The BCS Higher Education Qualifications
BCS Level 5 Diploma in IT

October 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, which is in Asia, showed a pass rate of 46%, while the second largest centre, which is in the UK, had a pass rate of only 23%. 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 20% 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 20% of candidates who scored between 20% and 30%.

It is disturbing that candidates appear to be very frightened of questions that involve numbers. Question 4, which was concerned with very simple management accounting calculations, was attempted by only 28% of the candidates, only 29% of whom achieved a pass mark. In other words, only 7% of the candidates who sat the paper actually demonstrated any competence in the most basic financial calculations.

The examiners would like to draw the attention of candidates and course providers to the statement in the syllabus, under the heading 'Prior Knowledge Expected',

> "Candidates are expected . . . to have an appreciation of current affairs such as may be obtained by regular reading of a serious newspaper or news magazine."

It is clear that the top 10% of candidates take this advice seriously. It is equally clear that the bottom 50 to 60% disregard it.

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

a) What are the characteristics shared by most professions?

(9 marks)

b) Describe the BCS activities that support its claim to be a professional institution.

(7 marks)

c) Discuss whether those working in the Information Systems field in general (i.e. not just members of the BCS) can be considered to constitute a profession.

(9 marks)

Answer pointers

Part (a)

A suitable answer would have drawn on the following features of a professional body as given in Bott (*Professional Issues in Information Technology*).

- a collective body with controlled entry - based on understanding of body of knowledge

- self governing and self regulatory - has a code of conduct

- established by royal charter or statute - defines extent of responsibilities and authority

As an alternative, the examiners were happy to accept he characteristics given by Beynon-Davies (see *BCS Computer Bulletin,* September 1999): corpus of knowledge and skills; existence of a formal body; public or state recognition of the status of members.

[3 x 2 marks]

It was expected that candidates would also offer a brief discussion of differences showing why these facets make a profession, e.g. doctors, lawyers, accountants, and engineers all fall within the definition, but differ with regard to the above characteristics e.g. engineers are under Royal Charter not statute.

[3 marks]

Part (b)

This section was the best answered part of this question, with most candidates able to provide a clear description of a range of BCS activities such as, professional development, specialist groups, branches, advice to government, advancement of public knowledge and understanding.

Part (c)

Candidates were expected to discuss the characteristics identified in part (a) in terms of information systems, as indicated below, but discussions could include other ideas such as the concept of a semi-profession and the problems within the IS field.

Professional bodies [BCS / IET / etc] are one means of defining a profession. These bodies vary from country to country. In the UK they are recognised through a Royal Charter and can then regulate membership through exams, register members, and establish codes of conduct.

Body of knowledge: A profession can be linked to a body of knowledge. Relevant knowledge is embodied in methods, qualifications and the need to maintain the skills. It could be argued that some roles are at the right 'level' for a profession due to the knowledge base required (e.g. technical architect) whereas others may not be (e.g. IT technician).

Recognition: Many professions are recognised as such by the public, but this is not the case in IT. The BCS has a royal charter but not wide public recognition, as only a minority of IS professionals are BCS or IET member. Compared to many other professions IS is still relatively young. Widely publicised problems with new IT systems do not give it a good reputation.

Examiners' comments

This question was attempted by 47% of the candidates, 44% of whom achieved a pass mark.

A good number of candidates managed an attempt at the first part of the answer, but not many expanded into the wider discussion on why these made them a profession.

The examiners awarded marks based on the strength of argument and perception of the issues behind this question. The candidates managed to outline some key points but further discussion and elaboration of their ideas would have been advisable.

Unfortunately a lot of candidates failed to read the question properly and discussed "professionals" rather than "profession". Where possible credit was given, but too many simply rehearsed the Code of Conduct clauses.

Question A2

a) One effect the introduction of an information system has on an organisation is the probable requirement for change to job structure and function. Such change is often resisted by employees and in many cases the resistance is based on fear rather than knowledge of the truth. For such a scenario, explain three methods an employer can use to deal with employee resistance to change.

