Level 3 Technical Level

IT: CYBER SECURITY
IT: NETWORKING
IT: PROGRAMMING
IT: USER SUPPORT

Unit 1 Fundamental principles of computing
H/507/6424
Report on the Examination

TVQ01009, TVQ01010, TVQ01011, TVQ01012, TVQ01013, TVQ01014, TVQ01015
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General

Some excellent responses were seen, with some students gaining nearly maximum marks.

Some students did not offer attempts at all questions and so might have been able to access more marks simply through better exam technique. In particular, some of the better students omitted some relatively easy questions, perhaps having just overlooked them.

It was pleasing to see students using their practical knowledge, for example of computer cooling systems, to provide very full answers on some topics. Other areas of the specification appeared to present students with more difficulty, such as knowledge of IT applications and their use.

Questions 1-5

Question 2 proved the most challenging of the multiple choice questions, although all were handled pretty well. Questions 3 and 5 were particularly well answered.

Question 6

Whilst many students were able to name a common format for encoding characters, fewer could explain why this was necessary. There was a lot of confusion between encoding, coding and encryption. This was disappointing as similar questions have been asked in past series.

Question 7

Some students confused cache memory with disk cache or virtual memory, clearly not knowing the difference between the terms. Some also did not understand the difference between cache memory and RAM, often confusing the two or describing different types of RAM.

Question 8

Of the better students, some were able to explain the two systems for measuring storage capacity (powers of 2 and powers of 10) and were then able to calculate the actual difference between the reported number of bytes that would be shown using each system. This gained full marks. Others explained how formatting the disk could reduce the reported capacity.

Less-able students often incorrectly suggested that space used to store Operating System files or applications would cause the reported space to be reduced.

Question 9

Most students were able to gain the marks for the first two parts of the question but few gained full marks for the logical expression in part three. Similar questions have been asked in previous series and responses were given in different formats, including set notation. It is worth noting that the mark scheme allows for many different ways of expressing the required logical expression.

Students were generally able to give examples of biometric devices but were less able to show understanding of how biometrics function as a security tool. The responses to the fifth part of the question often did not express the uniqueness of the biometric measurements, or expanded on what biometrics are rather than explaining how they function. The disadvantages given in response

to the sixth part of the question could, in many cases, equally well be applied to other types of security and were not specific enough to be credited.

Question 10

Many students could not give two applications that a supercomputer could be used for, even when they accurately described the difference between a supercomputer and a personal computer.

Question 11

This question was probably the best answered of all questions this series. Many students gave expansive, technically accurate responses that gained maximum credit. Some students, in their eagerness to show how much knowledge they had, gave responses that ran onto additional pages. Whilst their knowledge was impressive, more succinct responses would also have gained maximum credit and the additional time taken might have been used elsewhere to greater effect. What was particularly noticeable was the effect that knowledge of gaming computers had on responses with students talking about liquid immersion and liquid nitrogen gas cooling as extreme, though creditworthy examples.

Question 12

Responses to this question were disappointing. Many students confused spreadsheet software with database software and a high proportion were unable to explain how the spreadsheet software could be combined with other software such as attendance registers or electronic mark-books to provide useful information. Few described graphic functions to allow data and information to be presented in easy to understand ways.

Question 13

Generally, the first three parts of the question were well answered. However only a few students could give examples of serial and parallel buses and explain the differences between them. A lot of students focused on the Fetch-Execute cycle and the function of buses used in this, whilst disregarding other buses commonly found within the computer.

The fifth part of the question was intended to allow students to demonstrate a wide range of knowledge and a pleasing range of responses was seen. Better students addressed all three bullet points and gave simple, but accurate, technical explanations of how various types of storage device (and cloud storage) worked. Less-able students often did not address the third bullet point or appeared confused about how various storage devices worked, for example commonly confusing magnetic and optical storage. Some students suggested adding more RAM, which was not creditworthy, whilst others suggested the use of floppy disks or magnetic tape. Whilst these are still in existence and are methods of secondary storage, it is unlikely that either would be relevant in this context.