

GCE 2001

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Report on the Examination

Computing

■ Advanced Subsidiary

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Kathleen Tattersall, Director General

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Computing

CPT1 Computer Systems, Programming and Networking Concepts

General

The paper was well received overall. A number of candidates, however, did not gain many marks due to their poor use of terminology and imprecise description of terms. Some candidates do not seem to have the inquisitive urge to find out how computers operate, but take everything at face value. This was particularly noticeable in Question 9. Centres are reminded that candidates giving proprietary names instead of generic names will not gain credit in future papers.

Question 1

- (a) The majority of candidates could define hardware as the physical components and software as the programs which run on the hardware. However, many candidates seem to be under the impression that only peripherals are hardware or that any programs already installed count as part of the hardware.
- (b) Most candidates mentioned a modem as being necessary to connect to the internet, but a significant number of candidates could not describe the function of a modem, concentrating on it dialling the ISP. A correct response would have been to convert digital signals from the computer to analogue signals to travel down the telephone line and conversion back to digital at the receiving end.
- (c) Many candidates knew that browser software was required, but a significant number only referred to the ISP again, not aware of what they are using when connecting to the internet. A popular answer was also to quote a proprietary name of web browser. Many candidates knew that http was a type of protocol and the rest of the URL was the domain name. A worrying number of candidates quoted the answer to last January's similar question, not aware that this question was not asking for the same information.
- (d) Most candidates knew that a WAN referred to a large geographical area, but many forgot to mention that it was connecting computers. Many candidates are still quoting a WAN as being a network over 1 or 2 km rather than remote distance. The need for a common standard as a reason for the need of a protocol was not well understood; most candidates, instead, mentioned network security.

Question 2

- (a) Some candidates confused serial and parallel transmission with simplex and duplex (not in the specification of CPT1). Many candidates just referred to data being transmitted one after the other and therefore did not gain credit. In serial transmission bits are sent one at a time along a single wire and in parallel transmission several bits are transferred simultaneously down several wires.

- (b) Baud rate was mostly defined adequately as bits per second. Turning the question into the answer “rate of data transmission” is not worthy of credit. Some quality answers referred to the number of state changes of a signal in a second.
- (c) Most candidates correctly converted 38 into the binary pattern 0100110, but many candidates do not appear to know that the most significant bit is on the left and therefore the 8-bit pattern requested should read as 10100110. Many answers did not show eight bits as required. A pleasing number of candidates understood correctly that start and stop bits need to be different in asynchronous data transmission and therefore the bit pattern should be prefixed with 1 and 0 and suffixed with 00 or 11 respectively. Credit was given for the start bit at either end, as long as the stop bits were at the other end. Some candidates got so carried away with the start and stop bits that they forgot about the bit pattern for the character in between. Worrying was the fact that some candidates used symbols such as * or # as alternatives to ones and zeros.

Question 3

- (a) Most candidates knew that a byte was 8 bits. Some quoted January’s paper again and (wrongly) stated that a kilobyte was 1000 bytes.
- (b) The majority of candidates correctly converted the bit patterns to ‘A’ and ‘9’, but a significant minority quoted the ranges given in the question.
- (c) Most candidates who attempted the dry run correctly calculated the codes, but only the better candidates noticed that Number grew in size with each digit processed.

Question 4

This question was generally done poorly. Most candidates read into the question that a comparison with machine code or assembly code programming was required. This was clearly not appropriate.

- (a) Candidates often quoted the detail of the question again as an answer, but many gained some credit for answers including that it was easier to debug a structured program because it would be easier to find errors in procedures. The misconception that structured code makes it easier for the compiler was rather widespread.
- (b) Candidates do not know what features are, with many carrying on answering as in part (a). Often no distinction between the features of an editor used to type a program and the features of the actual programming language itself were made. Most candidates thought that programming in a high level language was almost like writing in English, for which no credit was given. Good answers included use of procedures/functions, English-like keywords, data types, data structures, local variables, parameters, being able to choose sensible names for identifiers and the existence of constructs such as IF..THEN..ELSE, REPEAT..UNTIL etc.
- (c) The distinction between a compiler and an interpreter was clearly taught well in some centres and not in others. The fact that a compiler will translate the whole source code into object code, which can then be executed independently of the compiler seemed to evade many. That an interpreter translates one line at a time as it executes without producing object code was also only fully understood by few.

