

BCS THE CHARTERED INSTITUTE FOR IT

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

INFORMATION SYSTEMS

Wednesday 21st March 2018 – 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 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) in Answer Book A. Each question carries 30 marks.

A1

- a) Briefly describe the stages used in a structured method with which you are familiar.

(10 marks)

- b) A business man has invested in a children's library and requires a system to deal with the following:

Stocking the library with books,
Registering young members who may borrow books,
Raising fines for overdue books,
Ordering new books,
Selling old books.

Describe the following techniques by giving examples based on the above children's library description:

- i) Context diagram
- ii) High Level Data Flow diagram
- iii) Entity/relationship diagrams (logical data model)
- iv) Entity life history

(20 marks)

A2

- a) What is a feasibility study and what areas would you expect to include in a feasibility report?

(10 marks)

- b) Briefly describe THREE fact-finding techniques you would use when analysing requirements.

(10 marks)

- c) Design a short on-line questionnaire which could be used to be sent to the parents of the children joining the library as described in question A1 to find out what type of books should be stocked. Include at least one open ended question and three closed questions.

(10 marks)

A3

- a) On-line systems need to be designed efficiently and effectively. Describe techniques you would use to achieve this.

(10 marks)

- b) Draw a diagram indicating how management information flows through a business organisation. Identify the three main levels and the type of information and software typically used at each level.

(12 marks)

- c) Define the main principles of a database.

(8 marks)

A4

- a) Discuss and provide examples of how new technology could be used to give a competitive advantage to both small and large businesses.
(12 marks)
- b) Describe the functions, requisite skills and qualifications of the following roles within a large IT department:
- i) Systems analyst/designer
 - ii) Web designer
 - iii) Network administrator
- (12 marks)
- c) As a member of BCS, you are required to act in a professional manner. Define what is meant by professionalism.
(6 marks)

Section B

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

B5

One definition of Big Data is that it consists of the following 4 V's. Define what is meant by each of the terms with respect to Big Data:

- a) Volume (3 marks)
- b) Velocity (3 marks)
- c) Value (3 marks)
- d) Variety (3 marks)

B6

From the following selection of numbers:

9,5,3,3,3,2,1,5,5,4

Calculate the following and show your calculations:

- a) Mean (4 marks)
- b) Medium (4 marks)
- c) Mode (4 marks)

B7

Define what is meant by the term multimedia by referencing three different types of media.

(12 marks)

B8

What is meant by the following terms?

- a) Information System (4 marks)
- b) Management Information System (4 marks)
- c) Geographical Information System (4 marks)

B9

Normalisation and Entity Relationship Diagrams are two techniques for designing data structures.

- a) Describe these two techniques (6 marks)
- b) What are the advantages and disadvantages of these two techniques? (6 marks)

B10

What is meant by the following related terms?

- a) CASE (3 marks)
- b) RAD (3 marks)
- c) Prototyping (3 marks)
- d) Time boxing (3 marks)

B11

Testing is often considered to be the last stage of the developing software applications. Discuss at what stages of the system development lifecycle testing could be done and what techniques you would suggest should be used.

(12 marks)

B12

As part of a database security review you have been asked to:

- a) Create a password policy. Outline such a policy. (6 marks)
- b) Suggest how the policy could be enforced and promoted. (6 marks)

END OF EXAM