



## **General Certificate in Education**

# **Computing 6510**

**CPT5      Advanced Systems Development**

# **Report on the Examination**

*2008 examination – January series*

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## General

Many candidates were not well prepared for this paper. Many marks were lost due to inaccurate or overly general responses that did little more than re-phrase the information given in the question. Candidates need to be reminded to apply their knowledge to the scenario if one is given in the question.

### Question 1

- (a) Many candidates scored very low marks because their answers lacked detail. The question asked candidates to describe specifically how Susan might use the technique to analyse the current system and to make sure they included relevant personnel and facts. This request was largely not understood and generic answers such as, 'interview Fred to see what he thought of the current system,' were given. Acceptable answers included, 'interview Fred to find out how costs are charged to departments,' 'survey teachers to find out what they thought about the method of recording items taken,' 'analyse the charge book to see how data is recorded,' and 'watch how teachers fill in the charge book.'
- (b) This was generally done well, although some candidates still find it difficult to distinguish between a process and data.
- (c) There were several candidates who provided more than three relationships, in the hope that among these would be three correct ones that would gain credit. Candidates should be reminded that they need to keep to the number of responses required or risk losing marks for incorrect responses among correct ones.
- (d) The majority of candidates provided normalised table definitions for the entities Department, Teacher and Stock. However, many had great difficulty in deciding which attributes to include in the ItemTaken table. Candidates need to appreciate that one of the purposes of normalisation is to minimise data duplication. Therefore, including attributes already stored in one of the other tables (ItemDescription and ItemPrice were the most frequently wrongly added attributes) is against the spirit of normalisation.
- (e) SQL still poses difficulties to a large number of candidates. Careful reading of the question could have avoided some mistakes, such as the wrong search criteria (all dates in the month of December were required and hence an upper and a lower limit had to be stated). Some candidates added 'tbl' as a prefix to the table names, which was not accepted; the table names are clearly given in part (d) of the question. Some candidates use a reversed notation of 'attribute.table' rather than 'table.attribute'. Very few candidates appreciated that when the query involves several related tables, the primary key – foreign key must match in the tables.
- (f) Sadly not every candidate knew that linking a database with a word-processing package would enable the generation of charge forms through a mail-merge process.

### Question 2

This question was generally done well, although some candidates did not appear to have practical experience of producing a web page that included a form. Many did not understand what values would be sent to the server-side script and how these would be used.

**Question 3**

Many candidates did not provide carefully enough selected test data, nor were they able to give a good reason for their choice. The question clearly stated that the date supplied had already been checked by the system to be a valid date and in the correct format before it was passed to the routine. This did not stop many candidates suggesting non-date strings as examples of erroneous data, for which no credit was given. In particular the boundary data should have addressed the issue of the change in age when the birthday was on today's date, the day before or the day after.

**Question 4**

- (a) Few candidates could explain clearly how the default gateway address is used by a host computer. Some confused the default gateway address with a gateway connecting networks with different protocols. Some were under the impression that all messages were sent to the default gateway, whether intended for the same subnet or not.
- (b) Most candidates could explain that a domain name server provided an IP address for a requested domain name. Fewer candidates could give a fuller explanation that the domain name server intercepts the domain name and looks up the domain name in its database to find the matching IP address. A small minority correctly stated that if the domain name server can't find the domain name in its database, that it will contact another domain name server.

**Question 5**

Packet-switching networks were very well understood by some candidates, but others gave very confused statements. Most candidates could explain that the data was broken down into fixed sized packets and that they might travel along different paths to their destination where the message would be reassembled. Fewer candidates could state clearly that each packet would also contain source and destination addresses as well as a message ID and a packet sequence number.

**Question 6**

- (a) Most candidates got credit for stating that using non-routable addresses would make the network more secure. Some correctly stated that the machines did not need a direct presence on the Internet.
- (b) Some candidates gave the correct IP addresses for all three required connections, but many responses only gained credit for the public IP address. Few seemed to appreciate that within the given local area network the addresses would need to consist of the given network ID plus a host ID and that the internal address of the router/firewall would be the default gateway address.
- (c) Most candidates had some idea that network traffic would be slow if all nodes were on the same subnet. However, many candidates gave very imprecise explanations that did not gain credit. The more able candidates usually also noticed that segmentation made many more host addresses available.
- (d) The purpose of a subnet mask and how it would be used was very poorly understood by

a very large number of candidates. Many thought wrongly that the bytes of the mask that were set to 255 would block the values of the IP addresses, rather than the opposite. Very few could explain clearly that an AND operation of the subnet mask with an IP address would isolate the subnet ID and so subnet IDs could be compared to establish whether two IP addresses were on the same subnet or not.

***Mark Ranges and Award of Grades***

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