Question 5

Almost all candidates got the idea of an application, but far too many just quoted Word or Excel rather than word processor or spreadsheet. Quite a few thought that Windows was an application. There seemed to be some confusion between special purpose and bespoke software. Many candidates did appreciate that special purpose software was written for a specific task and bespoke software for a

particular end-user or company. Most saw as an advantage of bespoke software that the client got exactly what they wanted. However, disadvantages were often not clearly enough stated to gain credit. Software generally costs a lot of money to produce. The fact is that these costs are shared between many clients with off-the-shelf software and therefore bespoke is more expensive to buy. Software generally can take a long time to write, but the fact that clients have to wait for bespoke software rather than buying software off the shelf, is a disadvantage. Most candidates stated that bespoke software was less likely to be tried and tested and this gained credit.

Question 6

- (a) The idea that an operating system was an interface or that it controlled the computer was well known.
- (b) The functions of a processor and main memory were often answered in too general terms. Too many candidates thought the processor was in overall control or giving timing signals. At this basic component level, candidates need to appreciate that the processor executes instructions, such as logical or arithmetic operations on data (not information). Main memory is volatile and stores the instructions and data of the programs currently running. Many candidates confused main memory with backing store and implied that data and software are stored there permanently.
- (c) Most candidates correctly named the address, data and control buses. Far fewer could express clearly enough their use. Many answers attributed too much intelligence to a bus. “The address bus decides where the data should go” is not an appropriate answer. Many candidates imagined the bus to be moving carrying data and the control bus acting as a control rather like a set of traffic lights to stop other buses colliding. Good answers could explain that the address bus carries the address of where the data is being sent to or fetched from; that the data bus transfers the data between main memory and the processor; and that the control bus transfers control signals such as whether the memory access is read or write and the timing signal.

Question 7

- (a) Most candidates were able to convert integers to pure binary and BCD with only a few confusing the two. However, the advantage of BCD eluded most candidates, with many believing that it was easier to calculate with or that it took less space to store a number in BCD. The fact that it is easier to convert was often mentioned, but not explicitly for humans, and therefore not gaining credit. Another response worthy of credit was that BCD can be used in calculator displays because each digit is stored separately.
- (b) Answers which gained credit included that data + structure = information. It is important that candidates use terminology correctly and understand that at machine level (Question 6) data is being used and only when it is put into context for the user becomes information.

Question 8

This was usually answered correctly, with a few candidates getting some of the nodes wrong. Some candidates did not answer part (c) correctly by knowing about traversal of binary trees (which is not in the specification of CPT1) and then applying this rather than the straightforward binary search. Many candidates did not mention the final node in their list of data items accessed. This was accepted this time, but will not gain credit in future years. Clearly, the final node has to be accessed to see that the search has been successful.

Question 9

- (a) Some candidates clearly understood this topic and gained full credit for explanations which showed that the sound was converted into digital by sampling the height of the analogue wave at regular intervals and representing the value by a number. Many candidates were under the misconception that this was done by the microphone.
- (b) Most candidates mentioned pixels but did not explain that an image was made up of pixels. Many good answers stated that each pixel could be represented by one bit, 1 for black and 0 for white (or vice versa). Superficial answers such as stating that the image needs to be placed into suitable software and saved as a monochrome bitmap do not gain credit.
- (c) There was a common misconception that one bit could be used to code any colour, or that increasing the resolution would provide colour. Responses which gained credit mentioned that more than one bit would be needed to represent each pixel.

CPT2 Principles of Hardware, Software and Applications

General

A poor knowledge of files and file processing let down many candidates. Candidates fared better with operating systems, but some were unable to specify a **type** or give an adequate reason for using a network operating system. Candidates' knowledge of spreadsheets varied between below GCSE standard to that demanded by this specification. Candidates on the whole responded well to the question on database theory, but many failed to score full marks for the QBE question. Of the latter, some clearly had some experience of QBE but were not able to use it logically.

