



General Certificate in Education

Computing 6510

**CPT2 Principles of Hardware, Software
and Applications**

Report on the Examination

2007 examination - June series

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General

To do well in this paper, candidates had to read the questions carefully and then answer them as fully as possible. There were some questions in which, for full credit, the correct use of technical terminology was required or, where relevant, questions had to be answered in context.

Question 1

The expression H:\ATFC\Sixth\Jones1111\CPT3\PE.doc is the file path name. It represents more than the location of the file. Within that expression, H: gives the logical drive on which the file is stored, CPT3 is the folder or directory in which it is stored, PE is the file name and .doc specifies the file type or format, or what application created it; a word processing application. Candidates did not get credit for saying it was a word document or had been created by Word as brand names are not credited in this Computing specification.

Question 2

This question asked candidates to show that they understood the difference between backing up data and archiving data. Candidates gained two marks by saying that data are backed up so that in the event of data loss or corruption, they could be restored. Simply having another copy of the data was insufficient.

Fewer candidates were able to give reasonable answers as to why data are archived. Data that is no longer in regular use but may be required later for future reference is archived to free up disc space. Some candidates said 'freeing up memory' which is not precise enough. Some candidates realised that in some cases, archiving data for a certain number of years is required by law. However, a number of candidates appeared to think archiving was much the same as backing up. A number of candidates were unaware that data is a plural noun.

Question 3

This question was asking candidates to suggest three input devices to fit particular criteria; in this case where space was at a premium and there were specific tasks to be done. Many candidates gained full marks, but marks were lost by candidates who did not read the stem carefully. Although the question asked for input devices, various forms of printer were suggested. A few candidates suggested keyboards although the stem specifically said there were none. Some candidates gave two different credit / debit card readers and OMR and even MICR cropped up rather frequently.

Candidates also lost marks by not being specific as to why a particular device would be appropriate. A significant number said that the barcode held information such as price and description, rather than passing the code to the system for such information. A 'barcode scanner to scan barcodes' gained one not two marks.

Question 4

Part (a)(i) of this question was asking how, in a large system, access could be restricted so that staff could only access those parts of the system that they required to carry out their job role. More was expected than just 'password protect', or 'have user names and passwords'. The use of passwords was relevant, but for full credit, candidates had to also say, for example, that passwords should be chosen so they would be difficult to guess, or should be changed regularly. Other suggestions which gained credit were for the use of access rights or attributes to restrict access to particular users or user groups, or to restrict access to certain files to certain

terminals with methods of then restricting access to those terminals. Another acceptable suggestion was to encrypt sensitive files with only authorised users having the decryption key. Several candidates assumed that 'online' meant a website and not simply access to data stored in digital format on a computer system. This slightly changed the way they responded.

For part (a)(ii) the question was how to detect illegal entry, not how to prevent it, so locking a workstation after 3 incorrect password attempts did not answer the question. Several candidates understood the concept of logging or monitoring users via system/network software, but just as many implied that tracking was physically done by the network manager, that someone was employed to watch the monitors of users or that it was files that were logged. The use of CCTV was not considered appropriate in this case.

In part (b), candidates needed to answer carefully to gain marks. A firewall might prevent hackers but for a virus checker to be effective if it had to be regularly updated and used. Similarly backups need to be taken regularly to be useful in the event of a system crash. Instead of knowing what a UPS is, students preferred to mention 'backup electricity supply' and backup generator. However, current generators do not provide a constant nor uninterrupted supply of power; there is still a short time of switch over when there is no power supply.

Sadly, some candidates did not read the word 'further' in the stem of part (c), and repeated something about using back-ups for swift restoration. However, there were many good suggestions for this, including the description of a recovery procedure and the use of contracted out recovery.

Question 5

This was a question that was generally poorly answered by candidates. The management of hardware resources means the allocation of hardware resources between the processes that require them, to ensure efficient use with no hold-ups and maximum throughput. It does not mean the allocation of processor time to hardware resources. Dealing with hardware malfunctions was also credited. Part (a)(ii) asked for three different types of hardware resource that might be managed, so the fairly common suggestions of printer, keyboard and mouse only gained two marks.

