

BCS THE CHARTERED INSTITUTE FOR IT
BCS HIGHER EDUCATION QUALIFICATIONS
BCS Level 5 Diploma in IT
Professional Issues in Information Systems Practice

March 2019

Answer **any** FOUR questions out of SIX. All questions carry equal marks. Time:
TWO hours

**Answer any Section A questions you attempt in Answer Book A Answer any
Section B questions you attempt in Answer Book B**

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

EXAMINERS' REPORT

General comments on candidates' performance

Whilst there are some very good answers to the questions in this paper, there is evidence that a number of candidates have not prepared for the range of topics that are covered in the paper.

The syllabus document lists a number of resources and past papers available on the website that can be used to help prepare. It is recommended that candidates attempt the past papers. Study centres offer further support to work through the material for this module and spend time preparing to attempt the exam.

This report comments on each question and outlines issues that would be relevant for answers to the questions. These outline issues are not intended as a full list. Other relevant content would be considered and awarded marks where appropriate.

As with recent sittings of this paper, the examiners' note common reasons why candidates attain low marks. These include:

- Talking about the topic in general terms instead of addressing the issues identified in the question;
- Only addressing parts of the question;
- Only providing brief answers;
- Not structuring the answer in relation to the question;
- Not providing appropriate detail/content in the answers.

Whilst there is some improvement in the structure of answers, there is still room for improvement. Therefore, we note that it is important that the answers are structured to match the different parts of the question. Some candidates write general content on the main theme of the question, but do not indicate which parts of their answer relates to the parts of the question.

Where candidates do structure their answers to match the structure of the question, they are also demonstrating their understanding of the topic. When practicing answers from previous papers, do take time to think about whether the answer is structured clearly.

Section A

A1. This question is about the BCS Code of Conduct.

- a) Briefly describe the purpose of the BCS Code of Conduct. **(5 marks)**
- b) One section of the Code of Conduct is 'Duty to the relevant authority'. With the aid of at least TWO examples, explain the meaning of the term 'relevant authority'. **(5 marks)**
- c) Within the Code of Conduct, the section 'Duty to the relevant authority' forbids three main types of behaviour in an organisation. Through the use of examples, discuss these three types of behaviour and how they can help BCS members to become better professionals. **(15 marks)**

Answer Pointers

Part a)

A good explanation that the code sets out the standards of behaviour that members of the body are expected to follow in their professional life. The answer could discuss that the code looks 'outwards' in the sense that it is concerned with the relationship between BCS members and society as a whole.

Syllabus Coverage: Professional Codes of Conduct, 8.1.

Part b)

The answer would explain that 'relevant authority' means the person or organisation that has authority over you. There would be at least two relevant examples, e.g. the employer where you are an employee in an organisation or your client if you are a consultant, with some explanation of those examples. A good answer could consider that someone may have more than one 'relevant authority'.

Syllabus Coverage: Professional Codes of Conduct, 8.1.

Part c)

The candidate should name each of the following with the relevant description for each.

1) **Conflicts of interest:**

Situations in which there are incentives that might encourage an employee to do certain things or take decisions that are not in the best interests of their relevant authority.

2) **Disclosing confidential information without permission:**

Confidential information may include technical information about a company's products, its financial position, sales leads etc.

3) **Misrepresentation:**

False claims are made about how a company is competent to do things that it cannot, and/or that claims about software being developed will do things that it will not.

The discussion should include an awareness of a requirement that professionals should act in a way that is guided by the Code of Conduct. Use of examples in the discussion would enhance the answer.

Syllabus Coverage: Professional Codes of Conduct, 8.1.

Examiners' Comments

The answers were of a mixed standard but there is evidence of a number of short and incomplete answers. Marks were awarded for reasonable answers that addressed the question. There is evidence that some candidates wrote about what they knew about the Code of Conduct and did not address the issues that were asked about in the question. A common failing is that relevant examples were not provided or the differences between the examples wasn't explained clearly.

A2. This question is about Organisations and their Structure.

- a) Boards of directors are answerable to the shareholders and to the law. Their responsibilities fall into two main categories, namely legal and domestic. Discuss the legal responsibilities and the domestic responsibilities of directors. **(13 marks)**
- b) TIL is a group of companies, which work in different business sectors throughout the world. The group's headquarters is located in the UK. All of the companies in the group make use of IT facilities to run their business operations.

Discuss the main arguments for decentralisation and centralisation of TIL's IT activities. **(12 marks)**

Answer pointers

Part a)

The answer would be able to explain what legal and domestic responsibilities are and how they are different. Outline points are provided below, but discussion of each point is necessary for higher marks.

Legal responsibilities

There are three main legal responsibilities:

- 1) To comply with the provisions of the Companies Act.
- 2) Through the Companies Act there is a liability on the directors to third parties and employees.
- 3) To ensure that all operations carried out by the company are within the law.

