

The BCS Higher Education Qualifications

BCS Level 5 Diploma in IT

April 2011

EXAMINERS' REPORT

Professional Issues in Information Systems Practice

General comments on candidates' performance

The examiners were pleased to see further significant improvement in the pass rate at this sitting and a significant reduction in the proportion of woefully ill-prepared candidates.

There are still marked differences in performance among the different centres. The largest centre achieved a pass rate of 56%, while the third largest centre had a pass rate of only 26%. As has been said before, the examiners can only speculate as to the causes of these differences, since the larger centres all have candidates coming from a number of different course providers.

Among the 17% of candidates who gained less than 20%, the primary cause of failure was either lack of knowledge or lack of the necessary intellectual or linguistic skills to understand the material or write down their answers. The same probably applies to most of the further 19% of candidates who scored between 20% and 30%.

The examiners were surprised at how many candidates seem ignorant of the most basic material, as shown by the answers to parts (a) of questions 3, 4 and 5. Such material is very clearly set out in the recommended text and is very frequently asked for in the examinations.

Many of the weaker candidates made what might be termed 'housekeeping' errors, for example, answering questions in the wrong answer book or failing to fill in on the front sheet the numbers of the questions they have answered. Such candidates also quite commonly wasted time by writing out the question verbatim before starting their answer, apparently unaware that examiners are provided with copies of the question paper. All of these things suggest that such candidates have a limited understanding of what they are doing.

The examiners noted a number of instances in which an important misconception seemed to be shared by a large number of candidates in a single centre. This suggests strongly that the misconception lies originally with a teacher, who is then promulgating it to his or her students.

As usual, however, some candidates performed extremely well and showed a real and profound understanding of the material; as a result, they gained very high marks. Such candidates were to be found at all centres.

Question A1

For each of the following clauses in the BCS Code of Conduct, explain the purpose of the clause and discuss the issues members of the BCS face in trying to comply with the clause:

- a) Clause 6: You shall carry out work or study with due care and diligence in accordance with the relevant authority's requirements, and the interests

of system users. If your professional judgement is overruled, you shall indicate the likely risks and consequences.

- b) Clause 3: You shall ensure that within your professional field/s you have *knowledge and understanding of relevant legislation, regulations and standards*, and that you comply with such requirements.
- c) Clause 8: You shall not disclose or authorise to be disclosed, or use for personal gain or to benefit a third party, confidential information except with the permission of your relevant authority, or at the direction of a court of law.
- d) Clause 15: You shall not claim any level of competence that you do not possess. You shall only offer to do work or provide a service that is within your professional competence.
- e) Clause 16: You shall observe the relevant BCS Codes of Practice and any other standards which, in your judgement, are relevant, and you shall encourage your colleagues to do likewise.

(5 x 5 marks)

Syllabus section: Professional Codes of Conduct and their Limitations

Answer pointers

Part (a)

The purpose of this clause is to ensure professionals deliver high quality work in line with client and employer requirements, and take responsibility for highlighting issues to these stakeholders when required. The crux of the issue here, familiar to all professionals in whatever field, is the potential conflict between full and committed compliance with the relevant authority's wishes, and the independent and considered exercise of your judgement. If your judgement is overruled, you are encouraged to seek advice and guidance from a peer or colleague on how best to respond.

Part (b)

The purpose of this clause is to ensure we are aware of the regulations and law appropriate to our work – so ignorance is no defence.

As examples, relevant legislation could, in the UK, include the Public Interest Disclosure Act, the Data Protection Act (1998), the Computer Misuse Act, legislation concerned with the export or import of technology, possibly for national security reasons, or law relating to intellectual property. This list is not exhaustive, and you should ensure that you are aware of any legislation relevant to your professional responsibilities.

In the international context, you should be aware of, and understand, the requirements of law specific to the jurisdiction within which you are working, and, where relevant, to supranational legislation such as EU law and regulation. You should seek specialist advice when necessary.

Part (c)

The general purpose of this clause is clear: it requires members to treat as confidential information acquired in the course of their work. It is thus in line with the law regarding confidential information and with most commercial contracts, non-disclosure agreements and contracts of employment. In practice, of course, the law is not straightforward and it is not always easy to

distinguish between know-how acquired from working on a project and confidential information.

Other problems arise when it may be in the public interest for a member to breach an obligation of confidence, for example, when an employee considers that their employer has acted negligently or illegally. The scale of the misdemeanour plays an important factor in the decision to blow the whistle. Prior to any breaking of confidentiality though there should be a good attempt to raise the problem internally (e.g. via manager).

