

THE BCS PROFESSIONAL EXAMINATION

Diploma

October 2004

EXAMINERS' REPORT

Professional Issues in Information Systems Practice

General

The pass rate for this sitting was poor, the worst that it has been for some time. As usual, however, there were a few candidates, all from overseas, who produced excellent answers.

On this occasion it appears that candidates' major weakness was lack of knowledge. This may in part be due to this being the first examination set entirely on the new syllabus. There were very few answers to question 1 and not many more to question 2, although the topics addressed by these questions appear in the syllabus very explicitly. Surprisingly few candidates were able to give competent explanations of the difference between fixed and variable costs, and between a balance sheet and a profit and loss account.

Question 1 (syllabus section 9)

There were few answers to this question and only one or two had any merit. Candidates seemed to have no knowledge of the ISM and answered by giving descriptions of the new membership structure, the examination structure or the code of conduct.

1. a) Provide a brief explanation of the BCS Industry Structure Model (ISM). **(8 marks)**

The BCS Industry Structure Model is the only internationally recognised set of comprehensive performance standards for all those working in information systems and related fields. It has a matrix structure in which each cell corresponds to a level of a responsibility and a stream of activity or expertise.

- b) The BCS Industry Structure Model (ISM) recognises ten Levels. The top two Levels are combined. Level 0 is the lowest and Level 8/9 is the highest. What is the concept behind these Levels? **(10 marks)**

The concept of levels is used as a consistent measure of the degree of autonomy, responsibility and accountability implicit in Roles definitions across the ISM functions. Level descriptions indicate the amount of supervision likely to be required or exercised, the maturity of interpersonal skills, the scale of tasks and projects which can be competently planned and executed.

- c) What makes the latest version of the BCS Industry Structure Model (ISM) – ISM 3.3 - flexible and easy to use? **(7 marks)**

ISM 3.3 is delivered as a CD-ROM with full browse and print facilities. Online help and supplementary information are supplied. Thanks to its level of detail and non-prescriptive nature, the ISM 3.3 is a flexible tool that can be applied in a variety of ways to aid recruitment, training and development of IS staff.

Question 2 (syllabus section 5)

Although more candidates answered this question than answered question 1, it was still fairly unpopular and few candidates showed any knowledge of parts (a) or (c), although part (b) produced rather better answers.

2. a) Briefly explain how the UK Regulation of Investigatory Powers Act 2000 relates to the management of a company's computer systems. **(8 marks)**

The UK Regulation of Investigatory Powers Act 2000 makes it illegal to intercept communications on a public network without legal authority. [4]

Any organisation would be open to civil action if they failed to obtain legal authority to intercept a communication, or have a reasonable belief that both the sender and recipient of the communication have consented to the interception.[4]

- b) Briefly outline how the UK Disability Discrimination Act 1995 might relate to an organisation's website. **(9 marks)**

Under the UK Disability Discrimination Act 1995 section 21.1 it is the duty of service providers to make reasonable adjustments to cater for disabled users, for example those who are colour-blind and those who are partially sighted. [4]

In this instance the term services would typically mean the facilities provided by the organisation's website, such as information services, which might potentially need to be adjusted for example by avoiding certain website colour combinations, and by using large font sizes to make them more accessible to users with sight difficulties. If information is conveyed through pictures, labels should be provided so that a text-to-speech tool can describe their content. [5]

- c) Explain the difference between opting-in and opting-out in terms of email marketing with regard to an organisation's website. **(8 marks)**

An opting-in policy for email marketing means that e-mail marketing information is only sent to people who have indicated explicitly that they wish to receive such material.

An opting-out policy for email marketing means that email marketing material is sent to anyone who has not explicitly said that they do not wish to receive it.

Question 3 (syllabus section 1)

Part (a) was answered reasonably well, although the answers tended to be very brief. Some candidates described the code of conduct, for which no marks were given.

Part (b) was badly answered. Some candidates took it to imply that software engineers do have to be licensed in the UK, while others took it to refer to software licensing.