Domestic responsibilities

There are four main domestic responsibilities:

- 1) The board of directors act as trustees for the funds provided by the shareholders.
- 2) The board of directors must act entirely in the interests of its shareholders.
- 3) A director should refrain from joining in any discussion and vote, in relation to a topic in which he/she has a personal interest. Impartiality is of the essence.
- 4) Agree objectives and formulate policy for the organisation.

Syllabus Coverage: Organisations and their structure, 2.1.

Part b)

Candidates should demonstrate an awareness of the difference between decentralisation and centralisation of the IT facilities. The answer should identify at least valid arguments for each style of organisation; possible outline arguments are listed below. The answer should include discussion for each argument. Examples may be useful within that discussion.

Decentralisation:

- Provides resource allocation to the business management.
- Accountable to that part of the business for which the work is being done.
- IT activities are a lot more responsive to customer needs.

Centralisation:

- Hardware & software economies of scale.
- Core transaction processing remains in one location, as does the expertise to run the systems.

- Obtain synergies from integration.

Syllabus Coverage: Organisations and their structure, 2.1.

Examiners' Comments

There is evidence that answers to this question often provided a basic response that did not adequately address the question parts. For part a), there was confusion between legal and domestic issues, or the answers did not describe a difference between the two types of responsibilities. For part b), answers would have been improved by the identification of relevant arguments to support decentralisation and centralisation. However, answers often talked generally about what these two structures were and didn't link their answer back to arguments for these structures or comment on IT facilities.

A3. This question is about Human Resources Management.

- a) Explain the meaning of the term 'Constructive Dismissal' and describe ONE example. **(5 marks)**
- b) To whom does the Public Interest Disclosure Act 1998 (PIDA) apply and who is it designed to protect? **(8 marks)**
- c) Increasingly, recruitment is being outsourced to specialist agencies. Suggest reasons why this is happening and discuss the advantages and disadvantages of this from the point of view of both the job-seeker and the employer. **(12 marks)**

Answer pointers

Part a)

The answer should demonstrate an understanding that Constructive Dismissal is when an employer breaches the contract of employment and the breach leaves the employee with no option but to resign. An example might be where the employer requires a fully qualified accountant, who has been employed as a financial controller for the past five years, to now work as a caretaker. Other relevant examples were given credit. There would be discussion of the issues.

Syllabus Coverage: Human Resources Management, 9.1.

Part b)

The PIDA applies to employees who whistle blow i.e. raise concerns over criminal behaviour, activities that endanger health and safety, certain types of civil offences and miscarriages of justice, that the employer attempts to cover up. The answer should discuss that the Act is designed to protect employees who make disclosures about such malpractices to their managers or to certain prescribed regulatory bodies. Examples may be used to illustrate the discussion.

Syllabus Coverage: Professional Codes of Conduct, 8.1.

Part c)

There is discussion of both the reason and the advantages and disadvantages for the job-seeker and the employer. Possible issues for discussion could include the following. Other relevant discussion was given credit.

From the employer's point of view the main advantage is that the recruitment agency has specialist expertise in recruitment and extensive contacts with prospective employees. The disadvantage is that it may be profoundly ignorant of the employer's business and that its extensive list of contacts will include the employees it has introduced to them, so that in about 18-months the agency will be approaching these employees and suggesting that it is time for them to move on.

From the job seeker's point of view, being on the books of a good agency will make sure that they will be considered for any suitable jobs that may turn up, without having to put in lots of speculative applications. One disadvantage is that as soon as they apply for one job the agency advertises, they are on its books and may be encouraged to apply for or even attend interviews for jobs that they are not interested in or which are not suitable.

Syllabus Coverage: Human Resources Management, 9.3.

Examiners' Comments

There is evidence that part a) was generally well answered with a discussion of the issue and a relevant example however part b) wasn't answered as well. There were a number of answers unable to explain what the PIDA was or who it applied to. There is evidence that some candidates provided reasonable answers for part c), although more discussion would have been an improvement and the advantages and disadvantages could have been stated more clearly.

Section B

B4. This question is about **finance**.

a) Explain the purpose of the following accounting documents and the relationship between them:

- 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. Using examples, explain how the following assets would be valued for balance sheet purposes:

- i) buildings, such as a data centre; **(4 marks)**
- ii) computer equipment, such as the servers in the data centre; **(5 marks)**
- iii) debtors, such as clients who pay on a quarterly basis in arrears for use of the software. **(4 marks)**

Answer Pointers

Part a)

A general explanation is provided for all documents that covers the following issues.

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.

The answer should cover the relationship between the documents, i.e. that the three statements should be taken together to understand the financial position. The balance sheet shows the snapshot of the financial position. The P&L and Cash flow documents provide explanations of what has happened between successive balance sheets.

Syllabus Coverage: Finance, 3.1.

