

BCS THE CHARTERED INSTITUTE FOR IT
BCS Higher Education Qualifications
BCS Level 5 Diploma in IT

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EXAMINERS' REPORT

Professional Issues in Information Systems Practice

General comments on candidates' performance

In contrast with the significant improvement in the pass rate for this module experienced over recent sittings, this sitting has seen a catastrophic slump in the pass rate, to the lowest it has ever been.

There is clear evidence that the poor performance was due to a decline in the quality of the candidates rather than to any increased difficulty in the examination. Question 6 was in all essentials the same as a question set in October 2007. Candidates were asked to do exactly the same things; only the scenario was (mildly) different. In October 2007, 61% of the candidates who attempted the question achieved a pass mark on the paper; in the present sitting, only 34% of the candidates attempting it passed.

While their lack of linguistic skills continues to be a major problem for many candidates – as well as making the examiners' job very difficult, there is nothing to indicate that this problem has worsened. Rather, the drop in the pass rate seems to be largely due to lack of knowledge, i.e. candidates were less well prepared for the examination than in previous sittings.

As has been pointed out on a number of occasions, it is not necessary for candidates to spend time writing out the questions; the examiners are provided with copies of the examination paper.

Question A1

- a) Briefly explain the purpose of a **code of conduct**. **(4 marks)**

- b) Outline the benefits of adopting codes of conduct in the field of computing and information systems. **(6 marks)**

- c) The BCS Code of Conduct is divided into four sections; one of these sections is 'Duty to the Relevant Authority'. Members of the BCS are expected to behave professionally towards the relevant authority. Give THREE examples to explain what this means. **(15 marks)**

Answer pointers

Part (a)

A Code of Conduct sets out the professional standards of behaviour that members of the body are expected to follow in their professional life. It applies

to all members. “It looks outwards, in the sense that it is concerned with the relationship between members and society as a whole”. It governs the conduct of the individual. [4]

Part (b)

A brief description of the meaning of the codes; that there should be support for the adoption of the codes. A valid argument might be the need for computing professionals to understand and manage their responsibilities in an ethical manner and these codes can act as guidelines to enforce standards of professional responsibility for their members. Acknowledgement of the importance of maintaining reputational standards in the field of computing; emphasizing that these codes can only be of use if they are clearly understood and adhered to by the practitioners. [6]

Part (c)

Avoid conflicts of interest plus relevant example. [5]

Avoid misrepresentation plus relevant example [5]

Do not pass on confidential information without permission – plus relevant example. [5]

Syllabus section: Professional Codes of Conduct

Examiners' comments

This question was attempted by 92% of the candidates, 40% of whom achieved a pass mark.

Question A2

- a) Using suitable examples, explain what is meant by the terms
 - i) structure by **market sector**
 - ii) structure by **product line**when used to describe organisational structures. (8 marks)
- b) Explain what is meant by the term **outsourcing**. (5 marks)
- c) What reasons might an organisation have for outsourcing its IT provision? (6 marks)
- d) What protection does European law offer to employees who are transferred to a different employer as a result of outsourcing? (6 marks)

Answer pointers

Part (a)

When a company or a part of a company is divided into sections according to the sector of the market it aims to serve, it is said to be organised by market sector. For example, a company selling software for customer relationship management might be organised into divisions serving the banking sector, public utilities, the retail industry, and so on.

A company is organised by product line if it is divided into sections according to the product produced. Thus a motor manufacturer might have a cars and light vans division, a buses division and a lorries division.

Syllabus section: Organisations and their Structure

Part (b)

Outsourcing occurs when a company or organisation commissions another company or organisation to carry out work rather than doing the work itself. Some examples of outsourcing, such as the use of outside legal firms or outside painters and decorators, are traditional and long established, and do not attract attention. Others, such as the outsourcing of IT provision are more recent and more controversial.

Part (c)

To allow it to concentrate on its core business.

To benefit from the IT expertise of specialists that it would not be economical for it to employ itself.

