BCS THE CHARTERED INSTITUTE FOR IT

BCS HIGHER EDUCATION QUALIFICATIONS
BCS Level 4 Certificate in IT

INFORMATION SYSTEMS

Tuesday 17ᵗʰ September 2019 - 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.

[Turn Over]

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

A1. A hotel has built chalet bungalows in its grounds to expand its business. These chalets can be rented by customers for one or several weeks throughout the year. Each week is denoted by a week number. The customers can make enquiries by phone or online. It requires a new online reservation system to deal with these enquiries, rentals, cancellations and payment which can be accessed by staff or a customer.

(a) Draw a Context Diagram and a High Level Data Flow Diagram using the above scenario.
(10 marks)

(b) There are several information systems' methods which could be used to develop the above system. Define and give examples and a BRIEF overview of the main features in the following:

(i)   Object-oriented development using UML.
(ii)   A soft system approach.
(iii)   A prototyping method.
(iv)   Structured systems analysis methodology.
(20 marks)

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) Explain why obtaining the requirements and current practices from management and potential users are important. Define three techniques which could be used giving advantages and disadvantages of each.
(10 marks)

(c) There are many different departments in a large manufacturing business. Briefly define the function of the following departments and typical type of data they would deal with.

(i) Purchasing (buying).

(ii) Payroll and Human Resource Management.

(iii) Marketing.   **(10 marks)**

[Turn Over]

A3.

(a) Using the required hotel reservation system described in Question A1, design a set of input screens, which can be used by the customer to enter their details, a required week, and choose an appropriate date and chalet.

(12 marks)

(b) Comment on what design techniques you would use to ensure that this is a user-friendly system.

(12 marks)

(c) Define the validation needed for typical fields.

(6 marks)

A4.

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

(12 marks)

(b) Over the last few years the use of the internet has expanded into many areas, however security issues have increased. Give reasons for this and identify ways data can be protected.

(12 marks)

(c) Give brief notes on how training and testing of a new system should be planned.

(6 marks)

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

B5. A company wishes to create a user group to support an internal project.

Which roles would you expect the user group to consist of?

(12 marks)

B6. Entity Relationship Modelling and Normalisation are two complimentary techniques used to create data structures.

    a) Describe the two techniques.

(6 marks)

    b) Outline the advantages and disadvantages of each technique.

(6 marks)

B7. Using the numbers below, illustrate what is meant by the following terms:

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

    a) Mean;

(4 marks)

    b) Mode;

(4 marks)

    c) Median.

(4 marks)

B8. It is 4:30 on a Friday afternoon, and the database server hard discs have become corrupted. Outline what policies and procedures you would have put in place to ensure no loss of data.

(12 marks)

B9. Questionnaires are a fact-finding technique used during the early stages of analysis.

    a) Explain what is meant by open ended questions by use of examples.

(4 marks)

    b) Explain what is meant by closed ended questions by use of examples.

(4 marks)

    c) Where else in a project may questionnaires be used?

(4 marks)

[Turn Over]

B10. Describe the following:

    a) Black box testing.

(4 marks)

    b) White box testing.

(4 marks)

    c) Stress testing.

(4 marks)

B11. Explain the following terms, giving examples:

    a) Tactical data.

(4 marks)

    b) Strategic data.

(4 marks)

    c) Operational data.

(4 marks)

B12. Discuss design solutions that can be implemented to ensure that a visually impaired person can successfully use a web page.

Focus only on software – there are no marks for discussing hardware related solutions.

(12 marks)

End of Exam