

**THE BCS PROFESSIONAL EXAMINATIONS
BCS Level 6 Professional Graduate Diploma in IT**

October 2007

EXAMINERS' REPORT

COMPUTER SERVICES MANAGEMENT

General Comments

The standard for this examination session was high with some excellent papers submitted, leading to an overall pass rate of 76%. However, there were some weak candidates who were unable to provide the comprehensive answers required and thus scored low marks. At graduate diploma level, the examiners are seeking evidence that the candidate has an in-depth knowledge of computer services beyond that of the average computer user. This knowledge needs to be communicated clearly to the examiner in order for marks to be gained.

The questions are set on topics contained in the recommended reading lists. Candidates familiar with these texts and able to understand and absorb the information will achieve the required pass mark. To maximise their marks, future candidates are advised to examine the syllabus and study this in conjunction with the operation of computer services within their own organisations.

As usual, a number of candidates answered more than the required three questions. Because of time constraints, this meant that there were sometimes four or five poor answers rather than three good answers. Credit will only be given for the three best answers. Candidates are advised to attempt, and spend all of their time, on only three questions and to concentrate their thoughts accordingly.

As in previous sittings, a number of candidates have failed to answer the question that the examiner set – providing an almost wholly irrelevant answer. Candidates should ensure that they read and understand each question before they seek to answer it. It is highly unlikely that a “generic” response to a question will achieve a pass mark. Candidates should also note that the style of answer required - e.g. report, memo, email – may be indicated in the question, if so then the format used will have an impact on the marks awarded.

An indication is given below of the expected answer points for this examination. However, marks were given for additional points, or valid alternative answers, if relevant to the question.

Question 1

The Board members of a medium-sized financial organisation have agreed to outsource their in-house IT department and require some advice before formally agreeing terms with the outsourcing company. Some of the Board members have past experience of outsourcing and are concerned that service levels will decline and costs rise. They also fear that the outsourcing company will perform unnecessary chargeable work and that the Board members will inevitably become involved in arguments with the outsourcing company. The other Board members argue that such fears are unfounded and, to resolve this situation, you have been appointed by the Board to advise them.

Prepare a report covering the following:

- a) A description of how a SLA could be used to achieve the service levels required. **(7 marks)**
- b) An escalation procedure that will prevent the Board becoming involved in minor disputes. **(6 marks)**
- c) An explanation of how Change Management could prevent unnecessary work being performed. **(6 marks)**
- d) A recommendation of appropriate governance procedures. **(6 marks)**

Answer Pointers

a) Service Level Agreement

A SLA could be used to dissect and quantify exactly the service required. The Board, or its managers, will need to agree the service required and the outsourcing company will need to cost this. This process should be repeated until the organisation has agreed the service required at an affordable cost. This should remove all future arguments.

Typically, a SLA would contain some or all of the following:

- Scope of agreement/Terms of Reference
- Signatories to the agreement
- Date of next review/renewal date/notice period
- Dates of previous amendments
- Brief description of service
- Charges/payments/penalties
- Service hours
- Service availability
- User support levels
- Performance
- Details of agreed minimum functionality
- Details of any service charges involved
- Change control procedures
- Details of any planned changes
- Contingency
- Anticipated growth
- Restrictions
- Central print facilities
- Central print distribution
- User training
- Changes to SLA
- Description of change control procedures for requesting SLA amendments
- Fault reporting
- Escalation procedures
- Any other valid item

b) Escalation procedure

The purpose of an escalation procedure is to have formal levels of matching staff from each organisation. If the staff from the lowest level are unable to agree resolution of an issue, it is escalated to the next level, and so on. The highest level would be the CEO's of each organisation. For example:

Level	Outsourcing Company	Organisation
1	Help desk operator	Operational user
2	Help desk supervisor	User supervisor
3	Support manager	Departmental manager
4	Divisional Director	IT Director
5	CEO	CEO

The purpose of the escalation procedure is to prevent staff at all levels becoming involved in issues that should be resolved by others.

c) Change Management

A Change Management Committee should be established. Typically, this will consist of representatives from the business users and the outsourcing company.

All changes should be given a priority category, typically 1-5, and estimates for the work involved should be available. Categories 1 and 2 may be defined as loss of service (Category 1) and business critical (Category 2).