Question 1

- (a) Several candidates did not read the question carefully enough and gave “mouse” as an answer. Others cited an output device. The most popular correct answer was a scanner.
- (b) Barcode reader was the most popular answer, but several candidates failed to gain credit because they simply stated “barcode”. “Magnetic stripe reader” was the next most popular answer.

Question 2

Some candidates answered well and gained full credit. However, some candidates cited features that both scientist and secretary would need. For example, different fonts, headers/footers and clip art could be used by both. There were many features to choose from. Many candidates cited capability to draw graphs, to insert tables, to import a spreadsheet and to use special symbols. Several candidates failed to gain credit for citing spell checking dictionary because they failed to acknowledge that a scientist would require a specialised dictionary.

Question 3

- (b) The most popular pair of measures for preventing unauthorised access was Userids and Passwords. Encryption was also a popular answer. Many candidates gained credit for biometric methods such as fingerprint and retina scans. Several candidates gained credit for stating “put a lock on the door of the computer room”. A few used answers that detected unauthorised access but which did not prevent it. For example, “CCTV” gained no credit.

- (c) For two methods that could ensure the integrity of data stored in a database, candidates were spoilt for choice of answer and many scored full marks. The most popular answers were “range and type checks”, followed by “format checks”, “verification”, “check digits” and “virus checking”. One candidate stated that somebody could stand next to the user, and use physical violence if necessary, to ensure the integrity of the data. This was not given credit!
- (d) Many candidates correctly cited the Data Protection Act. The most popular incorrect answer was “Computer Misuse Act”.

Question 4

- (a) Many candidates gave the name of proprietary software e.g. “Windows NT”. The question specifically asks for a type of operating system, not an example of an operating system. A generic answer is required, therefore. Several candidates responded by citing a LAN and some a WAN. Such answers refer to the physical topology of the network, not the software that enables machines to communicate over this topology. Very few candidates knew that each machine has operating system software for managing the local hardware and software resources. Bolted onto this operating system software is a layer of software that handles requests arising on the machine for access to remote resources. This is the network layer. Print requests must be re-directed to part of the network controlling the printer. Too many candidates failed to gain credit because they simply used the words in the stem of the question as their reason, without adding any insight into the function of the network operating system – “the printer needs to be shared between the PCs”. Some candidates gained credit for answers that stated “to allow sharing of resources” and “to allow communication between computers”.
- (b) Several candidates answered “batch” here and “real time” in (c). One candidate answered “air conditioning unit” and for the reason “so it can detect when the temperature is rising and automatically control the temperature”. Unfortunately, an air-conditioning unit is not a type of operating system. The reason was close, but the examiners were looking for answers which showed that the system responds *in a timely manner* or *quickly* to variations in temperature to achieve equilibrium. Many candidates gave a correct reason.
- (c) Many candidates felt on more solid ground with this part, giving the correct answer “batch” for the type and “no user interaction needed” as the reason. Another popular acceptable answer was that OMR forms can be processed in one go.

Question 5

- (a) The most popular answer which gained credit was “collection of records”. However, these candidates missed the point. The question was set in the context of file management. Subsequent parts of this question dealt with directories, filenames and path names. In this context a file is a **unit of storage** by which the operating system organises a user’s work. A user’s work is stored on backing store. An entry is made in a directory. This entry appears to a user as a filename. The user is able to reference the stored work by filename. The operating system makes no distinction between different file types as far as file management is concerned. Even a directory is stored as a file and an entry is made in another directory. The entry appears to a user as a name categorised as a directory name. The operating system cares nothing for how the file is structured. It is the user who imposes a structure on the file, e.g. a file of records or a file of integer. In fact, any file, whatever its structure, can be opened and read as a file of byte. The only structure that the operating system imposes is a division into blocks, because the physical unit of storage is the disk block – 256 or 512 or 1024 bytes. The file manager layer of the operating system provides a logical to physical mapping, from the file view to block view.

In data processing, a file is usually identified as a collection of records. This answer was accepted on this occasion. However, the answer “a collection of data” was not. Many files are not collections of data, but are instead files containing executable binary codes; executable code that is used to process data from data files.

