery's administrator. The patient will have the choice of picking up the prescriptions from the surgery or alternatively allocate a local chemist/pharmacist shop who will prepare the prescription for collection. When another prescription is required, the patient will access the system which will indicate when the prescription will be ready. A copy of the prescription will be printed ready for collection at the surgery or sent to the appropriate chemist/pharmacist. When the last prescription is to be collected, the patient will be reminded to make an appointment to review the medication.

a)   List the main processes, external entities and data stores.

(6 marks)

b)   Sketch a high level dataflow diagram.

(8 marks)

c)   As this is a simple system, name and describe the most suitable method to analyse and design the requirements.

(8 marks)

d)   Draft two screens which could be used by the patient to log in and request a prescription.

(8 marks)

Turn Over]

A2   a)   A large company's management needs to be convinced that a proposed information system is feasible. Describe what factors would need to be considered and included in a feasibility report.

(10 marks)

b)   After the feasibility report has been approved, discuss the stages and techniques that will be used to design and develop this system.

(15 marks)

c)   What is the purpose of CASE?

(5 marks)

A3   a)   What is the purpose of normalisation?

(3 marks)

b)   Briefly describe the three main stages of TNF (third normal form) using an example.

(12 marks)

c)   List three other forms of normalisation.

(3 marks)

d)   Discuss the main facilities offered by the use of a database management system.

(12 marks)

A4   a)   Briefly describe the functions and skills required for the following jobs:

   i)   Software Engineer
   ii) Network Administrator
   iii) Database Administrator

(3 x 4 marks)

b)   What is the meaning of professionalism with regard to system development?

(6 marks)

c)   Outline the drawbacks and benefits of an on-line ordering systems to an organisation.

(12 marks)

Section B

Answer FIVE questions out of EIGHT in Answer Book B. Each question carries 12 marks.

B5 Most systems use usernames and passwords as their primary security device.

    a)   Discuss what rules you would use for the creation of passwords

(6 marks)

    b)   How would you enforce what you have recommended in a)?

(6 marks)

B6 How can an organisation enhance its web site that is used primarily by users who are visually impaired?   .

(12 marks)

B7 a)   Outline the advantages and disadvantages of conducting face to face interviews to identify problems within the project initiation stage.

(8 marks)

    b)   Do you consider questionnaires to be an effective fact finding technique? Give reasons for your answer.

(4 marks)

B8 Using examples, discuss what is meant by the following database related terms.

    a)   Primary Key
    b)   Foreign key
    c)   Nulls

(3 x 4 marks)

B9 Discuss what is meant by the following testing terms

    a)   Black box
    b)   White box
    c)   Regression

(3 x 4 marks)

B10 a)   Identify three different types of media which could be used in a multimedia application. Give an example of each.

(3 x 2 marks)

    b)   If a web interface is not designed with accessibility in mind, describe three problems that may arise.

(6 marks)

B11 Explain what tasks still need be done once the implementation phase of the Software Development Life Cycle has been completed

(12 marks)

B12 What are the main responsibilities of a software project manager?

(12 marks)