The purpose of the Change Management Committee should be to:

- Jointly consider the respective priority of all issues
- Review and consider progress on Category 3, 4 & 5 issues
- Agree proposed service levels for resolution of Category 3, 4 & 5 issues

The Change Management Committee should ideally be chaired by a business user and should meet monthly and have the following benefits:

- Issues should be resolved according to the joint agreement of the interested parties, thereby concentrating effort on the most urgent items of work.
- There should be complete visibility of the work performed and all areas affected should have an opportunity to express their views as to the relative priorities.
- Management should be able to determine resources according to the required service levels

d) Governance procedures

- All service levels must be within preset or benchmarked levels
- There must be agreed escalation and dispute resolution procedures
- The degree of "open-book" accounting must be determined
- There should be no exclusive agreements (new services can be put out to tender)
- There must be unambiguous charging, linked to realistic indices
- There must be agreed exit procedures
- Limits of liability must be preset
- Other relevant points

Examiners' Comments

Although a straightforward question, many candidates failed to gain any marks for some parts of the question and, overall, marks were low.

It was obvious that many candidates had studied SLA's in terms of the content, and were able to answer part a). However when it came to providing answers to parts b), c) and d) candidates were unable to explain or apply their knowledge. However, a minority of candidates provided excellent answers and gained almost full marks.

Part a) was generally answered well, with most candidates knowing the content of a SLA and the reasons for their inclusion of the constituent items.

Part b) was poorly answered, with many candidates either omitting this part of the question or providing irrelevant information.

Worryingly at this level, part c) highlighted a general lack of understanding for this important part of any computing facility.

Many omitted part d) and, of the small number who attempted this part, only a few achieved a reasonable mark.

Question 2

You are the IT services manager for an innovative high technology company based in the UK. The organisation plans to invest heavily in high power server technology to support a new computer-intensive research initiative.

You have been asked by the Chief Executive to lead the design and development of a new facility to house this large server population.

a) Write a non-technical report, which will be submitted to the Management Board, outlining what you consider to be the THREE key physical design criteria for the facility.

(12 marks)

b) For ONE of the criteria, write a technical brief which discusses how this issue should be addressed in the specification, development and on-going management of the new facility. You should state any assumptions that you make.

(13 marks)

Answer Pointers

a)

- Note that these are PHYSICAL criteria – not the discussion of a favourite processor technology or operating system
- Location of facility close to staff access and services
- Physical security – due to high value systems
- Provision of services – water, power, cooling – and the protection of these services
- Management of physical risk – flooding, severe weather, fire, chemical risks
- Understanding the risk profile of the organisation.

b)

- Should be in technical briefing format to score well
- Note that the three sections – specification, development and on-going management – each should be addressed in sufficient depth.

Examiners' Comments

This was the least popular question, and the low marks achieved suggest that many of those candidates who did attempt it did so as the only other question on the paper they felt they could attempt.

Although couched in terms of a high technology facility, the question is essentially one which any IT manager with responsibility for hardware may be called upon to consider.

In part (a), the Management board have asked for a non-technical report – i.e. one understandable by non-specialists – into the three key PHYSICAL design criteria. A number of those who attempted the question did not address physical design criteria – but addressed issues relating to choice of operating system - clearly not a physical design issue.

Examples of the answer points anticipated are listed in the section above, but these are NOT exclusive and other answers were judged on their merits – with marks being given appropriately.

Future candidates should note that the style of answer - e.g. report, memo, email – would be indicated in the question where this will have an impact on the marks awarded. In this case, up to three marks were available for delivering the answer in report format. Similarly, THREE criteria were requested – so by providing less than three will limit the number of marks available to you and providing more than three will give you no additional benefit.

In part (b), a technical brief was requested – and the same comments apply. Note that three areas of briefing were asked for specifically: Specification, Development and On-Going Maintenance. Very few candidates provided answers which addressed these areas in equal and sufficient depth – so they lost potential marks.

It cannot be repeated too many times that the candidate is strongly recommended to read the question carefully and plan their answer before starting to write. It is clear that in many cases candidates have not read the question – and have answered the question they wanted to see, rather than the one that was actually on the question paper. It is almost inevitable that these candidates will score low marks.

