

# BCS THE CHARTERED INSTITUTE FOR IT

## BCS HIGHER EDUCATION QUALIFICATIONS BCS Level 4 Certificate in IT

### INFORMATION SYSTEMS

Tuesday 24<sup>th</sup> September 2013 - Afternoon  
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 Section A questions you attempt in Answer Book A  
Answer the Section B questions you attempt in Answer Book B**

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

Calculators are <b>NOT</b> allowed in this examination.
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### SECTION A

**Answer 2 questions (out of 4). Each question carries 30 marks.**

- A1 a) A large power tool company has merged with several of its small competitors. It requires a new information system. Show how you would control and manage your team in carrying out this project and what management techniques you would use.
- (15 marks)**
- b) Briefly describe the following methodologies and identify their main strengths and weaknesses:
- i. Structured systems analysis and design,
  - ii. Object oriented methods and
  - iii. Prototyping.
- (3x5 marks)**
- A2 a) Identify FOUR fact-finding methods that could be used within a system investigation. Provide different advantages and disadvantages of each.
- (4x3 marks)**
- b) Assuming you are an analyst interviewing a user of a patient appointment system, give an example of ONE closed and ONE open question and explain the difference between them and when they may be used.
- (4 marks)**
- c) Define the following terms and give an example from a patient appointment system. You may make assumptions in your examples as long as you explain them:
- i. An entity
  - ii. A relationship
  - iii. An attribute
  - iv. A primary key
  - v. A foreign key
  - vi. A concatenated (composite) key
  - vii. An entity life history
- (7x2 marks)**

**Turn Over]**

A3 a) Write brief notes on the following:

- i. A Data Warehouse
- ii. An Expert System
- iii. A Spreadsheet

**(3x4 marks)**

b) An account manager describes the procedure for paying invoices depending on the value of the invoice. Cash is paid when the value is below £10, a cheque is used for invoices up to £50 otherwise a credit card is used. Express this procedure using the following specification techniques:

- i. Structured English or pseudocode
- ii. A Decision Table

**(2 x4 marks)**

c) Briefly describe how you would carry out testing throughout the system development.

**(10 marks)**

A4

a) Your manager has asked you to prepare a report which shows the different ways a system can be implemented once it has been developed and is ready for use. Discuss the advantages of THREE different approaches to implementation.

**(12 marks)**

b) Why is it important to document all the stages of system development? Show how you would ensure good system documentation and indicate the main documents that should be provided.

**(10 marks)**

c) Discuss what security measures should be taken to ensure:

- i. Complete recovery of system data and software.
- ii. Prevention of unauthorised access to sensitive data.

**(2x4 marks)**

## Section B

**Answer 5 questions (out of 8). Each question carries 12 marks.**

- B5** Discuss a backup strategy for a database management system that does not use tapes.  
(12 marks)
- B6** What is meant by the following statistical measures, giving examples:  
a) Mean  
b) Mode  
c) Standard deviation  
(3 x 4 marks)
- B7** a) Discuss what is meant by a “hard methodology”. Name one such methodology.  
(6 marks)
- b) “Soft methodologies” were developed to address problems that were not very well covered by a “hard methodology”. What are these problems? Name one soft methodology.  
(6 marks)
- B8** An organisation has realised that the majority of its users have poor internet access when it comes to broadband speeds. What aspects of Human Computer Interaction (HCI) should the organisation concentrate on in order to improve the performance of the system for the users bearing in mind the slow broadband speed?  
(12 marks)
- B9** a) What is meant by the term “legacy system”?  
(3 marks)
- b) What needs to be done to decommission an organisation’s existing computer system/application when it is to be replaced by a new system?  
(9 marks)
- B10** Describe three different types of statistical analysis/reports that you could use to present raw data (e.g. company accounts) in a meaningful way.  
(3 x 4 marks)
- B11** Discuss what testing techniques you would use to test the functionality of a web site.  
(12 marks)
- B12** Name three types of diagrams used in object oriented methodologies. Give an example of each.  
(3 x 4 marks)