



**General Certificate of Education (A-level)  
June 2012**

**Computing**

**COMP2**

**(Specification 2510)**

**Unit 2: Computer Components, The Stored  
Program Concept and The Internet**

***Report on the Examination***

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## General

It was pleasing to see in this paper an improvement in the quality of answers provided for both the Quality of Written Communication (QWC) question, question 5, and that concerning the flatbed scanner. There are definitely fewer answers being left blank and, in this paper, a good number of students securing the top marks.

Logic and Boolean algebra continue to be a topic students will have a go at, but it does appear they might perform better with more practice in simplifying expressions.

The HTML and CSS question was presented in a different way and this did affect the marks. Students need to be aware that it is not sufficient to know only the HTML syntax. The document provided in the Teacher Resource Bank should be used.

## Question 1

The majority of students secured all of the marks for question part 1a and correctly distinguished between hardware and software. A compiler was occasionally identified as being hardware, rather than software. The wireless router was identified as being made up of hardware and software by a pleasing number of students.

The majority of students attempted to state one role of the operating system, but their answers occasionally failed to provide enough clarity to secure the mark. A group of students wrote about providing a user interface but did not include anything to distinguish this from the user interface of application software.

The purpose of library programs was not well known; students provided answers concerning either collecting together resources or archiving files. It seems that the use of library programs to provide access to pre-written procedures was only known to a small group of students.

The advantages and disadvantages of bespoke software have appeared on past papers. The majority of students could provide an advantage and this was usually centred around the software meeting the exact needs of the client. Providing a disadvantage proved harder and this was usually through students either not providing enough information or not being precise enough. Being expensive is not enough to secure a mark, but the students who identified that it would be expensive due to all of the development and production costs being met by the one client were rewarded with the mark. A few students stated that bespoke software would not be tested. This was not awarded a mark as it is to be expected that the software would be tested by the software developer. There was a mark, however, for pointing out that bespoke software might have more limited testing than software that has been available for a long time. In the same way, students should be careful about stating that bespoke software would have no support as this might not be the case. However, it is to be expected that bespoke software would have limited 3<sup>rd</sup> party support compared with software such as office applications that have a wide variety of 3<sup>rd</sup> party support (for example through books and training courses).

## Question 2

Question 2 started off by asking students what an opcode and operand represent. Around half of students managed to gain the individual marks. A few students managed to get the answers around the wrong way. Students who answered by saying that the opcode was what the instruction was to do generally also gave an example and secured the mark. Students who wrote only about the instruction need to remember that the instruction is both the opcode and the operand. A few students thought that the operand was where the instruction was carried out.

Compared with machine code a program written in assembly language is easier to understand and this was a popular answer. The students who stated that the assembly language program was easier to read were not awarded the mark as this was not considered to be a sufficient answer. It is clear that some students still struggle to understand the link between assembly code and machine code and how assembly code is translated. Students who wrote about compiling or compilation in their answers

were not awarded marks. A few students stated that assembly code is executed faster than machine code and again did not gain any mark.

### Question 3

Question 3a started by asking students to identify a use of a collection of protocols. The majority of students could correctly identify a use for FTP and it was obvious that this was a well known protocol. Students, however, struggled with both Telnet and POP3. Whilst the majority of students knew that POP3 was concerned with e-mail, this was not considered to be creditworthy as students should be aware of the difference between POP3 and SMTP. Students who did identify that POP3 was concerned with retrieving e-mail from a server were rewarded with the mark. It would be beneficial for students to have access to working with these common protocols so that they can gain a feel of their use.

The first few parts of 3b were answered well by students. Most secured the mark for IP address and port, but providing a socket came out as the hardest of the three parts. The most common incorrect answer for port was 37 with students picking this out from a different column of the figure. In a similar fashion, it was common to see a variety of items taken only from the figure as a guess at socket.

The last part of question 3 was answered well with the majority of students gaining at least one mark. A wide variety of answers were seen across the marking period. Popular answers included the servers being off-site and the point that it would save time being able to access the servers from a desktop rather than travelling to them. Students who realized that the servers might be able to be managed from anywhere with an Internet connection were also awarded a mark.

### Question 4

Question 4 came out as a difficult question for which to secure marks.

It was pleasing to see students identifying that, for an imperative language, the programmer defines how the problem is to be solved. A few students provided the answer for a declarative language - a question that has been asked before and might demonstrate that students were just repeating a known answer from a past paper.

The fact that a high level language might be easy to understand is not a definition of a high level language.

