

THE BCS PROFESSIONAL EXAMINATION

Diploma

April 2000

EXAMINERS' REPORT

Core Module: Professional Issues In Information Systems Practice

General Comments

The overall pass rate for this paper varied markedly from venue to venue; some venues achieved a 100% pass rate while at other venues no candidates at all passed. Some candidates appeared to have been well prepared for the paper but many seemed to have had no preparation at all. It seemed in particular that the specimen papers and the model answers that were available had not been studied and neither had the material on the reading list. Overall the pass rate was disappointing.

A particular problem was that candidates from some venues produced answers to the questions on finance and management that reflected the practice of the manufacturing industry of 50 years ago.

Question 1 – Answer Pointers

Many organisations undertake regular job performance appraisals. Appraisal systems can vary in purpose and style.

Explain the different purposes of an appraisal system.

There are two main purposes of appraisal systems: monitoring performance /judging rewards; and for staff development

[4 marks]

Describe a suitable generic appraisal process, showing how this might affect the style of the appraisal.

The student is expected to describe in some detail the process to be followed, this is likely to include:

Preparation

This will depend on whether you are the appraiser or appraisee, but will still include: book the meeting; reconsidering the objectives (throughout the year not just prior to the meeting); keeping an account of actions / events since the last appraisal; thinking ahead for the following year; managers should reassure the team member

Appraisal meeting

There should be a discussion

- review past performance; setting objectives; consider development needs (new experiences & training); areas of weakness; good appraisers will let the team member identify these;

appraiser should be listening; balancing the level of good & bad points; can be a two way exercise (not just top-down but also feedback to the manager from the team member)

Documenting the appraisal

Needs to be written up for future reference – sometimes on standard forms; write it during the meeting vs afterwards; agreement of accuracy

Purpose of the scheme can affect aspects such as ...

If it is for pay & promotions then

need for accuracy in measurement & recording; Need for fairness between staff

Openness likely to be reduced; Less ambitious objective setting by appraisee

Could lead to conflict ; Subjective element needs to be understood

If for staff development then

helps in developing a skilled workforce; more openness about weakness; training identified better.

[15 marks]

What influence would your membership of the British Computer Society have on the preparation for your own appraisal?

The second part expects that the candidate will relate the question to the code of practice and /or the continuing professional development scheme. Ideas such as those below will help to support the basic argument that a professional should be always developing their skills and should be aware of what's going on in the field. However the candidate may pick up on alternative benefits such as special interest groups, seminars run by local branches, or sharing knowledge between members.

Code of practice makes the professional responsible for:- their own development; keeping themselves informed of new technologies, practices, etc.; needs to be competent to do the job; looking to improve, aware of own limitations; plan and review personal & subordinate's objectives; be accountable for responsibilities

Continuing Professional Development provides some structure for the above; gives credits; encourages documentation

[6 marks]

Question 2 – Answer Pointers

Explain the main purposes of the Data Protection Act 1984.

This question expects understanding of the Data Protection Act (1984) (DPA84) and to know the differences with the 1998 Act (DPA98). Candidate to explain the purpose of the DPA84 by relating the principles to the overall objective of the Act

Background / objective of DPA84

- *Council of Europe directive*
- *To protect individuals where data about them is processed automatically*
- *To facilitate a common international standard of protection to support free flow of information*

DPA84 achieves this by having the principles ensuring personal data is processed lawfully, in accordance with the purposes of holding it, and with adequate security. Individuals have rights to scrutinise the data held about them and taken action if it is inaccurate. Organisations have to register with the Registrar. DPA84 is enforced by the Registrar, a Data Protection Tribunal, and, if necessary, the High Court.

[15 marks]

Describe the main differences between this original Act and the new Data Protection Act 1998.

Differences from DPA98 include:

- *Includes manual data / part of a filing system*
- *Definition of processing is broader*
- *Terms changed (such as data controller replace data user)*
- *Principles are similar but more specific and relate directly to personal data*
- *Specific principle relating to transfer of data outside EEA*
- *Personal rights are stronger, eg information to be provided to the data subject if they did not provide the data.*
- *Exemptions more specific and includes areas previous not exempt*

[6 marks]

Discuss why these changes were considered necessary.

Reasons for introduction include:

- *To cover gaps in the original Act*
- *To develop better standardisation across the EU*
- *To strengthen personal privacy rights*
- *To make the Act clearer*

[4 marks]

Question 3 – Answer Pointers

NewSoft develop bespoke software for other organisations. Each project involves the production of a new computerised information system to the requirements of the client. Judith is a self-employed contractor and has recently been asked to produce a web-based electronic commerce system for a client of NewSoft, a furniture retailer called Sofas & Co. The e-commerce system allows the client organisation to take orders and manage its customers electronically. Given the potential demand for similar systems, NewSoft has decided to reuse the software developed for the client and create a packaged solution.

Discuss the intellectual property rights involved in this situation.

[17 marks]

What action could have been taken either by Sofas & Co or by Judith?