Part (d)

The purpose of the clause is to ensure work is undertaken by competent professionals and that the reputation of the profession is upheld. If you are under pressure to undertake a job for which you feel you do not have the competence then you should make sure that your manager understands this. You can assess your professional competence for undertaking a particular job or role by asking, for example:

- am I familiar with the technology involved, or have I worked with similar technology before?
- have I successfully completed similar assignments or roles in the past?
- can I demonstrate adequate knowledge of the specific business application and requirements successfully to undertake the work?

However, you should also bear in mind that if this approach is pressed too far, nothing new would ever be done.

Part (e)

Here the clause is ensuring that members are aware of and apply the Code of Practice. The Code of Practice is there to provide a set of good practices for the profession. We should be aware of other good practice and standards and apply them in our specific role. This Code describes standards of practice relating to the contemporary multifaceted demands found in information technology (IT). It is intended to help you personally as a member of the BCS by providing a framework of guidance into which your particular needs can be fitted. Whether or not you use the Code of Good Practice is a matter for your personal judgement but in exercising that judgement, you should recognise that your responsibility to an organisation and society as a whole may have to prevail over your personal interests.

[Note that as part of a recent review, Trustees of the BCS accepted a recommendation to withdraw the Code of Good Practice because it was not felt that comprehensive coverage was sustainable in a field as diverse as IT where there is such rapid change. This decision was announced on 3 May 2011, i.e., after the examination.]

Examiners' comments

This question was attempted by 69% of the candidates, 63% of whom achieved a pass mark.

Very few candidates were able to provide convincing answers to all parts of this question. Those who achieved a pass mark typically did so by answering a couple of sections well and just scraping one or two marks from the other sections.

The poor standard of written English displayed by many candidates made it impossible to understand what they were trying to say in their answers.

It seemed clear that a significant number of candidates had no real understanding of the situations in which the code would be relevant. They were not accustomed to working at levels at which they felt any personal responsibility for legal, ethical and moral issues that might arise.

Question A2

- a) Describe THREE selection techniques available to employers when seeking to make professional appointments.

(15 marks)

- b) Explain the role of:
- (i) the company secretary;
 - (ii) non-executive directors.

(10 marks)

Answer pointers

Part (a)

Five marks each for any three of the following:

One-to-one interviews. A series of one-to-one interviews with senior management and senior professional staff.

Interview by panel. Although the panel will contain professionals and/or senior management from the area for which the appointment will be made, it will also contain people who are neither professionally competent nor operationally involved in the appointment so as to minimise the risk of nepotism and other forms of corruption.

Assessment of references. Normally used as a final check in the private sector, whereas in the public sector a great deal more importance is given to them. Sometimes a phone conversation with the previous employer reveals a great deal more about the candidate than does a written reference.

Psychometric tests. Made up of three types. Ability tests measure a candidate's ability in a general area such as verbal skills. Aptitude tests measure the candidate's potential to learn new skills applicable to the position. Personality tests measure how the candidate is likely to behave with other people.

[Answers describing ability tests, aptitude tests and personality tests as the three techniques were accepted but, in this case, more detail was expected.]

Situational assessment. Candidates are brought together and placed in a variety of situations where each candidate's performance is observed and assessed by their peers.

Task assessment. Candidates will be asked to carry out some of the tasks they'll be required to do in the job.

Syllabus section: Human Resources Management

Part (b)

The company secretary is legally responsible for keeping the various records the company has to maintain and for submitting statutory returns to the Companies House in Cardiff. (5 marks)

Non-executive directors have no day-to-day operational responsibilities in the company. Typically, they attend board meetings to offer the benefit of their knowledge and sit on committees such as the remuneration committee where independent voices are important. They are paid a fee for their services. Legally, their duties and responsibilities are exactly the same as those of executive directors. (5 marks)

Syllabus section: Organisations and their Structure

Examiners' comments

This question was attempted by 84% of the candidates, of whom 56% achieved a pass mark.

The majority of the candidates answered part (a) of the question well. Some however confused job design with selection techniques and lost marks as a result.

Part (b) of the question was also answered well by the majority of candidates but some had no idea as to the role of either the company secretary or non-executive directors.

Question A3

- a) Briefly describe the THREE principles that are fundamental to the concept of a limited company.

(9 marks)

- b) You are the software development manager for an IT services company. The board of directors is considering introducing a system of management by objectives (MBO) across the whole company and is asking for managers' views about the proposal. Write a memorandum assessing the effect (positive or negative) that you think this would have on the performance of your team.

(16 marks)

Answer pointers**Part (a)**

A limited company has a corporate legal identity.

The ownership of a limited company is divided into a number of shares. The shares can be traded.

If the company incurs legal liabilities, the shareholders have no obligation to pay these.

(3 marks for each)

Syllabus section: Organisations and their Structure

Part (b)

Communication in memorandum format with appropriate language and tone.

