BCS Higher Education Qualification

Certificate

October 2021

EXAMINERS' REPORT

Information Systems

General comments
Students evidently struggled with the questions on this exam. The answers were poorly structured, some candidates only answered some of the questions, and answers were very sparse in a lot of the cases.

Question number: 1
Syllabus area: Data Management
Total marks allocated: 30
Examiners' Guidance Notes
It is evident that the candidates could not understand what a content diagram is. Most attempts at the context diagram could have been improved. There were some reasonable attempts at Data Flow Diagrams, but the majority were not mapped to the CD the candidates had just drawn. There was a lack of joined up thinking, as a DFD is the CD in more detail. A significant number of answers clearly did not understand what a DFD is. Most candidates provided an outline of 2 prototyping methods (rather than the 3 that was asked for), with some overlap between the two. The majority of candidates did not explain the difference between the two methods and were simply discussing what prototyping is. One of the weakest areas in section A was the difference between a systems analyst and a web developer. Numerous answers for the systems analyst were either for a project manager or a business analyst. Candidates would benefit from expanding their knowledge when it comes to job roles.

Question number: 2
Syllabus area: Data Management
Total marks allocated: 30
Examiners' Guidance Notes
Generally, candidates understood feasibility, but had learnt the TELOS acronym and offered a rote answer based on those 5 letters, which are generic and not always directly mapped to a computing project. You could argue that it's a project management tool rather than a feasibility one. Various subsections were poor, for example, observation was defined as mainly looking at the employees, rather than say, looking at log files to see how an employee was performing.

A number of the answers for data gathering referred to sections of James Martin's Rapid Application Development, namely Joint Requirements Planning and Joint Application Development. These are functional requirements in nature and so were awarded no marks.

Another answer that was awarded no marks was prototyping, which is a functional requirements gathering technique, not a data one.

There were answers which included the standard data gathering techniques, interview, questionnaire, review of documentations, etc.

There did seem to be a lot of routine answers, suggesting a lack of understanding of what was being asked. There was considerable duplication in some answers – for example, questionnaire, open ended questions and closed questions were given as three separate answers on some scripts.

The final section on effective screen design had some very good answers, but a number were off topic. Some included comments on hardware and the depth of pixels/screen resolution over which the designers of screens have no control. This sections answers needed to focus more on answers that dealt with the design of screens rather than the impact of hardware.

Question number: 3

Syllabus area: Data Management

Total marks allocated: 30

Examiners' Guidance Notes

Candidates appeared to struggle with this question.

Most candidates appeared unaware about the theory behind relational databases. Few answers covered this well, and most blurred in the second question of the functions of a relation database.

A number of answers focused on CRUD functions and were particularly limited.

Candidates should be aware of how relational databases work and the theory behind them. Candidates can then build on this to understand the limits of relational database/SQL and understand what NOSQL does to overcome these limitations.

There were very limited answers to disaster recovery of a database due to power failure. Very few answers covered more than one or two points.

This is a topic that probably needs greater knowledge and learning.

Question number: 4
Syllabus area: Systems Analysis And Design **Introduction to Operating Systems and System Software** **Data Management**
Total marks allocated: 30
Examiners' Guidance Notes
The first part of the question concerning styles of how to replace an existing software application were polarised in the answers. Candidates either knew the 3 styles (direct, phased, parallel) or they did not. Most seemed to know the advantages and disadvantages. Candidates appeared to struggle with the second part of the question about System Metrics and Key Performance Factors. Very few candidates demonstrated an understanding of this area and increasing knowledge here would be advantageous. The final section of this question looked for an understanding of strategic, tactical and operational data. Candidates appeared to be focusing on the flow of data between the three layers and not actually why the layers are different.

Question number: 5
Syllabus area: Database management theory and data manipulation
Total marks allocated: 12
Examiners' Guidance Notes
Very few candidates attempted this question. The answers were of a mixed standard, but a number could have used some improvement. It is evident that most candidates had a very basic understanding of the terms ACID, CAP, BASE regarding data integrity, and the discussions reflected this. The theory of databases is an important issue within an information system. The acronyms need to be identified and explained. Guidance on the acronyms can be found in recent database publications. Candidates would benefit from spending time on structuring their answers to make sure they key points are covered.