(12 marks)

b) Explain what is meant by a functional organisational structure.

(5 marks)

c) Briefly describe four types of discrimination that are prohibited by anti-discrimination legislation in the UK.

(8 marks)

Answer pointers

Part (a)

Methods include:

Communication, early and throughout the process. Explain why the new system is being introduced, the benefits it will bring and the changes it will bring to job roles. This will help alleviate employees' fear and the spreading of unfounded rumour.

Provide training in the use of the new system so that employees' fears about not being able to use it will be minimised.

Involve employees in the design of the new jobs that will be required under the new systems.

Negotiate new terms and conditions if the new system warrants this.

Introduce a program of stress management to help employees overcome their fears.

[4 marks for each of any three]

Part (b)

In a functional structure, the major organisational units are based on the different functions that the organisation has to carry out, e.g. production, sales, marketing and administration, rather than on geographic location or product lines.

[Syllabus section: Organisations and their Structures]

Part (c)

Two marks each for a brief explanation of any four of the following:
- sex/marital status;
- race/ethnic origin;
- sexual orientation;
- religious belief;
- trade union membership;
- disability.

[Syllabus section: Legal Obligations]

Examiners' comments

This question was attempted by 80% of the candidates, of whom 58% achieved a pass mark.

Candidates tend to see a description of job rotation, job enlargement and job enrichment as the answer to any question in the area covered by part (a).

Parts (b) and (c) of the question were answered reasonably well by those candidates who had the necessary knowledge.

Question A3

a) Why is it important for managers to delegate?.

(5 marks)

b) You have been asked to take part in the process of selecting new employees for your company. How will the BCS Code of Conduct affect the way that you carry out this task?

(9 marks)

c) Distinguish between unfair dismissal, constructive dismissal and wrongful dismissal.

(11 marks)

Answer pointers

Part (a)

A manager's time is limited.

Managers rely on others who possess skills and knowledge that they do not.

Delegation helps with staff development and succession planning.

Delegation helps to build team spirit and confidence.

Delegation empowers staff by giving them independence and the right to make decisions based on their own judgements.

[1 mark each]

Part (b)

For this purpose, the primary requirement of the Code is the anti-discrimination clause, which specifies a number of grounds on which it is prohibits to discriminate, positively or negatively.

[3 marks]

The anti-discrimination clause covers both direct discrimination (e.g. "we want a man for this job") and indirect discrimination (e.g. asking women about their child care arrangements but not asking men the question).

[3 marks]

Other relevant clauses include the need to avoid conflicts of interest (e.g. a close personal relationship with one of the applicants), the requirement to avoid bribery, and the requirement to be aware of relevant legislation.

[3 marks]

[Syllabus section: Professional Codes of Conduct]

Part (c)

Unfair dismissal occurs when either the reason for the dismissal is unfair (e.g. the employee is dismissed for failing to carry out some activity that is not part of his or her job description) or the dismissal procedure itself is carried out unfairly.

[3 marks]

An employer may behave so badly towards an employee that the employee feels he or she is left with no option but to resign. If the employer's behaviour substantially breaches the contract of employment, the law may view the employer's behaviour as tantamount to dismissal – this situation is known as constructive dismissal.

[4 marks]

Wrongful dismissal occurs when an employee brings an action for damages against the employer for breach of the contract of employment. The action is under common law and cannot therefore be tried in an Industrial Tribunal and is not subject to the conditions laid down in law for unfair dismissal. The cost of bringing an action is therefore likely to be considerable and such actions are usually only brought by very senior employees.

[4 marks]

[Syllabus section: Human Resources Management]

Examiners' comments

This question was attempted by 73% of the candidates, 32% of whom achieved a pass mark.

The low pass rate on this question was due to the large number of candidates who attempted it with no understanding whatsoever of the topics concerned; 46% of the candidates attempting the question got less than five marks. Generally, the candidates who had some knowledge of the topics answered the question well, although few candidates seemed to understand what is involved in wrongful dismissal.