(4 marks)

Much depends on the flavour of MBO that is adopted. Many flavours insist that that all objectives should be measurable. This is simplistic for any professional role and certainly for software engineers. Not all objectives for software engineers can be specified in precise, objective and quantifiable terms e.g. targets for lines of code produced could put pressure on software engineers to pay little attention to design, resulting in poor quality software. On the other hand, if the objectives are not measurable, there will be doubt as to whether or not they have really been achieved.

(12 marks)

Syllabus section: Human Resources Management

Examiners' comments

This question was attempted by 45% of the candidates, only 23% of whom achieved a pass mark.

Surprisingly part (a) of the question was answered badly by the majority of candidates. Any decent attempt to study the recommended text would yield high marks.

Part (b) of the question was not answered well by the majority of respondents, with many losing marks because they did not provide the answer in memo format. Many candidates lost marks because they did not refer to the scenario provided, in particular the role of the software engineer.

Question B4

a) Explain the purpose and use of the following accounting documents:

- i) balance sheet;
- ii) profit and loss account;
- iii) annual cash flow forecast.

(12 marks)

b) Assume that you work for a software company providing 'hosted solutions', that is, services for business applications such as payroll or accounts which are made available over the internet and include both the necessary software and the computing facilities to run it. Explain using examples how the following assets would be valued for balance sheet purposes:

- i) buildings, such as a data centre;
- ii) computer equipment, such as the servers in the data centre;
- iii) debtors, such as clients who pay on a quarterly basis in arrears for use of the software.

(13 marks)

Answer pointers

Part (a)

The balance sheet is a statement of the company's value at the time when the statement is drawn up. It includes the values of the company's assets,

such as property and major capital equipment, such as vehicles, and debtors, and its liabilities (e.g. outstanding invoices) at a single instant in time. Value of equity capital / retained surplus is balanced against the above

The profit and loss account is a statement of the income received and the expenditure during a given period – often a year or a quarter. It does not include money borrowed or received from the sale of equity, but it does include the interest payments on any loan. Nor does it include money spent on fixed assets, only the depreciation. From this statement the summary of the surplus or overspend for the period is shown.

The cash flow forecast is a summary of the predicted movement of money in and out of the company. Cash flow is commonly used to refer to a period and it means the difference between cash (or cash equivalents) received during the period and cash expended during the period.

Syllabus sections: Finance, Management Accounting

Part (b)

A building value may be based on its historic value (adjusted for property inflation / deflation) but in the longer term it should reflect the current market value. This is affected not only general factors such as inflation but also by location specific factors and so it may be necessary to get property revalued from time to time by an expert. [4]

Most other fixed assets will be depreciated, and therefore the value will be reduced on the balance sheet by the level of depreciation. The depreciation may use a straight line depreciation if a fixed life span is expected (e.g. the server may be written off over 4 years – so if the servers are worth £40,000 one year they may be depreciated by a quarter of the original value each year – i.e. by £10000 to £30,000 and then £20000 on the next two years' balance sheets) or the depreciation can be done on a reducing balance basis e.g. 25% per annum: so £10000 is written off to reduce the value to £30000 in year 1 but in year 2 £7,500 is written off to value it at £22,500 [5]

The value of the asset will be based upon the value of the debt owed by the client. However, an element of this value will be offset for potential bad debt (i.e. in the case that the client does not pay) so that the asset is not over stated so if there are clients owing a total of £100000, we might assume a bad debt ratio of 20% so the asset is only valued at £80000 [4]

(13 marks)

Syllabus section: Finance

Examiners' comments

This question was attempted by 61% of the candidates, 40% of whom achieved a pass mark.

Part (a)

Most of the candidates showed a very limited knowledge and couldn't elaborate on the basic elements. Thus, most of the students didn't mention that the balance sheet represents the value at the time when the statement is drawn up, rather they said that it represents the value of a company after one year. Similarly many candidates described the profit and loss account from a shop's perspective, where a register is maintained of daily sales and at the end the profit of the day or loss is calculated.

Very few candidates could describe the annual cash flow forecast correctly. Most of them described a cash flow statement, that is, a statement of cash flows in the past year, rather than describing a cash flow forecast, which relates to the coming year and is an essential planning tool.

Part (b)

Some candidates clearly misunderstood this part of the questions and tried to explain the importance of these assets rather than how they are valued for balance sheet purposes.

Most candidates were able to say that buildings would be treated as a fixed asset but were unable to how the value of the asset would be adjusted over a period of time. Some students tried to treat it just like any other asset and depreciated the building over a period of 5 years. Only a handful of students mentioned periodic revaluation of the building.

Many candidates were able to describe correctly the process of writing down the value of fixed assets such as computers.