Question 3

As the new Computer Services Manager responsible for all computer and network operations for a retail organisation with over two hundred stores, you have been advised that the store managers are very dissatisfied with the IT support services. Your initial investigations show that no central register of hardware and software exists and that the types and versions used differ between each store. The IT staff appear overworked and errors are corrected as and when they occur. No record is kept of corrections made and the store managers are frustrated that the same type of problem often recurs. The organisation has only a limited financial budget to help resolve these problems and you have been given six months to achieve significant improvements.

- a) Prepare a questionnaire for the store managers to grade their satisfaction with individual elements of the service. **(5 marks)**
- b) Describe how a help desk could be used to improve user satisfaction. **(5 marks)**
- c) You decide to create an asset register of all hardware and software used by the organisation. List the main items of information you would include in the asset register. For each item of information, give reasons why it should be stored. **(5 marks)**
- d) Explain why information gained from the satisfaction survey, the help desk and the asset register will help to improve service. **(10 marks)**

Answer Pointers

a) Questionnaire

Any reasonable factors for inclusion on the questionnaire, with valid and relevant reasons, attracted marks. There should also be some mechanism for the store managers to grade their degree of satisfaction. Given a reasonable explanation of the factors, the example questionnaire below would gain full marks.

Questionnaire (please give marks out of ten)

Do you believe that the technical staff have sufficient technical knowledge?

Are the systems generally reliable?

Is the network performance adequate for your business needs?

Are you content with the level of communication provided by the support staff?

If promises and undertakings are given, are they always met?

Etc.

b) Help Desk

Here the candidate was asked to describe a help desk, explain how it could be used to understand the service being provided and to identify areas where attention should be directed.

Description of help desk. The following points could be included in the answer:

- Staff allocated to log all help calls, direct them to the appropriate resource and update store managers with progress
- Help desk staff able to understand the urgency of the call and monitor progress with Computer Services

- Help desk staff may be able to provide some help themselves with very simple and common calls (logging on, renewing passwords, planned downtime, etc)
- Help desk statistics can provide an absolute record of all service communications
- Statistics can also indicate trouble spots in relation to hardware and software
- Can be used to suggest/direct user and IT staff training
- Gives early warning when common errors are reported from more than one area
- Other relevant points

c) Asset Register

Five of the following items could be included

Item	Reason
Full description of item registered	Identification
Specification	To assess suitability
Cost	For financial reasons - asset depreciation
Date purchased	For financial reasons - asset depreciation
Ownership details	Leased or owned
Supplier	For post sale contact or repeat orders
Maintenance agreements	For use in event of failure
Location of asset	For replacement or substitution
Location of related documents	Manual, agreements etc. For reference
History of changes	To assist with fault diagnosis
History of faults	To justify replacement
Scheduled maintenance	To ensure maintenance is not missed

d) Use of information

Possible uses:

- The questionnaire would indicate areas that store managers consider important - resources could then be concentrated on these points
- Asset register would show extent of hardware and software supported - may be able to rationalise versions, reducing support requirements
- Help desk could show areas where greatest number of errors occur - concentrate resources
- Asset register would make sure regular maintenance not missed
- IT training needs identified
- Store managers' possible training needs identified
- Asset register could ensure licensing requirements were met
- Survey could be repeated after six month period to demonstrate improvements

Examiners' Comments

Almost all candidates attempted this question and most gained high marks, particularly for the first three parts, leading to a pass rate of around 90% Clearly, candidates understood the link between help desks, asset registers and service improvement. A few candidates had no knowledge of this area and obtained less than ten marks.

Part d) was often incompletely answered, with many candidates failing to provide adequate explanations.

Overall, the candidates impressed the examiners with their knowledge and their ability to communicate this in an examination situation.

Question 4

You are the Customer Services Manager of a large private sector sales organisation.

You discover that a large section of the organisation has adopted the use of free, Internet based, Instant Messaging services to carry out a significant part of the communication and negotiation with its external customers.