To avoid generating ill feeling within the work force if recruitment difficulties make it is necessary to pay IT staff substantially more than equivalent staff in other areas.

Part (d)

Under the Transfer of Undertakings (Protection of Employment) (TUPE) Regulations, employees employed by the previous employer when the undertaking changes hands automatically become employees of the new employer on the same terms and conditions. It is as if their contracts of employment had originally been made with the new employer. Thus employees' continuity of employment is preserved, as are their terms and conditions of employment under their contracts of employment (except for certain occupational pension rights.)

Representatives of employees affected have a right to be informed about the transfer. They must also be consulted about any measures which the old or new employer envisages taking concerning the affected employees.

Syllabus section: Human Resources Management

Examiners' comments

This question was attempted by 69% of the candidates, 32% of whom achieved a pass mark.

Despite the fact that the syllabus explicitly refers to 'Legal issues arising from outsourcing', few candidates seemed aware of the TUPE regulations.

Question A3

- a) List the SIX main categories of work in the SFIPlus framework.

(6 marks)

- b) Describe FOUR ways SFIPlus can be employed to aid professional development. **(8 marks)**
- c) Job evaluation schemes can be either analytical or non-analytical. Through the use of examples, explain both types. **(11 marks)**

Answer pointers

Part (a)

One mark for each of the following six:

- Strategy & architecture.
- Business change.
- Solution development and implementation.
- Service management.
- Procurement and management support.
- Client interface.

Part b)

Two marks for each of the following:

- Measure and benchmark skills to the industry standard.
- Map current skills with an IT job role.
- Identify career paths.
- Identify skills gaps and plan training accordingly.

Part (c)

Analytical schemes assess each individual job on the basis of the different elements within each job. Elements could include, budgetary responsibility, degree of autonomy, marketing skills, management of staff. Each element within the job is given a weighting. Then each job is assessed for each of the elements on a given scale (e.g. 0 for budgetary responsibility if no budgetary responsibility goes with the job). A score for the job is calculated by adding the scores for each element and this is then multiplied by the weighting assigned to that element. **(6 marks)**

Non-analytical schemes compare whole jobs without considering the individual elements and skills that make up the job. An example is the widely used technique of job classification within the public service. First the number of grades are decided and then the descriptions of the job characteristics for each grade are produced. **(5 marks)**

Syllabus section: Human Resources Management

Examiners' comments

This question was attempted by 14% of the candidates, 7% of whom achieved a pass mark. It was therefore by far the least popular question and the worst answered.

Aware that the terminology can be confusing, the examiners would have been sympathetic to candidates who, for example, confused SFIA work categories with skill resources. However, such was candidates' ignorance of the whole topic that problems like this did not occur.

There can be no excuse for candidates lack of knowledge on the topics covered by this question. Job evaluation is explicitly mentioned in the syllabus and is explicitly covered the recommended text (pp116-119). SFIPlus features prominently in the Human Resources Management section of the syllabus. At the time that the recommended text was written, SFIPlus was only just being introduced and the coverage is therefore limited but there is plenty of information available on the BCS website.

Question B4

- a) The following are legal mechanisms for protecting a company's intellectual property (IP). Describe the way in which each of these mechanisms might be used to protect the IP of a software company.
- i) copyright
 - ii) trade marks
 - iii) patents.

(3 x 6 marks)

- b) Cloud computing is the use of internet-based infrastructure, platforms and software to provide on-demand services. Organisations such as Google, Microsoft and Amazon sell infrastructure capacity (e.g. storage, communications and processing) and software services (e.g. mail, office products). Cloud computing uses such resources across the world, as appropriate, and the precise location is not necessarily specified.

The University of Northern England (UNE) has decided it would like to move its key student information systems and mail servers to a cloud-based service. Discuss the **data protection implications** for UNE in using cloud-based services.

(7 marks)

Answer pointers

Part (a)

Copyright prevents unauthorised people from making copies of the software and related material such as design documentation, artwork for screen designs, or user manuals. Copyright also prevents unauthorised people from adapting the software, e.g. by translating it into a different programming language or producing a version to run under a different operating system. In the UK, copyright comes into existence automatically; it is not necessary to register it.