3. a) Describe FIVE roles and/or responsibilities of British Computer Society as a professional body. **(15 marks)**

Typical roles are:

- to advance knowledge in the area, e.g. involvement in ECDL
- uphold professional competence, e.g. professional development portfolio
- set related education standards, e.g. accreditation /benchmarking

- defining standards for professional conduct, e.g. code of conduct
- advising UK Government, e.g. on data protection.

5 x 3 marks [1 for topic + 1 for further detail + 1 for example].

b) Compare and contrast the licensing of software engineers to practice in the UK compared with:

i) other UK professionals

(5 marks)

More or less by definition, a profession has (one or more) formal professional bodies to which members of the profession may belong and all have a body of knowledge. In some professions (law, architecture but not medicine) there is reservation of function, either to members of the professional bodies or to persons registered appropriately. IS doesn't have this. Some professional bodies (e.g. the BCS, IEE) are established by Royal Charter and others by statute. Without reservation of function, which usually goes with statutory status, a body can only enforce its code of practice on its members, not on everyone practising the profession.

ii) software engineers elsewhere in the world

(5 marks)

Varies from country to country, with many similar to the UK. In many countries (USA, Singapore) both the title and function of engineer are reserved. But software engineering may not be a recognized branch of engineering. In some states of the USA this seems to mean that anyone can call themselves a software engineer but in others no one can. The IEEE and the ACM are much stronger in the learned society role than the BCS but they have no direct involvement in licensing.

Question 4 (syllabus section 2)

Parts (a) and (b) were fairly well answered. Part (c) was not well answered, many candidates doing nothing more than agree with the statement and failing to provide any explanation of why it happens.

4. a) Explain, with suitable examples, what is meant by saying that an organization has a functional structure and contrast this with a geographical structure. (10 marks)

In an organization with a functional structure, employees are grouped into units that do the same kind of work. In such an organization, a single sales and marketing unit will be responsible for the sales and marketing of all the company's products in all the markets in which it operates. Similarly, a single finance office will be responsible for accounting for all products and in all countries in which the company operates. In contrast, with a geographical structure, the primary units of organization are geographical, so each region, area, or country will have its own sales and marketing force and its own accounting group. In either structure, the centre (HQ) will have a role in setting standards and policies throughout the organization.

b) What are the advantages and disadvantages of a functional structure?

(10 marks)

The following is a suggested list but credit will be given for other relevant points.

Advantages:-

- Centralised decision-making helps provide each function with an organisational perspective.

- Pooling of specialist enhances coordination and control.
- Facilitates specialist career development.

Disadvantages:-

- Specialists can develop a narrow functional orientation and consider themselves part of an “ivory tower” rather than an integral part of a bigger organisation.
- Functional area conflicts will arise more frequently.
- Differences in functional goals can reduce communication and coordination between functions.
- Difficult to establish organisation wide performance metrics.

c) Why in practice does a single company usually exhibit a mixture of different structures? **(5 marks)**

Some functions are very specialized and only form a small part of the companies activities. (Legal activities fall into this category in many companies.) It is not economically sensible to try to divide a group of three people across ten regions. Other functions, such as Health and Safety or Quality, need to be independent of operational considerations if they are to be effective; they therefore constitute a natural functional unit. In multinational companies, however, sales and marketing will usually need to be organized on a country by country basis because its effectiveness depends heavily on having a cultural sympathy with potential customers; this can also be true even within a single country where different regions can have markedly different cultures.

Question 5 (syllabus section 4)

Answers to part (a) were reasonable but tended to be too vague and to confuse fixed costs with fixed assets and with overheads. The question is so standard that the examiners had expected very high marks on this section, but they were disappointed.

There were quite a lot of good answers to (b)(i), from candidates who clearly understood what the question was about, but the remainder were very poor. There were very few good attempts at (b)(ii).

5. a) Explain the terms *fixed costs* and *variable costs*, using suitable examples to illustrate your explanation.