Students struggled to secure the mark for part 4b. The students who could identify that different languages might fit different problem domains generally also gave examples and this was pleasing to see. It was interesting that students thought that programming languages were generated for each problem and therefore implied that every problem had its own programming language. It was also common to see incorrect answers in which students wrote about 1<sup>st</sup> and 2<sup>nd</sup> generation languages which was not the aim of the question.

### Question 5

This question, which also assessed QWC, was answered well by students with the more able securing a high score. Students generally appeared more able to discuss the fetch and decode parts of the cycle and often failed to describe the execute part. This limited their mark to a maximum of 5 out of the 6 available. The question did not place the list of registers in any order yet some students tried to follow the order provided and this therefore led to low marks.

A few students missed out the role of main memory completely with the contents of the MAR being passed straight to the MBR.

It was common for high scoring students to make many valid points beyond what was in the mark scheme and it was pleasing to see the depth of their knowledge. The role of the status register was, however, not well known and students thought that it either executed the instruction or actually controlled the fetch execute cycle. It was therefore pleasing to note when students wrote about overflow or underflow being indicated by a flag in the status register.

## Question 6

The majority of students secured all marks for question part 6a as they correctly identified the input devices needed. It is to be noted that a few students did not know what a flatbed scanner is and used this as an answer for a part of 6a and then also scored poorly in part 6b.

Students were asked to discuss the principles of operation for a flatbed scanner for part 6b and it was pleasing to see more students gaining marks than in previous papers. It is clear, however, that some students still do not understand the purpose of a flatbed scanner; answers ranged from using lasers (with the assumption that a scanner is a printer) to working with barcodes in a supermarket. It also appears that there is confusion as to the correct principle where light is reflected compared with light actually passing through the document to sensors on the other side. Students who secured full marks correctly identified the major parts of a flatbed scanner and could describe how a document would be scanned.

## Question 7

Question 7 covered the HTML and CSS part of the specification and was asked in a different way for this paper. Students were asked to identify some constructs, rather than draw or code a web page. Students need to be careful that, when providing answers, they only include what is needed. When identifying a class tag, for example, providing `.boldred{ color : red; font-weight : bold}` will not secure the mark as it is unclear which part of the answer is actually the class tag.

Whether students fully understood the meaning of a monochromatic colour scheme was hard to identify. Many just wrote about it being black and white which was deemed to be insufficient for a mark. Of the students who did secure the mark, many correctly identified that a monochromatic colour scheme uses one main colour and shades of that colour.

The use of the meta element tag appeared to be more well known than the previous question part. The majority of correct answers were concerned around the use of this element by search engines.

In part 7d students found the LINK tag difficult to identify and complete. The part most students managed to answer successfully was the 'href' section as this also occurs in other HTML tags. Whilst students might know about external style sheets it was clear that the HTML tag needed to perform this was not well known.

## Question 8

Students are continuing to demonstrate that they can answer questions concerning logic gates and Boolean algebra. The majority could correctly fill in both of the truth tables for part 8a.

Questions parts 8bi and ii had the majority of students securing 2 or 3 of the 3 marks available. Whilst it might be considered a harder skill to take some descriptive text and turn it into a logical statement, it was pleasing to see most students had a good attempt at this.

Part 8c appeared to be the most difficult section of this question and whilst students demonstrated that they might know De Morgan's law, they failed to apply it correctly. Sometimes this was obvious with a student writing out the laws next to their working. Students often switched both signs of the provided expression at once, rather than correctly separating it into two parts and therefore only changing one sign. Students who completed the De Morgan's part correctly then tended to go on and secure the other 2 marks.

## Question 9

This is the first time that students have been asked to consider the Health and Safety legislation. It was pleasing to see that the majority of students could identify the law and a good number managed to secure all of the marks.

Students need to read questions carefully as although companies do need to provide eye checks to employees who use monitors this would not affect the design of the workspace. A small group of students also thought this question concerned the Data Protection Act and provided ideas concerning making sure that screens could not be viewed from a distance.

In previous papers we have referenced the Copyright, Designs and Patents Act, yet only around 40% of students correctly identified it again in this paper. Some students failed to secure the mark as they did not state the full name of the law as was asked.

The majority of students did secure the mark for the next part and it was pleasing to see the variety of correct answers. Most students wrote about checking how many computers the software could legally be installed on or considered the type of licence that the library might have.

The majority of students secured the last mark in the paper by correctly identifying what a Code of Conduct is and, as this question part has been asked before, it is probably a topic that is well known.

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