[8 marks]

Intellectual property rights (IPR) are covered by: Copyright law ; Patent protection; Contract law; Breach of confidence

The candidate is not expected to show a full understanding of all these, but a basic grasp of the laws will be expected. The guidelines below will be applied flexibly as there are a number of possible approaches, so each answer will be marked on based on the approach taken in the script. However, in general terms marks for answers are likely to reflect the following categories

16-20 Strong understanding of the issues and the law in this area, able to draw from the different laws as appropriate to the different stakeholders in this case

11-15 Good grasp of the concepts, able to discuss the points using good examples of copyright and contract law

7-10 Some knowledge of the laws involved, but likely to be rather sketchy in the detail. Has related the points to the case.

0-6 Weak answer, maybe some mention of copyright or some of the basic ideas of breach of confidence but no sensible discussion of the case.

The ownership of IPR is a complex and often unclear area. Normally the ownership is with the producer of the item or idea, but this can be subsumed into a wider right to ownership by, say, an employer

Candidates can draw from the Copyright, Designs and Patents Act. Copyright protects works with originality, tangibility, qualification, and ownership. They would be expected to discuss whether Judith had any rights under this Act and whether this software was included in the Act

Originality – the work of the author's (it is)

Tangibility – expression of idea not the idea itself (ok because of the program itself)

Qualification - unlikely that someone writing software in the UK would not be protected

Ownership – this is the crux of Judith's (and indeed Sofas') position. Who owns the original software? This would be in the contract. Was Judith effectively an employee for this purpose – passing up IPR to the employer? Did Sofas buy the ownership of the software or just their version of it?

If it is possible to claim IPR on the original then have (or will) NewSoft infringe the copyright with the new system? Is it a straight copy or just using the concepts of the original – in which case it might make it more difficult to prove in court. Although the owner could claim that NewSoft have made an adaptation.

It is possible for either Sofas or Judith to consider breach of confidence, a civil action. This depends on the source and quality of the knowledge imparted in the business activity. If for instance if Judith had developed the product from her own sources of knowledge and had expected to develop her own packaged product from the ideas she could claim breach of confidence. However, if the knowledge about the system came from NewSoft and she had written the code then it is less likely that she could claim this.

One method of invention protection is to take out a patent, but computer programs are excluded by the Patents Act, so contracts are the best form of protection.

Contracts can transfer or assign copyright ownership, but above all they should clarify who owns the IPR. If such a contract is broken or copyright ownership can be established then the owner can sue for damages or take out an injunction.

Question 4 – Answer Pointers

Explain the meaning of the terms *fixed assets* and *current assets*, illustrating your explanation with suitable examples.

A fixed asset is something that contributes to the capacity of the company to do its business. Typical examples are premises and equipment but software can also be a fixed asset.

Current assets are things that have value and will be bought or produced and sold in the normal course of the company's business. Raw materials, stocks of bought-in components and stocks of finished goods are current assets. Less obvious examples are debts and work in progress, i.e., work that has been carried out on a contract but not yet paid for by the customer.

[10 marks]

Describe how the two types of asset are valued for balance sheet purposes, using as an example the following assets owned by a company that writes and sells software packages:

- a stock of 500 user manuals for version 1 of a package, version 2 of which is to appear shortly. The company paid £5,000 to have 1,000 manuals printed and has been selling them at £25 per copy;
- a file server costing £15,000 that is used by the software development teams.

Current assets are valued at the lower cost price and net realisable value. The cost of the stock of user manuals was £2,500. The net realisable value of the stock is affected by the fact that version 2 of the package is coming out shortly. We shall probably not sell more than 50 of the remaining manuals, to yield £1,250. The net realisable value of the stock is therefore lower than its cost. The valuation is therefore the net realisable value, i.e., £1,250.

The cost of acquiring a fixed asset is spread over its useful economic life. This is done by reducing the value of the asset each year by an amount called the depreciation, until the value reaches zero at the end of its useful economic life. The original cost is not charged to the profit and loss account but, each year, the depreciation is charged to it. There are several ways in which the depreciation can be calculated. The commonest (and simplest) is straight line depreciation. Using this method, if the useful economic life is N years, the depreciation in each year is one N 'th of original cost.

The file server is clearly a fixed asset and its useful economic life is perhaps three years. The depreciation in each year is therefore $£15,000/3 = £5,000$. Its value at the end of the first year is therefore £10,000, at the end of the second year, £5,000, and at the end of the third year, zero.

[15 marks]

Question 5 – Answer Pointers

Write short notes on FIVE of the following:

- a) the advantages and disadvantages of limited company status;

The main advantages of limited company status (as opposed to trading as a partnership or a sole trader) are:

- *part-ownership of the company can be transferred comparatively easily through the sale of shares;*
- *the principals' personal assets are not at risk;*
- *in most fields, a limited company is perceived, rightly or wrongly, as a more serious undertaking.*

The disadvantages are:

- *the disclosure requirements and the cost of meeting them;*
- *the responsibilities and liabilities that the law lays on the directors;*
- *more generally, the burden of company law.*

- b) the structure of the engineering profession in the UK;

The engineering profession in the UK has a two-tier structure. The top level consists of the Engineering Council. This is a federation of the professional engineering institutions. Individuals can only be members of the latter. The Engineering Council itself has responsibility for matters affecting the engineering profession as a whole. In particular, it lays down general criteria for entry to the profession and, through the Board of Engineers Registration, it is responsible for maintaining a register of qualified engineers. It also has responsibility for promoting the public image of engineering.