(8 marks)

The fixed costs of an asset are the costs that accrue regardless of whether the asset is used or how much it is used. Thus, for example, the cost of vehicle excise duty on a car is a fixed cost; it has to be paid if the vehicle is taken on to a public road, regardless of how few or how many miles the vehicle travels in the year.

Variable costs of an asset are costs that depend on the amount that the asset is used. Continuing the previous example, the cost of fuel for the vehicle is the most obvious example of a variable cost.

b) A company needs to buy a high throughput printer, which will be used to print some 3 million sheets per year. It has reduced the possibilities to two:

The Cambrian Superprint costs £10,000 and there is an annual maintenance charge of £6,000, irrespective of the number of pages printed. Toner cartridges cost £100 and one cartridge lasts for 100,000 sheets. The manufacturer quotes a lifetime of 9 million copies.

The Yorkshire Stamper costs £12,000. There is a maintenance charge of 0.3p per sheet printed, which covers all maintenance including replacement toner cartridges. The quoted lifetime is 12 million copies.

- i) Calculate the total cost per sheet printed for each of the two printers and hence recommend which one should be purchased. **(12 marks)**

The Cambrian Superprint will last for three years during which time it will require 90 toner cartridges. The total cost will therefore be

$$£10,000 + 3 \times £6,000 + 90 \times £100 = £37,000.$$

This gives a cost of $3,700,000/9,000,000 = 0.41$ p per sheet.

The total cost for the Yorkshire Stamper is

$$£12,000 + 12,000,000 \times £ 0.003 = £48,000$$

This gives a cost $4,800,000/12,000,000 = 0.40$ p per sheet

Hence we should recommend the Yorkshire Stamper.

- ii) Explain how the recommendation would be affected if the number of sheets printed per year were to increase? **(5 marks)**

[You should not try to take account of the time value of money in your calculations.]

Since there are no fixed costs for the Yorkshire Stamper, the marginal cost per extra copy will not change.

For the Cambrian Superprint, if the number of copies printed reaches 4,500,000 per year, the fixed costs will reduce by the cost of a year's maintenance. This will reduce the cost per sheet to $3,100,000/9,000,000 = 0.34$ p.

In this case, therefore, the Cambrian Superprint becomes the preferable option.

Question 6 (Syllabus sections 3 and 7)

This question was generally quite well answered.

6. A university provides internet services to its students, including allowing them to set up their own web sites. It is concerned, however, that students might place damaging but false allegations about prominent people on their sites and that the university might be sued for substantial amounts of money.
- a) Discuss the extent to which the university's worries are justified and suggest what it might do to minimize the risk. **(13 marks)**

The author, editor and publisher are all responsible in cases of defamation and all can be sued. Damages are awarded by juries and can be very large. The issue is whether the university is "the publisher". The law is unclear but the general opinion is that, provided the university is not attempting to monitor what students put on the web, it is probably not liable. However, to keep the risk low, it needs a code of practice for students, that tells them, inter alia, that they mustn't do this sort of thing, and it must have a policy that, whenever a complaint is received, the offending page is removed from the site and only replaced if investigation reveals the complaint to be unjustified.

- b) Explain the meaning of the terms *balance sheet* and *profit and loss account*, and describe the relationships between them. **(12 marks)**

The balance sheet shows the state of a company at a given point in time. It shows the assets of the company, that is the value of the things that it owns and the money that is owed, and the liabilities, that is what it owes. There is a balancing item that shows the excess of assets of liabilities.

The profit and loss account shows what has happened to the company financially over the a given period. It shows the company's income and its expenditure. Expenditure includes depreciation but does not include money spent on purchasing fixed assets. Income and expenditure are normally calculated on an accrual basis, that is, on the basis of invoice dates rather than on cash movements. The difference between income and expenditure is the change in the value of the company over the period. It should be equal to the change in the balancing item on the balance sheets from the start of the year and the end of the year.