Part b)

The answer should comment on each of the main points and offers a generally good discussion of each item. Relevant points and possible examples include. Other relevant discussion would be given credit.

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.

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.

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.

Syllabus Coverage: Finance, 3.1.

Examiners' Comments

There were a number of good answers, but also some common problems. There is evidence that a number of candidates showed a limited understanding of the issues in the question. Some candidates considered cash flow as just a ledger of sales and purchases whilst others described the balance sheet as a document which just balances the two sides without any explanation of what these two sides were. Improved answers could describe the relationship between these documents, but many candidates were unable to discuss that aspect. There is evidence that a number of candidates struggled with the second part of the question, where they considered the data centre as a single computer which didn't require a building or other infrastructure.

B5. This question is about Intellectual Property.

- a) Explain what a patent is and how a company could apply for a patent for a novel computer hardware device. **(9 marks)**
- b) Discuss the arguments for and against the patenting of software, especially in terms of large and small software development companies. **(16 marks)**

Answer Pointers

Part a)

The answer demonstrates an understanding that the patent is a method to protect new inventions and that there is a process to lodge a patent request that describes the main points about the invention. There would be discussion of points such as: 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 the invention without permission.

Applying for a patent would involve sending a patent application to the UK patent office. The application should include a full description of the invention (including any drawings), a definition of the invention and an abstract summarising the technical features of the invention. A good answer would discuss that patent protection can also be applied for in Europe or Worldwide.

Syllabus Coverage: Intellectual Property, 6.1.

Part b)

The answer would identify and discuss several arguments for and against, such as those that follow. Other relevant discussion would be given appropriate credit.

If a large company patents a piece of software, it will prevent other companies from using that software without the permission of the patent holder. This may lead to incompatibility between software products from different vendors.

If software patents were used extensively, then any new software application development might need permission from numerous vendors, for example vendors of the operating system, web browser, database management system, programming language compiler etc., before development could commence.

Large software development organisations would be able to more easily afford the cost of taking out software patents compared to smaller software development organisations, therefore potentially stifling competition.

From the perspective of a software development company, the cost, effort and time invested in developing a piece of software should be worthwhile, and hence the protection from unauthorised use and copying afforded by a patent is necessary.

Good answers would make a clear attempt to take into account the issues for small and large software development companies. Answers might consider whether or not software alone can be patented in different countries.

Syllabus Coverage: Intellectual Property, 6.1.

Examiners' Comments

There is evidence that candidates mostly answered part a) reasonably well, showing understanding of what a patent is and how to apply for a patent. Answers for part b) were often short and did not discuss many arguments for and against the patenting of software.

B6. This question is about Internet Issues and Legal Obligations.

- a) Explain the different responsibilities of a UK based Internet Service Provider that provides transmission only, caching and hosting services for clients. **(9 marks)**
- b) You are a computer forensic analyst with a UK Police Force. You are investigating a case of suspected money laundering within a UK based bank. Outline the duties of the bank under the UK Regulation of Investigatory Powers Act 2000 with regard to the Police investigation. **(16 marks)**

Answer Pointers

Part a)

The answer would discuss the issues of being a mere conduit, caching information and hosting data. These and other relevant points would be given appropriate credit.

The role of mere conduit means that the ISP does no more than transmit data; in particular the ISP does not initiate transmissions, or select the receivers of transmissions, and does not select or modify the data transmitted. Data may be stored temporarily, provided that is only done as part of the transmission process.

The caching role arises when data is automatically temporarily stored for the sole purpose of increasing the efficiency of the transmission of data to other recipients of the service upon their request.

The hosting role is when the ISP stores data provided by its customers. In this instance, the ISP could be held responsible for the contents hosted if there was a reason to suspect, such as the contents being illegal.

Syllabus Coverage: Internet Issues, 7.1.

Part b)

Under the UK Regulation of Investigatory Powers Act 2000, the duties of the bank would include:

If data required was not already available, to obtain any such data required for the investigation by the computer forensic analyst. For example, details of all the transactions made by certain bank account holders.

To disclose all of the relevant data possessed or subsequently obtained after being requested by the computer forensic analyst conducting the investigation. For example, lists of individuals / organisations making deposits and withdrawals to a given set of bank accounts.

This would need to be done as long as it is reasonably practicable for the bank's IT department to do so. The meaning of 'reasonably practicable' could be open to interpretation, but it would probably imply that a request is technically possible rather than considering the cost considerations.

Syllabus Coverage: Legal Obligations, 5.2.

Examiners' Comments

This question was answered by a minority of the candidates. There is evidence that candidates mostly answered part a) reasonably well, showing awareness of the different responsibilities of a UK based Internet Service Provider in terms of transmission only, caching and hosting services. For part b), there was often a limited understanding of the UK Regulation of Investigatory Powers Act 2000.

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