The second level consists of the professional engineering institutions themselves. There are some forty of these and they are specific to particular engineering disciplines. They interpret the Engineering Council regulations regarding registration in the context of their own discipline and nominate suitably qualified members for registration. They also promote education and continuing professional development in the discipline, and function as learned societies in encouraging and facilitating research.

- c) activity networks;

An activity network is a model representing the activities required in order to complete a project. It has the form of a directed graph whose nodes represent activities; there is an edge from node A to node B if the activity represented by node B cannot be started until the activity represented by node A has been completed. There are two distinguished nodes, project start, which is not dependent on any other node, and project completion, on which no nodes are dependent. With each node, there is associated a vector of resources required to complete the activity that it represents; one of the elements of this vector is elapsed time and another is manpower but there may be others, such as time on specialised machines.

Once an activity network for a project has been set up, it can be used to assist project management in a variety of ways, such as critical path analysis, which identifies the longest path (i.e. the path for which the sum of the elapsed times of the nodes on the path is largest) from project start to project completion.

- d) the Computer Misuse Act 1990;

The Computer Misuse Act 1990 created three new criminal offences: unauthorised access to a computer, unauthorised access to a computer with intent to commit a serious crime, and unauthorised modification of information held in a computer. The basic offence of unauthorised access is committed by anyone who knowingly gains unauthorised access to, or attempts to gain unauthorised access to, a computer or part of a computer system. This is punishable by six months

imprisonment or a fine of up to £5,000. The author offences are considered much more serious and carry a penalty of up to five years imprisonment. Until the Act was passed action against such offences could only be taken indirectly, e.g. by prosecuting the offender for the theft of electricity or criminal damage.

- e) work in progress and the calculation of its value;

Work in progress is work that has been carried out on a firm contract (typically a fixed price one) for specific client that has not yet been invoiced. If a client makes a payment on signature of the contract, or some other advance payment, the result can be negative work in progress.

The value of work in progress is a current asset and is shown on the balance sheet; it often appears under the heading 'amounts recoverable on contracts'. The increase or decrease in the value of work in progress from one year or the next appears as income or expenditure respectively on the profit and loss account. The simplest satisfactory way of calculating the value of work in progress is to calculate the cost, C, of the work already carried out, and to estimate the cost D of the work to be done to complete the contract. The work in progress value is then $C/(C+D)$ times the total value of the contract.

- f) the nature of overheads.

Costs that cannot readily be associated with a specific unit of output are known as overheads. In some cases it may be logically impossible to make the association, e.g., one cannot associate the cost of sending the personnel manager on a course about managing absences with the cost producing a particular item of software. In other cases, it may simply be too time-consuming or costly to be worthwhile, e.g., trying to associate with each software item produced the costs of the letterhead stationery used.

In a company that is divided into several operating units, overheads will arise at the central or corporate level (Chairman's costs, costs of central functions that may include accounts and payroll, personnel, legal, etc.) and at the divisional or unit level (sales costs possibly, equipment costs, and so on). There may be more than two levels of overheads.

Since overheads are costs, they have to be recovered, one way or another. This can be done either by levying a charge on top of the direct cost of units of output before calculating the selling price or by levying a charge on the units of input (frequently just on labour) before calculating the direct cost of the output.

The above answers are fuller than candidates would have been expected to give. In fact, the answers produced by the candidates were very disappointing. The question

was intended to be an easy one, testing factual knowledge and the ability to express it.

Question 6 – Answer Pointers

Pontevedro Software produces a range of packages for project management, accounting, and cost estimation in the construction industry. It is currently developing a new package for computer-aided drafting that will interface with the cost estimation package. It currently employs some 200 professional staff. The packages are sold in the UK, North America and Australia but the company is keen to expand into Asia and into mainland Europe. The organisational structure of the company is more or less the same as when it was a company with 20 staff, operating only in the UK, and the directors have decided that a fundamental reorganisation is necessary.

Discuss the main decisions that have to be taken before the new organisation can be set up.

The fundamental decision is whether to structure the organisation on the basis of function, product, or geography – or, rather, how to incorporate these aspects into a suitable structure.

There is a strong argument for a functional structure at the top level, with a sales and marketing division, a development and production division, and an administrative division. The sales and marketing division would then be organised geographically, with sections responsible for each of the main geographical areas.

The development and production division might be divided into three: customer support; maintenance and development of existing products; and development of new products.

The advantage of this structure is that, while sales and marketing probably requires a physical presence in each of the main geographical areas, production and development do not.

[25 marks]