- (b) Many candidates correctly identified the root directory as the part of the directory structure where the sub-directory names **Work**, **Old** and **BackUp** are stored. The symbol \ was an acceptable alternative. Several candidates inaccurately used / even though the backslash symbol was given in the question.
- (c) Several candidates’ answers lacked the necessary precision and some were simply wrong. For example, several candidates wrote MyFirst.Pas\BackUp in response to part (c) (ii). Others wrote Root\BackUp\MyFirst.Pas not realising that \ denotes the directory at the root. \BackUp is interpreted as search for the root directory for a match with the name BackUp. The \MyFirst.Pas is interpreted as search for the directory BackUp for a match with the name MyFirst.Pas.
 - (i) The correct pathname for the root’s directory entry for MyFirst.Pas was \MyFirst.Pas but many candidates answered incorrectly \\MyFirst.Pas. These candidates were penalised here but not again in part (ii) for using the incorrect symbolism. Logical drive names in front of \MyFirst.Pas were ignored.
 - (ii) The sub-directory BackUp’s entry for MyFirst.Pas was \BackUp\MyFirst.Pas. This was correctly given by many candidates.
 - (iii) Fewer candidates were familiar with file access rights. Several candidates scored full marks with answers “Read Only”, “Read/Write”, “Delete”. Others managed two out of three. Several candidates gave data security methods and therefore failed to gain any credit. Other candidates gained credit for answers that focused on setting sharing attributes of file or which users/user groups were allowed to access the file.

Question 6

- (a) In this question, the emphasis was on information gathered about customers not about stock movements. Therefore, answers which focused on managing stock levels, lines of stock that sold well, etc. were rejected. Answers that stated that customers’ names and addresses could be sold on, or information on customers could be sold on, gained credit. Other acceptable answers were the selling of unsolicited services to specific customers using information gathered about these customers and targeting specific customers with special offers with greater confidence of making new sales than by an untargeted approach. Many candidates understood the thrust of the question and therefore gave at least one correct use.
- (b) Many candidates successfully gave two of the Data Protection Act’s principles related to the gathering of information. Candidates who were unsuccessful gave principles that were related to the storing of information.

Question 7

Parts (a) and (b) were answered correctly by many candidates. Some candidates failed to score the mark for part (b) because they made an observation and not a statement that showed that they knew how a cell displays a calculation to two decimal places. An answer that specified, formatted or set to two decimal places or rounded to two decimal places gained full credit. Candidates’ responses to part (c) revealed a lack of familiarity with the IF function. The better candidates scored full marks.

Question 8

- (a) (i) Very few candidates were able to define a text file accurately. Candidates failed to note that it is a sequence of characters organised on a line-by-line basis, hence the description textbook. Many candidates referred to a file containing ASCII characters without drawing the distinction between a file of characters and a text file. Some candidates gained credit for recognising that a text file is a file whose contents can be displayed sensibly in a text editor.
- (ii) Candidates fared better in explaining the meaning of the term ‘non-text file’. Many gained credit by referencing a graphics or sound file.
- (iii) Many candidates were able to explain the meaning of the term ‘serial file’. The most popular answer was a file containing records stored in no particular order. Some candidates substituted the word “file” for “record” – files stored in no particular order. They repeated this error in part (b). These candidates therefore lost marks.
- (b) (i) Many candidates gave superficial answers that were not worth any marks. The commonest non-creditworthy answer consisted of the words given in the question – a variable length record is one that varies in length! The better candidates stated that it is a record in which the number of fields varies, or in which the length of one or more fields varies.
- (c) Candidates fared better with an advantage and a disadvantage of variable length records over fixed length records. “Storage space is not wasted” was a popular advantage, and “difficult to estimate size of file” was a popular disadvantage.
- (d) Parts (d) and (e) were poorly answered because candidates failed to write a list of steps. Instead, they used a narrative that in most cases was just a paraphrase of the question stem. For example, one candidate wrote “The sequential file is processed looking for the given word. The results of the findings are sent back to the program to indicate whether the word was found, or not”. Another candidate wrote “there is a find icon with the program once this find button is clicked the query is typed in and it searches the file and lists the word that matches”.