[6 marks]

A trade mark is any sign capable of being represented graphically which is capable of distinguishing goods or services of one undertaking from those of other undertakings. A trade mark may, in particular, consist of words (including personal names), designs, letters, numerals or the shape of goods or their packaging. If a symbol is registered as a trade mark, it is an offence for organisations other than the owner to display the trade mark on their products. By displaying the trade mark when its software is loaded, the owner of the trade mark prevents other organisations from falsely claiming that they have produced the software. In this way, the trade mark owner can protect its reputation. Trade mark protection is only effective in countries in which the trade mark is registered.

[6 marks]

A patent protects new inventions and covers how things work, what they do, how they do it, what they are made of and how they are made. It gives the owner the right to prevent others from making, using, importing or selling a similar invention, for a fixed period, even if they have developed it completely independently. A patent is only effective in the country in which it is granted, so applications in multiple countries or across groups of countries may be required. There is uncertainty about the extent to which software can be protected by patents and the law varies from country to country. Where it does apply, it provides very strong protection albeit for a limited period.

[6 marks]

Syllabus section: Intellectual Property

Part (b)

Under the Data Protection Act the organisation (UNE) would need to ensure that it complies with the Data Protection Principles enunciated in the Act. With the location of the data potentially uncertain, data controllers will find it difficult to comply with the 8th principle of the Data Protection Act (1998) (re transfer of data outside of the EEA). If it is non-personal data (e.g. accounts, teaching materials) there is no issue but if it is e-mail, student records, HR records, etc then it is necessary to ensure the location is known. There are also questions over security and compliance (7th principle), given that access to the system is more difficult to audit, but the actual security of the infrastructure may arguably be stronger, given the expertise likely to be available to the service provider – so UNE must ensure its supplier has adequate measures in place to protect data securely. The security and therefore confidentiality of sensitive and confidential materials would need to be assessed, if for example confidential research data were to be stored in the cloud, although the Data Protection Act only applies if the data is personal data.

Syllabus section: Legal Obligations

Examiners' comments

This question was attempted by 96% of the candidates, 21% of whom achieved a pass mark.

Answers to part (a) were generally reasonable. Many candidates answered part (b) by simply describing cloud computing rather than addressing the data protection issues that it raises; no marks were awarded for such answers.

Question B5

- a) You are an IT contractor who has been hired by a small company to develop an e-commerce system to handle selling goods to consumers. Explain to the manager of the company what will need to be done to ensure that the company complies with the UK Data Protection Act 1998.
(15 marks)
- b) For the company in part (a) explain to the manager of the company what would need to be done to ensure that the company complied with the UK Consumer Protection (Distance Selling) Regulations.
(10 marks)

Answer pointers

Part (a)

The company must register as a data user with the Office of the Information Commissioner, specifying what data is held and for what purpose. [3]

The company must take reasonable care to make sure that personal data held is accurate and up to date. [3]

The company must have procedures in place so that it can respond in a timely fashion to requests from data subjects to be supplied with personal data held about them by the company. [3]

The company must have procedures in place to destroy personal data when it is no longer required by the company. [3]

Appropriate security should be applied to personal data held by the company. [3]

Part (b)

The company would need to provide customers with certain information prior to the purchase of goods. Such information would include the right to cancel the contract to purchase goods, the main characteristics of the goods, and delivery costs where appropriate. [6]

The company should provide a "cooling off period" to enable customers to cancel the contract by giving notice of cancellation to the company. [4]

Syllabus section: Legal Obligations

Examiners' comments

This question was attempted by 77% of the candidates, 24% of whom achieved a pass mark.

The many candidates who failed to achieve a pass mark generally failed because of lack of knowledge rather than because of any misunderstanding of either the question or the topic.

Question B6

A new company has been established to develop a technological innovation that uses existing fibre cables to sense pressure waves in the ground or in the atmosphere and thus to detect, for example, leaks in pipelines or the presence of intruders.

