

BCS THE CHARTERED INSTITUTE FOR IT

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

INFORMATION SYSTEMS

Tuesday 25th September 2018 – 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 any Section A questions you attempt in Answer Book A

Answer any 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 NOT allowed in this examination.

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

A1

The new owner of a bookshop is re-organising the current systems. This involves:

- Ordering and purchasing books from suppliers and paying them.
- Selling books to customers.
- Giving discounts to regular customers.
- Paying staff.
- Providing an online enquiry and order system.
- Producing monthly and annual accounts.

a) Draw a high-level dataflow diagram containing the main processes, external entities, and data stores.

(10 marks)

b) Design a simple online enquiry screen that prospective customers could use to find a required author, book title or type of book.

(5 marks)

c) Write brief notes on the following business system development methods:

- i) Agile.
- ii) Object oriented.
- iii) Prototyping,

(15 marks)

A2

a) Describe and give an example of a PERT chart and a histogram (GANTT chart).

(9 marks)

b) Define the following statistical terms:

- i) Mean.
- ii) Mode.
- iii) Median.

(6 marks)

c) The following have differing roles within a large IT department in the development of a new computer system. Define these roles and responsibilities:

- i) Project Manager.
- ii) Technical Manager.
- iii) Database Administrator.

(15 marks)

A3

- a) Design a relational database to cater for the needs of the new bookshop owner as described in question A1, giving examples of tables, attributes, primary and foreign keys. You may assume that suppliers' orders contain more than one line. **(12 marks)**
- b) Give the main advantages of normalisation and describe the THREE main stages required to provide relations in 3NF (3rd Normal form). **(6 marks)**
- c) Write brief notes on the following:
- i) Outsourcing. **(4 marks)**
 - ii) Facilities management. **(4 marks)**
 - iii) Business process re-engineering. **(4 marks)**

A4

- a) As part of the implementation or installation of a system, there are many aspects you need to consider. Write brief notes on plans which need to be in place for the following:
- i) Testing the new system.
 - ii) Training new users.
 - iii) Converting data from an existing system to a new system.
 - iv) Installing new hardware.
- (12 marks)**
- b) Compare THREE different methods that can be used to install a new system. **(6 marks)**
- c) You are an IT manager within a software house. You have been asked to draw up a plan to provide security within the system you are developing. Describe what measures you can take to ensure that:
- i) Your data is protected.
 - ii) Your IT equipment is secure.
- (12 marks)**

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

B5

Fact finding can result in either quantitative or qualitative information.

- a) Describe what each term means, using examples. **(4 marks)**
- b) Discuss the advantages and disadvantages of each approach. **(8 marks)**

B6

Describe what is meant by the following management structures:

- a) Matrix. **(6 marks)**
- b) Hierarchical. **(6 marks)**

B7

A company's database has just crashed and is corrupted. Outline the policy and procedures that should have been in place, so that the database can be restored with as limited loss of data as possible. **(12 marks)**

B8

- a) Define the tools and techniques of a hard methodology. **(6 marks)**
- b) Define the tools and techniques of a soft methodology. **(6 marks)**

B9

What is meant by the following terms:

- a) Hypertext. **(3 marks)**
- b) Hypertext mark-up language (HTML). **(3 marks)**
- c) Extensible Mark-up Language (XML). **(3 marks)**
- d) Multimedia. **(3 marks)**

B10

- a) Define what is meant by quality, with respect to software. **(2 marks)**
- b) Discuss what quality procedures should be put in place to ensure that an organisation has:
 - i) Quality Software. **(5 marks)**
 - ii) Quality Documentation. **(5 marks)**

B11

Define what is meant by the following database related terms:

- a) Compression. (3 marks)
- b) Encryption. (3 marks)
- c) Data Warehouse. (3 marks)
- d) Data Mining. (3 marks)

B12

Human Computer Interaction (HCI) is an essential element when developing a web application. Outline what guidance you would give to a new development team about how they should approach HCI. (12 marks)