

THE BRITISH COMPUTER SOCIETY

THE BCS PROFESSIONAL EXAMINATIONS BCS Level 4 Certificate in IT

INFORMATION SYSTEMS

16th October 2006, 10.00 a.m.-12.00 p.m.
Time: TWO hours

Both Section A and Section B 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).

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

Calculators are NOT ALLOWED in this examination.
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SECTION A

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

1. A sports clothing business specialising in gymnastics and fitness clothing is developing an on-line web site to sell and promote their products. The following functions are required: displaying the product, allowing customers to check availability of size and colour, producing a shopping basket, dealing with credit card payments and arranging delivery.
 - a) You are the project manager for a small software house employed to manage the above development and have been asked to give a presentation to the directors of the above company detailing your development methods. Write a short report describing the following development methods and techniques used in each, indicating which you would choose and why you chose it:
 - i) Prototyping
 - ii) Object oriented analysis
 - iii) Hard system methodologies

(15 marks)
 - b) Sketch a series of screens enabling the customer to pick the product he/she requires, build up a shopping basket and enter payment and credit details.

(15 marks)

Turn over]

2. a) The production of a large project requires good project management skills and techniques. Describe the mechanisms and stages you would produce in order to manage and control such a project to ensure a good quality system, which is produced on time. **(13 marks)**
- b) Using the system development life cycle as an example, draw a Gantt chart and a PERT chart for a project lasting twelve weeks, making reasonable assumptions as to the length of each stage. **(8 marks)**
- c) Write brief notes on the following:
- i) Outsourcing **(3 marks)**
 - ii) Facilities management **(3 marks)**
 - iii) The role of a software house **(3 marks)**
3. a) There are several issues that need to be taken into account when investigating the feasibility of a project. Describe what should be contained in a typical feasibility report. **(10 marks)**
- b) A system's data is stored in a database, which is supported by a database management system (DBMS). Describe what functions should be contained in a typical DBMS in order to be able to present good quality data when required. Use an example with which you are familiar. **(10 marks)**
- c) Your manager has expressed an interest in buying help desk software to support the hardware and software within a company. Produce a report showing the main functions and data required to support a help desk database. **(10 marks)**
4. a) There are several types of testing strategies and stages when testing should occur. Prepare a brief report identifying THREE different types of testing and THREE stages, which should be included in testing. **(12 marks)**
- b) Documentation is vital to provide good maintenance facilities. **Briefly** describe what should be contained in the following:
- i) System specification
 - ii) User training and reference guide
 - iii) Technical documentation **(9 marks)**
- c) Discuss what measures you would take to ensure that your company's data is secure and recoverable at all times. **(9 marks)**

Section B

Answer FIVE questions out of EIGHT. Each question carries 12 marks.

5. a) An Entity Relationship Diagram (ERD) consists of the Entity Relationship Model (ERM) and associated documentation. What information should be included in the additional documentation? **(5 marks)**
- b) Outline what you consider to be good practice for drawing an ERD. **(4 marks)**
- c) List THREE other techniques that could be used to support an ERD. **(3 marks)**

6. Internet sites should be accessible to all users regardless of whether they do or do not have special needs. Comment on how you would structure test scripts and conditions to ascertain whether an internet site was accessible to all types of users. **(12 marks)**
7. What is meant by the following terms and outline the principles and techniques behind each term:
- a) RAD
 - b) SSADM
 - c) PRINCE
- (12 marks)**
8. What features and functions does a CASE tool provide? **(12 marks)**
9. Define the following terms and explain their use:
- a) ASP
 - b) XML
 - c) ODBC
 - d) DBMS
- (4 x 3 marks)**
10. Company X is recording 'defects' information about all its current products, including those under development and those in operation. Defects can be reported by: system designers (during formal inspections); testers (during systems and integration testing) or users. What information should be collected when defects are reported? Sketch a screen layout containing this information. **(12 marks)**
11. a) A standard Microsoft Windows development environment has a number of features that would assist with the development of a data entry application. Discuss THREE such features and give examples of where they would be used to assist data entry and validation. **(3 x 2 marks)**
- b) What are the relevant advantages and disadvantages of server side and client side validation? **(6 marks)**
12. Measurements and Metrics play a key role in the management of a RAD approach to project development. Outline the type of information that needs to be collected, so that subsequent projects can be better estimated and the overall quality improved. **(12 marks)**