Question B4

a) Employees of Aspire Software plc work a five day week over a 52 week year. They are entitled to 20 days company holiday and a further 10 days public holiday. Assume that on average each employee has 10 days a year that are unproductive, for example for training and sickness. In accordance with government regulations, employers must pay social security and pension contributions equal to 10% of salary. Calculate the average direct cost of one day's work for a project manager earning £50,000 per year and a graduate software developer earning £20,000. State explicitly any assumptions you make.

(9 marks)

b) Explain, using examples, the term overheads in relation to labour costs.

(6 marks)

c) Assuming Aspire has 20 employees directly developing the products, making reasonable assumptions, calculate the overhead portion of the labour cost and therefore the total day cost of each employee in part (a) above if:

   i) the product-based employees are given an even portion of the overhead;

   ii) the overhead is allocated proportionate to the direct costs of the product-based employees.

   You may assume that the company pays out the following sums in overhead costs each year: management and administrative salaries £120,000; cost of premises £40,000; company vehicles £20,000; communications £5,000; insurance and other professional fees £10,000; sales and marketing £15,000; depreciation and maintenance of the network and server £10,000.

(10 marks)

Answer pointers

Part (a)

Number of days worked = (52x5)-(20+10+10)=220 days.

[2 marks]

Total direct cost of PM = 50000*110% (or 1.1)= £55,000.

Direct cost per day of PM= 55,000 / 220 = £250 per day.

[3 marks]

Total direct cost of developer = 20000*110% (or 1.1)= £22,000.

Direct cost per day of developer= 22,000 / 220 = £100 per day.

[3 marks]

The above calculations assume that the company does not pay any private pension or medical insurance costs, does not provide a company car, etc.

[1 mark]

Part (b)

Overheads are the costs that have to be met by the organisation as a whole but which cannot be attributed directly to a particular product or project. Examples include rent of premises, costs of book keeping and accountancy, etc.

[2 marks]

In an organisation whose revenue comes primarily from selling the services of its staff, it is customary to recoup overhead costs by adding them to the direct (i.e. payroll) costs of the employee.

[2 marks]

There is no single way of allocating overheads to employee costs. It can be done by adding a fixed overhead charge or by adding a charge proportional to the employee's direct costs.

[2 marks]

Part (c)

i) From the data given, total overhead costs are £220,000 per annum, i.e. £220,000/20 = £11000 per product-based employee per annum. This is £11000/220 = £50 per day. Hence the cost of the project manager is £250 + £50 = £300 per day and of the developer is £100 + £50 = £150 per day.

[4 marks]

ii) Assuming total direct cost of salaries (i.e. with on costs) = 20 * an average of £25,000 = £500,000, the annual overhead cost is therefore overhead * employee cost / total cost ; the daily cost = annual cost / 220
PM: 220000 * 50000 / 500000 = 22,000pa = £100 / day so total cost = £350/day
Dev: 220000 * 20000/ 500000 = 8,800pa = £44/dayso total cost = £144/day

[6 marks]

[Syllabus section: Management Accounting]

Examiners' comments

This question was attempted by 28% of the candidates, 29% of whom achieved a pass mark. It was thus by far the least popular question on the paper and was very badly answered. Fifty per cent of the candidates attempting the question got less than five marks.

Part (a)

Even amongst the candidates who had some idea of how to approach the calculation, most failed to calculate the number of days worked in a year correctly and failed to add the social security contribution on to the salary – some even deducted it.

Part (b)

Most candidates who understood what this part of the question was about were able to explain overheads in general terms but were unable to explain the relationship to labour costs.

Part (c)

Candidates who answered parts (a) and (b) correctly were usually able to answer this part correctly.

Question B5

a) You are a computer forensic analyst investigating the dissemination of illegal pirate music via a peer to peer network. Your investigation leads you to an individual who has downloaded hundreds of illegal pirate copies of music, and who has also made legally purchased music available to others via the peer to peer network.

Explain how the UK Copyright, Designs and Patents Act 1998 would apply to this scenario.