- a) The estimated initial cost of developing the technology is £900,000. The net income is initially anticipated to be £200,000 per annum rising by £100,000 per year. Develop a simple cash flow projection and calculate the payback period, ignoring the time value of money. **(5 marks)**

Without doing any further calculations, explain how a **discounted cash flow** projection would differ from your simple projection and why it is generally preferred. **(4 marks)**

- b) After five years the balance sheet shows:

	(£000's)	
Fixed Assets		250
Good Will		200

Current Assets			
Stock	50		
Debtors	100		
Cash	25		
		175	
Current Liabilities			
Trade Creditors	40		
Tax	35		
		75	
Net Current Assets			300
Total Assets less Current Liabilities			750
Capital and Reserves			
Share Capital – £1 ordinary shares		400	
Loan stock		150	
Profit and Loss Account		200	
			750

With reference to this example, explain the following terms and how they are calculated:

- i) fixed assets
- ii) debtors
- iii) gearing
- iv) working capital.

(16 marks)

Answer pointers

Part (a)

year	1	2	3	4	5
expenditure	-£900K				
income	+£200K	+£300K	+£400K	+£500K	+£600K
Cash flow	(£700K)	(£400K)	(£0)	£400K	£1,000K

[4 marks – 2 for basis & 2 for numbers]

Payback 3 years

[1]

In a discounted cash flow projection the cash flows in years after the first would be adjusted to reflect their present value, that is, the sum which if borrowed or lent today would produce that amount at the appropriate time in the future. This is to be preferred because it reflects the need to pay interest on money borrowed for investment purposes.

[4]

Part (b)

Fixed assets are assets that are used by the company in order to carry out its business. They are not traded as part of the business. They include typically premises and equipment. Their value in the company's balance sheet is depreciated over their expected useful life.

Debtors owe money to the company. These are likely to be customers with outstanding invoices. These are counted as assets as it is monies due to be paid in for goods or services rendered. Valued equal to money owed, but bad debt sometimes allowed for in the calculation.

Gearing: the relationship between loan capital and equity capital on the balance sheet (long term liabilities $\times 100 /$ (share capital+ reserves + long-term liabilities) so here it is $150 \times 100 / 750 = 20\%$. The loan capital comes from

banks, venture capitalists, etc who receive an agreed rate of interest. High gearing indicates a high ratio of debt to equity capital and is considered undesirable by the shareholders and the lenders.

Working capital is the difference between current assets and current liabilities, that is, $175000 - 75000 = £100000$ in this case.

Syllabus sections: Finance and Management Accounting

Examiners' comments

This question was attempted by 48% of the candidates, 34% of whom achieved a pass mark.

Most of the students could not prepare a proper cash flow statement and answered with a very limited knowledge. Some students did answer the question correctly and concluded that the payback period was three years but the working of cash flow was not in the appropriate format.

Few of the candidates attempting the question had any understanding of discounted cash flow. Some students thought that the term referred to discounts offered to customers by the company.

Most of the students identified fixed assets as plant, machinery and vehicles. Some students described 'Fixed Assets' as property of the company which cannot be moved from one place to another and is fixed on one location. Most of the students who could explain what fixed assets are, were unable to relate it to the balance sheet given in the question.

Debtors: most of the students could explain what debtors are but didn't elaborate on bad debts and how it relates to the given balance sheet. Some students mistook debtors for creditors.

Gearing: very few students could answer what gearing means and came up with ideas which had no relationship to the question.

Working Capital: many of the students answered 'working capital' as cash needed to run day to day expenses of a company. Some students explained it to be difference between current assets and current liabilities. Very few students could actually relate it to the question and worked out the working capital of the company based on the available balance sheet.

Overall students were poorly prepared for this question. Some answers didn't make any sense at all and it was evident that students are trying to make up the answers on general knowledge rather than actual accounting knowledge. The fact that many wrong answers were wrong in exactly the same way suggest that the teaching in some places is at fault.