BCS THE CHARTERED INSTITUTE FOR IT

BCS HIGHER EDUCATION QUALIFICATIONS
BCS Level 4 Certificate in IT

INFORMATION SYSTEMS

Wednesday 25th March 2015 - 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 2 questions (out of 4). Each question carries 30 marks.

A1
a)   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   **(4 x 5 marks)**

b) Using any system as an example, describe the use of **TWO** of the following techniques:

  i)   Entity life history
  ii) Entity/relationship diagrams (logical data model)
  iii) Normalisation (1NF to 3NF)   **(2 x 5 marks)**

A2
You have been appointed as Project Manager for a large hotel company which is opening a new hotel at a new holiday destination resort. Although they have an existing system used in their other hotels, a completely new system will be required to deal with room reservations and bookings for customers. It will need to provide an on-line (web-based) enquiry system as well as handling guests' reservations, guests checking in/out and payments.

a) Explain why a preliminary survey needs to be carried out when developing a large computer based system as described above.   **(4 marks)**

b) What is a feasibility study and what areas would you expect to include in the feasibility report? **(9 marks)**

c) Briefly describe **THREE** fact-finding techniques you would use in the analysis phase giving examples of each. **(9 marks)**

d) Sketch a High Level Data Flow Diagram depicting the above system. **(8 marks)**

A3
a) i) Design a typical input screen, which can be used by the receptionist to record booking details for the hotel system described in question A2. **(8 marks)**
    ii) Comment on what design techniques you would use to ensure a user-friendly and secure system. **(8 marks)**
    iii) Give examples of validation needed for typical fields on your screen. **(4 marks)**

b) Describe a suitable method of implementation that could be used if the system were to be used in all the other hotels in the hotel group mentioned in question A2. Include in your answer other aspects that need to be considered when converting to the new system and justify your choice of implementation method. **(10 marks)**

A4
a) A company has been advised that it is failing to keep up to date with new technology.

   Draft a report discussing and providing examples of how new technology could be used to give competitive advantage to the company **(15 marks)**

b) Define the roles and responsibilities of the following systems personnel:
    i) System analyst
    ii) Database administrator
    iii) Network administrator
    iv) Web designer **(4 x 3 marks)**

c) Designers and developers have responsibility for the systems they develop. What is meant by the BCS Code of Conduct? **(3 marks)**

SECTION B

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

B5
A company is outsourcing the development of a new computer system. What problems is the company likely to encounter in managing the development of this system and how might they overcome these problems? **(12 marks)**

B6
Write brief notes on the following:
a) CASE tools **(4 marks)**
b) PERT chart **(4 marks)**
c) Joint Requirements Planning (JRP) **(4 marks)**

B7
a) Define what is meant by the following database terms:

    i) Relational database management system (RDBMS)
    ii) Cloud database   **(2 x 3 marks)**

b) Discuss the advantages and disadvantages of cloud databases for an organisation.
                                                        (6 marks)

B8
Describe, with the aid of a sketch, the following statistical terms and discuss what type of data they represent best:
a) Histogram   **(4 marks)**
b) Scatter chart   **(4 marks)**
c) Pie chart   **(4 marks)**

B9
Name THREE types of multimedia elements. Discuss the advantages and disadvantages of each.   **(3 x 4 marks)**

B10
In addition to supporting users, Help Desks are often used to collect information about errors. What data can usefully be collected via a help desk system to aid the reporting and diagnosis of errors?   **(12 marks)**

B11
Your organisation is planning a major system development and requires a project manager to oversee the project. You have been asked to draft an outline job description for the project manager.

Briefly outline the areas you would include in such a job description and why.   **(12 marks)**

B12
Briefly outline the testing strategies for the following new systems and highlight the differences:
a) a database system   **(4 marks)**
b) a web based system   **(4 marks)**
c) a real-time system   **(4 marks)**