(12 marks)

b) As part of the investigation described in part (a) you discover that the individual who is disseminating illegal copies of music has also been spreading a computer virus through the peer to peer network, and having obtained the Internet Protocol (IP) addresses of other users of the peer to peer network, has attempted to gain access to their computers in order to obtain credit card data.

Explain how the UK Computer Misuse Act 1990 would apply to this scenario.

(13 marks)

Answer pointers

Part (a)

The downloading of music without the permission of the copyright holder would be an infringement of the UK Copyright Designs and Patents Act 1988.

[4 marks]

Making copies of music available without the permission of the copyright holder would be an infringement of the UK Copyright Designs and Patents Act 1988.

[4 marks]

Under the UK Copyright Designs and Patents Act 1988 the copyright holders of the music involved would be able to sue the individual for the loss of profit suffered as a result of the infringement. If the individual was acting commercially, a criminal prosecution could also be brought.. [4 marks]

[Syllabus section: Intellectual Property]

Part (b)

The spreading of the computer virus would fall under the modification of computer materials section of the UK Computer Misuse Act 1990. [4 marks]

Attempting to access in an unauthorised manner the other users' computers would be unauthorized access under the UK Computer Misuse Act 1990.

[4 marks]

If the attempted obtaining of credit card data was intended for the purposes of fraud or another criminal offence, then the individual would be guilty of unauthorized access with intent under the UK Computer Misuse Act 1990.

[5 marks]

[Syllabus section: Legal Obligations]

Examiners' comments

This question was attempted by 87% of the candidates, 50% of whom achieved a pass mark.

This was a very straightforward question and a good proportion of the candidates seemed to have some understanding of the relevant legislation, even those whose answers were too confused to gain a pass mark.

Question B6

a)   Explain the law relating to the sending of 'spam' to individuals within the European Union.

(8 marks)

How does this law differ from the corresponding law in the USA?

(4 marks)

b)   Outline the obligations placed upon Internet Service Providers (ISPs) by the UK Regulation of Investigatory Powers Act 2000, with regard to police investigations.

(13 marks)

Part (a)

The European Union law relating to the sending of 'spam' is implemented in the UK through the Privacy and Electronic Communications (EC Directive) Regulations 2003.

Unsolicited e-mail can be sent to individuals (as opposed to companies) only if they have previously given their consent.   [2 marks]

It is unlawful to send unsolicited e-mail that conceals the address of the sender or does not provide a valid address to which the recipient can send a request for such mailings to cease.   [2 marks]

If an email address has been obtained in the course of selling goods or services, the seller may use the address for direct mailings, provided that the recipient is given the opportunity, easily and free of charge, with every message, to request that such mailings cease.   [3 marks]

In the USA, it is legal to send spam provided that the person sending the spam has not been informed by the recipient that they do not wish to receive spam and the spam contains an address that the recipient can use to ask that no more spam be sent.   [4 marks]

[Syllabus section: The Internet]

Part (b)

Under the UK Regulation of Investigatory Powers Act 2000 the ISP would need to:

Provide any data held by the ISP required for the police investigation. [4 marks]

Disclose all relevant data held or subsequently obtained for the police investigation   [4 marks]

As long as it would be reasonably practicable to do so. This would imply technical practicability, rather than cost considerations.   [5 marks]

[Syllabus section: Legal Obligations]

Examiners' comments

This question was attempted by 63% of the candidates, 23% of whom achieved a pass mark. It had the lowest pass rate and the lowest average mark of all the questions on the paper.

Most candidates seemed to have learned by rote the three ISP roles (mere conduit, caching and hosting) and, in default of any more relevant knowledge, regurgitated these definitions in answer to part (b). No marks were given for such answers.

Both the Regulation of Investigatory Powers Act 2000 and the Privacy and Electronic Communications (EC Directive) Regulations 2003 are explicitly mentioned in the syllabus. While the situation regarding the sending of spam in the USA is not explicitly covered in the syllabus, it is described, and compared with European situation, in the text book by Bott that is recommended.