Question number: 6
Syllabus area: Data modelling
Total marks allocated: 12
Examiners' Guidance Notes
The few candidates who attempted this question tended to read the word 'documentation' and did not relate this to an entity relationship model, but referred to system documentation. The elements of an entity relationship model need to be documented and understood. It was clear from the answers that very few candidates had any specific knowledge of Entity Relationship Diagrams, and in some cases, they were confused with Data Flow Diagrams. There was very little

content in the answers to this question and in most cases did not reflect the amount needed for the allocation of 12 marks. Some candidates merely listed 2 or 3 relevant things, and others included irrelevant content.

Supporting information, such as normalisation, assists in the understanding of the model in terms of the entity. Business rules and constraints need to be applied to each entity. Each entity and attribute have other issues apart from size, volume, 'life', constraints etc. These should all be documented to support the understanding of the eventual system as it is developed.

Question number: 7
Syllabus area: System development methodologies
Total marks allocated:12
Examiners' Guidance Notes
There were some relatively good answers to this question giving details of Scrum as an example, however, the majority of students clearly did not have any detailed knowledge of the Agile approach. They tended to state the basics that it is a methodology and then described the SDLC. More depth was required in the answers relating directly to Agile, Scrum etc. There are a number of different agile methods which could be described including the theory and practical approach, but often the system development life cycle was described. Emphasis on the iterative and collaboration approach is expected, but there are no set rules or procedures, as is meant by an agile approach. Documentation is important and candidates should research agile methods, and also look at *The Agile Manifesto.*
Question number: 8
Syllabus area: Testing strategies
Total marks allocated:12
Examiners' Guidance Notes
On the whole these questions were answered satisfactorily with some knowledge of the testing strategies. Those candidates who received poor marks was due to them not answering all the questions, or just repeating the name of the strategy in the answer rather than giving a good explanation. Most candidates only briefly described each testing method, and there was also some overlap between each method. There is a subtle difference between stress testing (stability) and load (capacity) testing. Each is important, and how this can be tested needs to be described.

Question number: 9
Syllabus area: Data management and security
Total marks allocated:
Examiners' Guidance Notes
This was the most popular question, and on the whole, this was answered quite well. While candidates discussed password policy and why it is necessary, examples of the policy were not always included. Answers to access control either covered physical or logical methods, but not

often both. A short discussion of the policy is expected with examples of the ways passwords can be designed, used or changed to protect organisational data/information.

Question number: 10
Syllabus area: Databases and cloud computing
Total marks allocated:
Examiners' Guidance Notes
This was the most popular question and the one that candidates performed the best on. The answers were good and excellent in a number of cases, although the balance between positives and negatives of a small business moving its database to a cloud provider were more weighted on the positive side. It is useful to describe what is meant by a cloud provider. Positive aspects should include accessibility etc.

Question number: 11
Syllabus area: Management and support of computer systems
Total marks allocated:12
Examiners' Guidance Notes
This question was 1 section (12 marks). This question was about organisations whereby a company was to change its software, and an outline report was needed on how management could mitigate the risks. There were some good answers outlining the different implementation strategies, as well as including the importance of fully testing the software and training etc. However, A number of candidates only described different implementation methods, whereas one of the ways of mitigating risk is to describe an applicable one as well as other possible risks. As it was an open question, there were varying answers to the model ones, but marks were awarded for any reasonable answers where applicable.

Question number: 12
Syllabus area: HCI
Total marks allocated:12
Examiners' Guidance Notes
This was the second most popular question. A number of the candidates did not read this question adequately as for 12b, where they should discuss methods of multimedia being included in a web site to enable users with an impairment to effectively use the site. A number of answers just gave examples of different types of multimedia. It was clear from the answers that candidates did not always balance out the weighting of each section as many included far more content in section 12a, giving a definition of the meaning of multimedia and very little to 12b that was allocated 3 times the marks. Sadly, some candidates did not even attempt 12b of the question.