Candidates are reminded that examiners expect candidates to have programming experience of file processing. The better candidates gave answers that clearly identified the major processing steps. These candidates demonstrated an understanding of sequential files and how they are searched. These candidates stated that searching must start from the beginning of the file (it is a sequential file). The searching process proceeds to the end of the file or until a match is made. One record is read at a time, and a test for a match is carried out on one record at a time. The better candidates wrote their list as pseudocode as follows:

```
Starting from beginning
Repeat
    Read next record
    Test for a match
Until EOF Or Match made
```

- (c) Weaker candidates made a similar error here by failing to list steps, instead answering in vague statements more akin to a narrative. For example, “the hashing algorithm is started and particular addresses on the file are found by searching for the address. These are then retrieved and used”. Such an answer does not make logical sense, and in a subject where being able to think logically is very important, falls short of what is expected. Centres should advise candidates that it is a requirement of this subject that candidates can think logically and can express their thoughts logically. Programming is a discipline that demands it.

The examiners were looking for the following major steps:

Generate new file with sufficient empty records
Working from beginning of sequential file
Read next record
Hash word field to generate insertion position
Insert record at this position in new file

References to handling collisions were not given any credit. It is more important that candidates know the basic steps well without resorting to collision handling. It was the case that candidates who described how collisions were handled failed to state the basic steps. Several candidates stated “apply the hashing algorithm to the record”. Such vagueness gained no credit.

Question 9

- (a) Many candidates got the idea of a collection of related tables, though collection of tables was enough to earn the credit.
- (b) This was well answered, with many candidates correctly identifying CustomerId and giving for the reason “because it is unique”.
- (c) (i) Some candidates struggled to be precise, but many correctly answered that it is an attribute/field in one relation/table which is the primary key in another. Some candidates failed to use the term ‘attribute/field’ but instead used the term ‘key’. A mark was therefore lost.
- (ii) Many candidates correctly answered “CustomerId”.
- (iii) Many candidates correctly answered “AdvertId”.
- (d) (i) A common incorrect answer was an index is used to make searching easier. “An index is used to speed up searching” is the correct answer. The better candidates cited this answer and therefore gained credit.
- (ii) Many candidates correctly identified “Name” as the attribute on which a secondary index was created.
- (e) (i) Many candidates correctly identified two as the minimum number of records returned by the QBE. However, a significant number were very wide of the mark with 12000⁺ being a commonly encountered result.
- (ii) This was not answered as well as expected, with many candidates failing to score full marks because of errors such as omitting the relational operator. QBE is in the specification, and candidates need to have sufficient experience of QBE to write accurate QBE under examination conditions. It may be more natural to write SQL, but knowledge of SQL is not a requirement for CPT2.

CPT3 Practical Systems Development – The Practical Exercise

General

The purpose of this paper was both to examine the ability of the candidates to create a solution to a set task and their understanding of the solution they had created. Many of the questions asked the candidates to identify, in their documentation, evidence that they had covered the various points in the brief, and then to explain how they had covered them. The paper covered the whole of Unit 3, and so questions were also asked on topics not specifically mention in the PostQuick brief.

It is the intention in this unit to treat solutions as being equal in merit, regardless of whether the solution is programmed or application-based. The examiners are conscious that candidates have only been following the course for nine months, and so do not expect a project of a standard that they might achieve by the end of the second year of the course.

There were a few centres from which all the solutions demonstrated identical complex spreadsheet formulae or macro coding, quite clearly beyond the capabilities of most of the candidates. It was obvious that teachers had produced a ‘standard’ solution for all their candidates, to make the finished solution more elegant. This is contrary to the whole purpose of this paper. It was also noticed that none of these centres admitted the extra help given to their candidates on the Cover Sheet, and many candidates claimed the coding as their own. In fact, this proved to be a disadvantage to many candidates. If they could not explain what their solution was doing, they could not earn the marks for that question. Those candidates who used a simpler approach which may have been less efficient, but which they had worked out for themselves and so understood, were able to explain themselves. Furthermore, they seemed to have a better understanding of what the question was asking, and so produced more relevant page references. In future, standard solutions must not be used by centres. Candidates must produce their own solutions. This year, each centre was considered individually.