Many candidates understood that the provision of a virtual machine, in this context, means the provision of an interface between the user and the computer to hide the complexities of the hardware from the user. There were a variety of suggestions of what sorts of tasks would be carried out under batch processing; some logical, others not so. Common suggestions were the running of a payroll and the production of utility bills.

The commonest correct answer for part (c)(ii) was that the process would run with no user intervention. However, some candidates did not appreciate that there may be human intervention as an operator might have to carry out such tasks as loading the correct disk or restocking paper for the printer. Candidates also realised that all data would be entered offline before processing begins. A few candidates mentioned Job Control Language. Batch processing is frequently run overnight because of the need for limited human presence, and it makes good use of the system which might otherwise be quiet.

In part (d), 'no user intervention needed' was again accepted, 'once processing has started'. Other expected answers included that data and commands would need to be supplied along with the job, processes are queued and the Operating System schedules tasks.

Question 6

The majority of candidates gained good marks from this question. Some candidates explained their choice of application software at length, showing a thorough understanding of how their selection of general purpose application packages would solve the tasks that the judo club had listed. However, the question did ask how their selection would cover the specified tasks and the selections of some candidates did not achieve this. Some candidates lost marks by referring to general software applications by their brand names. This actually demonstrated that a few thought Access was a spreadsheet and Excel a database. Some candidates chose a combination of spreadsheet to store details and database to manage finances, or the use of a desktop publisher for letters and word processor for notices. Although each of these can do these allotted tasks, they seemed an odd combination. Indeed, a very few candidates seemed to be very confused as to the main features of some of the better known general application packages. A few candidates did not read the question clearly, talking of 'customers', which meant they did not gain as many marks as they might have. The question did ask for general purpose software so 'accounting software' for instance was not credited.

In part (b), the club needed to be aware of the Data Protection Act, as they were storing the personal details of their members. Then part (b)(ii) was looking for practical steps to meet this obligation in the context of a small judo club.

Question 7

Few candidates failed to score marks on this question, and most demonstrated that they had a good idea of the capacities of these storage media.

Question 8

In part (a), candidates were given a specified record structure and asked why, with this record structure, a significant amount of space was wasted. Many candidates do not appear to appreciate the difference between the allocation of bytes per character and the allocation of bytes to numerical digits, stating that the price field would not need eight bytes as that would mean a price of more than £100,000.00.

However, many candidates did realise that it was the description field that would frequently not need all the 36 bytes allocated to it, but the full 36 bytes would be saved, padded with spaces or blanks. So if the record structure were changed to variable length, space would be saved by only saving the bytes required. Better candidates also realised that some space would be required to store characters to denote the end of the fields and records, or by storing the field length.

Some candidates answered part (c) here in part (b) by saying, for instance, that it would be difficult to estimate the file size. The more fortunate ones repeated any given disadvantage in (c) as that was where it could be credited. Records can not be updated in situ, programming is more complex and the searching process is slower and some programming languages do not support variable field lengths. Some candidates seemed more concerned with the possibility that descriptions could run into hundreds of bytes. Many thought that validation rules would no longer be operable.

Candidates' ability to write pseudo code seems to be improving, but marks were lost in part 8(d) by not specifying which record was being read or written, (from/to the Old Master, New Master or Transaction file) or by reading or writing only the record ID, rather than the whole record. It was possible to score more than the allocated marks with a little logical thought, but many

candidates were unable to do so. It did appear that many candidates' knowledge of updating a master file from a transaction file is lacking.

Question 9

Few candidates gained all 4 marks for this question. Some candidates did not seem to be able to distinguish between benefits to an organisation and benefits to an individual, although a number had second thoughts and indicated that their answers should be reversed. Many candidates did not appear to realise that the RFID needed a special reader to receive the signal, so the idea that lost pets, criminals, or even the general public could be tracked and found did not gain credit. Another problem with this question was in not reading/understanding the phrase 'small chip and an antenna'. In practice these are very small – the animal ones going down a large diameter hypodermic needle and hurting the animal no more than any other injection.

Centres are asked to note that this paper is now electronically marked, and are asked to ensure that candidates use a good blue or black ink which will scan in clearly.

Mark Ranges and Award of Grades

Grade boundaries and cumulative percentage grades are available on the [Results statistics](#) page of the AQA Website.