- a) Write a memo to the Head of Information Services describing the use of Instant Messaging services, and analysing THREE areas of risk to which this exposes the organisation. **(12 marks)**
- b) The Head of Information Services is pleased with your pro-active contribution, and asks you to provide a project proposal document which would address the most critical of the three vulnerabilities. The document should show how the problem can be addressed while preserving, or enhancing, the facilities provided by the "free" solution. **(13 marks)**

Answer Pointers

- a)
- IM is probably being used to negotiate binding contracts between your organisation and its customers – yet there may be no permanent, central record of these commitments.
 - IM can be used to transfer files without there being a record. Company confidentiality may be at serious risk.
 - IM is increasingly a target for virus, Trojan and other malware products. The organisation may be at risk of infection, data loss and other business risks.
- b)
- The document should be appropriately formatted for this type of material.
 - Consider implementing a commercial IM solution managed by the in-house team.
 - Address firewall and other security processes to ensure that IM traffic is understood, monitored and protected.
 - Consider a corporate mechanism for logging copies of IM traffic and restricting file transfer functionality by port blocking etc.

Examiners' Comments

Just over half the candidates attempted this question, and a number of competent answers were provided. A number of candidates, however, gave very poor responses and scored very low marks.

Most of the candidates obviously had some experience of the concepts of instant messaging (IM). Many, however, had difficulty of perceiving the issues of IM in terms of the management responsibilities of a sales organisation. A number of the answers provided only looked at the issues which might impact on an individual worker – and discussed how an individual could develop their own IM solutions. In most cases, this did not provide an answer which adequately addressed the question, which was about risk to the organisation.

It would appear that many candidates were not adequately aware of the corporate requirements and responsibilities of a commercial organisation.

In part (a), the candidate was asked to offer THREE areas of risk in a response based on memo format. Many candidates lost marks by not adhering to this in their answer – either by not using an appropriate format, or by discussing too many or too few areas of risk.

In part (b), the request was for a structured answer based on a project plan format. This is a standard business format, and while it can be presented in many different ways it should at least contain the core elements common to business documents. Many candidates failed to deliver this format adequately, and were unable to obtain marks as a result.

Those candidates who scored well provided well-structured answers which took a positive stance in addressing the risks and developing a solution which would enhance the current user, and corporate, experience.

Question 5

An external risk assessment of your organisation's security arrangements has identified serious shortcomings in the areas of:

- data security
- provision of mains power
- systems access control
- physical access control
- disaster recovery

Describe the measures that can be taken to minimise the risk in each of the five areas mentioned above. **(25 marks)**

Answer Pointers

The measures for each of the five areas could include the following (with any other relevant point obtaining marks)

Data security

- Regular copies made of all master files and programs with one copy kept off-site
- All copies kept in fireproof safes
- Copies of documentation kept in fireproof safes, one copy off site.
- Data encryption for sensitive data
- Data security measures to apply to all PCs as well as to corporate computing facilities

Mains power

- Use of uninterruptible power supply units for servers and key PCs
- Different power supplies if the organisation also uses equipment which requires very large amounts of electricity infrequently (e.g. wind tunnels, blast furnaces etc)
- Use of generators

Systems access control

- User id and randomly generated passwords
- File password encryption/access levels
- Automatic password ageing
- Violation reports
- Screen-saver passwords (to avoid systems being left 'open')

Physical security

- Locks on doors to computer facilities
- Security guards
- Security passes
- Checking personnel references

Disaster recovery planning

Every business should ensure that it has effective contingency planning for disaster recovery. This is not just a technical issue but must form part of an overall business plan and needs senior management commitment. Vital records should be identified and protected. A disaster recovery plan should, as a minimum, address the following areas:

- Which systems are critical to the organisation?
- Which systems does the organisation really depend upon?
- Which systems are the most important ones and which systems are less important?
- What is the time frame or deadline for each section to recover?

Any disaster recovery plan must include complete up to date plans including:

- Easy to use reference manuals containing all the action that needs to be taken
- Who does what
- When they do it
- Exactly how the system will be restored
- What alternative processing facilities will be provided.

Examiners' Comments

This was the second most popular question with over 90% of candidates making an attempt to provide an answer. However the marks gained were disappointing. It would appear many candidates selected the question as it was on security and perhaps hoped if they wrote all they knew about security they would gain some marks. They did not answer the question as set.

Most candidates were concerned with the need for security, rather than the required risk reduction measures, and gained no marks for their efforts. Many candidates seemed confused between the different security categories or they repeated the same points for each category. Too many of the answers were superficial and not at graduate diploma level. The format of the question guided candidates towards an answer structure but many wrote one continuous essay about security measures.