Candidates lost marks because they did not read the questions carefully. For example, **Question 4** asked for a reference as to **how** various calculations were carried out. A printout of a completed consignment note did not show this. More marks were lost because of the choice of test data. As test data was specified in the brief, it was expected to be used. In particular, a number of candidates used an alternative to 35 kg to test the upper weight constraint.

Documentation

The brief asked candidates to include brief documentation including ‘some or all of the following as appropriate’. Although we recognise that centres may use this exercise as a practice project, we do ask candidates to submit only the relevant sub-set of their documentation, as described in the brief.

It is expected that 10-12 pages of documentation should be quite sufficient. This should be numbered clearly. A surprising number of candidates numbered their pages in the top left hand corner, where they were difficult to see because of the tags that held the documentation together. Particularly difficult to follow were multi-section documents with several page 1s, etc. If the pages were not numbered, the page references were irrelevant.

The pages of the documentation should be attached to the question paper, preferably by a tag through the hole provided in that paper. The examiner will probably disconnect the paper from the documentation in order to follow up the references provided by the candidate, and tags are a very easy way of facilitating this. In case the documentation becomes separated from the question paper, it was suggested that the candidate include his name and candidate number and the centre number in a

footer to his documentation. Suitable documentation for the PostQuick Parcels practical exercise is suggested below. Note that one piece of documentation could often provide evidence in more than one category.

Design

1. Definition of data requirements.

A list of fields is required, together with data types and some idea of why they have been included. This could have been provided by one of the following:

- 1.1 as description in the Design Section;
- 1.2 as coding in the annotated program listing;
- 1.3 as a printout of field definitions from a database.

2. User interface design, including output, forms and reports.

The user interfaces required for this exercise are screens for data input, a consignment note and management statistics. Screenshots of the data entry screen(s) might have been produced as evidence of testing, so would not need to be repeated. A hard copy of an example of the consignment note should be included (but see also 7.1 below). As there is no mention that the management statistics needed to be in hard copy, it was acceptable to have a screen shot of those. (again, see 7.2).

3. Method of data entry including validation.

Evidence of data validation could have been provided by any of the following:

- 3.1 as coding in the annotated program listing; much coding is not at all easy to interpret. for example, a statement such as
procedure Tform6.FormCreate(Sender: Tobject);
is not really evidence for anything. It needs a comment attached to it to say what it does.

Many candidates had difficulty in recognising a correct procedure for referencing. Examiners do not have time to study the coding to see if it does what is claimed for it. It could not be credited just because a candidate had written “4a” beside it! Comments and annotations in the coding are thus essential;

- 3.2 as a spreadsheet printed in a formula view;
- 3.3 as a screen shot of a database table in design view, showing the validation rule.
Rather than include screen shots for all validation rules, one or two actual examples were sufficient, together with a description of all formulae used.

4. Record structure, file organisation and processing.

The evidence for the record structure might well have overlapped the field definitions in point 1. There was no file organisation/processing required here, apart from, perhaps, the updating of the price list (depending on how that was organised).

5. Security and integrity of data

A brief description of any security features included in the solution, with an explanation as to why they were relevant to this type of application.

6. System design

Suitable charts such as data flow diagrams, entity diagrams or others to explain the system design of the solution.

Implementation/Testing

7. Hard copy output to prove the correct working of the system.

All of the following should have been included.

7.1 Completed consignment notes. There did not need to be notes for all 5 customers, but customers 3 and 4 could have been used for the two tests that were omitted from the given test data.

7.2 Screen shots of some testing in action, plus a complete and completed test plan, to demonstrate that all validation rules were tested and were satisfactory.

7.3 A screen shot or hard copy of one day's management statistics, with evidence of calculations needed to produce it.

8. Hard copy of the solution

8.1 Annotated program listing.

8.2 Annotated listing of modules/macros.

8.3 Printout of spreadsheet worksheet showing formulae.

8.4 Screen shot of database form in design view showing formulae in expression builder.

8.5 Design Section description of how formulae are to be used in the program.

Page Referencing

If candidates had provided evidence as detailed above, they could have referenced their pages as described below. Once the reference was accepted, candidates answers on the examination paper was marked, not the text in the documentation. For the questions where a reference was required, the failure to give a satisfactory reference meant that the marks depending on that reference were also lost.