Most candidates treated debtors as current assets but didn't elaborate on the treatment of bad debts or anticipated bad debts in the balance sheet.

Question B5

- a) Compare and contrast the protection that copyright and trademarks can provide for computer games software.

(16 marks)

- b) A student who has been given poor marks by one of his lecturers writes a blog alleging (falsely) that the lecturer has accepted bribes from other students to increase their marks. The lecturer complains to the ISP that hosts the blog and threatens to sue the ISP for defamation. What should the ISP do in order to avoid liability and how far is it likely to be successful?

Does it make any difference if the student works part time for the ISP?

(9 marks)

Part (a)

Copyright prevents anyone from copying the software whether for their own personal use or for commercial use. If the copying is done for commercial purposes it constitutes secondary infringement, which is a criminal offence. If it is done for personal use, it is primary infringement and only civil action, e.g. claim for damages, is available. Copyright comes into existence automatically when the software is created. Protection is worldwide although details vary from country to country. [8]

Trademarks prevent other people from falsely claiming that software they are selling comes from the owner of the trademark. It is a criminal offence to apply a trademark to a product unless you have the permission of the owner of the trademark. This includes both using the trademark on a label and displaying it on the screen when software is loaded. Trademarks have to be registered in each legal jurisdiction in which protection is required. They are not necessarily unique because an organisation will not be

prevented from registering an identical trademark for a totally different kind of product. [8]

Syllabus section: Intellectual Property

Part (b)

The Electronic Commerce (EC Directive) Regulations 2002 state that, provided the ISP acts expeditiously to remove the blog or, at least, make it inaccessible, it is not liable for the defamation. If it does this within, say, 24 hours of receiving the complaint, it is likely to avoid all liability. If, on the other hand, it takes three weeks to remove the blog, it is likely to be found liable for substantial damages.

The regulations state that the ISP cannot avoid liability if the person responsible for the defamation (i.e. the student) is was acting under the control or the authority of the ISP. If the student is a part-time employee of the ISP, it is possible that a court might hold that he was acting under the control of the ISP and hence that the ISP was liable.

Syllabus section: The Internet

Examiners' comments

This question was attempted by 89% of the candidates, 41% of whom achieved a pass mark.

While most candidates had a rough idea of copyright and trademarks, few seemed able to explain clearly how copyright and trademarks protect software.

In part (b), again most candidates has a rough idea of what was involved but were unable to explain precisely in writing. Few candidates appreciated how the situation was altered if the student worked for the ISP.

Question B6

- a) Blue Sky provides payroll services for a number of UK based clients. It processes payroll data from its UK clients on its cloud computing servers which are based worldwide. Recently some of its clients have become concerned that Blue Sky has not deleted old payroll data that is no longer required, and that some of the payroll data has been obtained by third parties.

Discuss how the UK Data Protection Act 1998 would apply to Blue Sky's operations.

(12 marks)

- b) Explain what is meant by a 'Publication Scheme' in the context of the Freedom of Information Act (2000), illustrating your explanation with reference to a public authority of your choice.

(7 marks)

- c) List THREE exemptions from the UK Freedom of Information Act 2000, giving a brief example in each case.

(6 marks)

Part (a)

Under the UK Data Protection Act 1998 personal data should not be processed outside the EU unless the country or region has equivalent data protection legislation. Since the servers are located worldwide it may well

be that personal data is being processed in a country outside the EU that does not have equivalent data protection legislation. [4]

Under the UK Data Protection Act 1998 personal data should not be kept longer than is required. [4]

Under the UK Data Protection Act 1998 appropriate security should be applied to personal data. If third parties have obtained the data then the security may not be of an appropriate level. [4]

Part (b)

The Act requires public authorities to have an approved publication scheme, which is a document that describes the information that the authority publishes routinely, independently of any Fol request. It also describes how the information is provided (e.g. on a website or through published pamphlets) and states what charges, if any, are made for providing information. A university, for example, might commit to providing the names and contact details of its chief officers on a web page and to publishing, on its web site, the minutes of meetings of its governing body, its senate and other important committees, its equal opportunities policy, and so on. Information on the courses it offers would be provided both on the web site and in printed form. Certain other information available on the web site would, on request, be made available in printed form but a charge would be made.

Part (c)

Exemptions from the UK Freedom of Information Act 2000 include:

- data related to defence matters;
- data related to law enforcement;
- data related to national security;
- court record;
- information supplied in confidence;
- personal information;

and 17 other categories.

Two marks for each of three correct exemptions

Syllabus section: Legal Obligations

Examiners' comments

This question was attempted by 48% of the candidates, 37% of whom achieved a pass mark.

Candidates generally answered part (a) reasonably well. Part (b) was typically answered poorly, with many students not providing an example. For part (c), many students were only aware of one or two of the exemptions.