Where a reference was asked for, the candidate needed to give the relevant page number and indicate, on that page, where the appropriate evidence was to be found. Most candidates did this very satisfactorily. Some candidates identified the page but no more. In these cases, if the evidence was obvious, credit was given. However, the examiners were not asked to search through a complicated program listing, for example, to find the evidence.

Sadly, some candidates failed to identify the relevant page. There were cases where the page reference did not provide the required evidence, but another page, looked at by chance, had exactly what was asked for.

Where no reference was asked for, candidates were expected to describe how their solutions had met the point.

The Question Paper

Question 1

Evidence from 1 (above). Many candidates missed the opportunity for some easy marks by giving fields that were in the brief. A brief explanation was required to explain why each extra field was needed in the solution. Suggestions such as “Forename – to hold the customer’s name”, were not acceptable. Customer and delivery details were commonly offered, as was date. However, they also had to be individual fields. Candidates who gave “Customer Address” as one field when it was clearly three or more, talked themselves out of that mark. Some candidates had a field for total dimension, which was accepted, although superfluous in many solutions.

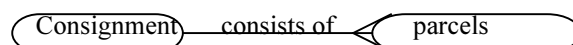
While this year examiners accepted evidence that a field was used, e.g. a screenshot of a table with that field name as a heading, in future years, if asked to reference where a field is defined, evidence of definition will be expected.

Question 2

A customer ID was specified in the brief. Candidates were expected to explain that this was unique. In part (b) some way of linking the customer to the consignment (not the parcels) was required. Many unsatisfactorily explained the relationship in terms of a foreign key, but simpler descriptions such as the customer details having to be entered or called up on the consignment note were accepted.

Question 3

It appeared that some centres had not covered ER diagrams. Although not specified in this brief, they are in the specification for Module 3. A full ER diagram has the relationship specified over the line, e.g.



Question 4

Evidence from 3 and 7 (above). As explained above, this question was asking for a reference to how a calculation was executed. A screen shot of a final result was insufficient. In 4 (a) evidence of either totalling or checking was sufficient for the page reference.

Question 5

Candidates needed to reference evidence of actual testing (see 7.2 above). It was not expected that a screen shot of each piece of test data used be included, but candidates needed to have a complete and completed test plan plus evidence that some testing did actually take place, i.e. screen shots or hard copy of the system rejecting some data. If it was impossible to take a screen dump, photographs could have been used. A screen shot of a selection of appropriate error messages was not sufficient on its own. There had to be actual evidence that a few tests did take place.

Sadly, there were a number of cases where the dialogue box giving the error message hid the invalid data. In 5 (a), where that was the only evidence that the weight of 35 kg had been used as test data, the mark could not be given.

It was expected that candidates would follow the brief and use the test data provided, and then add further data to cover the omissions, as instructed in paragraph 19.4 of the brief. As mentioned above, a surprising number lost marks because they had chosen a value other than 35 kg to test the upper weight limit.

Some candidates used a combo box to enter the weight (not greater than) which was a neat way of ensuring that the weight was within limits. However, to provide the evidence of this, it was necessary to do a screen shot with the combo box expanded.

The two constraints for which extra test data was required were the total weight of the consignment being no more than 200 kg and the total dimensions of a parcel being no more than 300 cm. Boundary weight conditions were also accepted in 5 (b), but as the stem referred to needing further test data to cover omissions, a repeat of one of the tests covered in the brief was not.

Question 6

This question asked for an explanation of the legal implications. It was expected that candidates would actually refer to the fact that the customer could be identified by the data captured, and so the Data Protection Act was relevant. The most relevant principle of this Act is that data should be kept secure.

Question 7

It was expected that candidates would, following the hint given in the question, specify criteria relating to the look of the consignment note, such as highlighting and special effects, the inclusion of a logo or producing an A5 note. The specification of particular data that had to be included was also accepted. They were then asked to explain how they had used the software to achieve their requirements. In part (iii), a screen shot was not “a consignment note”. In fact, a report was better than a form for the consignment note if Access was being used to create the solution. This is because it is easy to print a report as a separate sheet (required for a consignment note), but less easy to print a form in this way.

There was a tendency to misuse combo boxes in producing the consignment note. Although the brief said that the five customers were sufficient to demonstrate the working of this solution, this was one area in which reality would have been appropriate. To use a combo box to select the customer number was not a suitable use of that feature.

Question 8

Unfortunately, too many candidates suggested that the analyst should look at details in their documentation to find his information, whereas in fact the analysis would have already taken place before they received their brief.

Question 9

Marks were lost here again because candidates did not read the question. This was asking for terms in documentation that would assist maintenance, not examples of maintenance that might be carried out. Many also offered changing the price list, as an example of maintenance, while it should be part of the routine management of the system.

Question 10

This question was probing the candidate’s understanding of their solution by asking them to extend it. Date was definitely a requirement. If the candidate had already included the date as a field, it was sufficient to say that that was already in the system. Other accepted suggestions were week number, and a daily summary of the relevant data, number of parcels, total weight for the day and total revenue for the day.

Methods of storing the data included the creation of a file, but also simply extending a table or spreadsheet, or creating a daily summary table or spreadsheet.

If the original record structure was sufficient, again, the candidate could use this, although they should have specified it, underlining the key field.

Many candidates selected appropriate storage media, but database and other non-medium suggestions did occur.

A search on the date or time period was expected for part (iv). Overall, it was expected that the answers to **Question 10** would form a logical sequence.

Teachers are reminded that if they were to insist that their students used a ‘reasonable’ font size (no higher than 12 for body text) with single spacing, produced hard copy on 80 gm paper instead of heavier, and only included the required parts of the documentation, their centre would save significantly on postage. Similarly, spiral bound / hard covered documentation was not helpful and added to the postal charges.

Mark Ranges and Award of Grades

Unit/Component	Maximum Mark (Raw)	Maximum Mark (Scaled)	Mean Mark (Scaled)	Standard Deviation (Scaled)
CPT1	65	65	35.7	11.4
CPT2	65	65	32.2	11.0
CPT3	65	65	24.3	10.8

CPT1 (11836 candidates)

Grade	Max. mark	A	B	C	D	E
Scaled Boundary Mark	65	47	41	35	29	24
Uniform Boundary Mark	105	84	74	63	53	42

CPT2 (12814 candidates)

Grade	Max. mark	A	B	C	D	E
Scaled Boundary Mark	65	44	38	32	26	21
Uniform Boundary Mark	105	84	74	63	53	42

CPT3 (12769 candidates)

Grade	Max. mark	A	B	C	D	E
Scaled Boundary Mark	65	37	31	26	21	16
Uniform Boundary Mark	90	72	63	54	45	36

Advanced Subsidiary award

Provisional statistics for the specification as a whole (9917 candidates)

	A	B	C	D	E
Cumulative %	12.7	29.4	49.3	68.9	83.0

Definitions

Boundary Mark: the minimum (scaled) mark required by a candidate to qualify for a given grade.

Mean Mark: is the sum of all candidates' marks divided by the number of candidates. In order to compare mean marks for different components, the mean mark (scaled) should be expressed as a percentage of the maximum mark (scaled).

Standard Deviation: a measure of the spread of candidates' marks. In most components, approximately two-thirds of all candidates lie in a range of plus or minus one standard deviation from the mean, and approximately 95% of all candidates lie in a range of plus or minus two standard deviations from the mean. In order to compare the standard deviations for different components, the standard deviation (scaled) should be expressed as a percentage of the maximum mark (scaled).

Uniform Mark: a score on a standard scale which indicates a candidate's performance. The lowest uniform mark for grade A is always 80% of the maximum uniform mark for the unit, similarly grade B is 70%, grade C is 60%, grade D is 50% and grade E is 40%. A candidate's scaled mark for each unit is converted to a uniform mark and the uniform marks for the units which count towards the AS or A-level qualification are added in order to determine the candidate's overall grade.