

APPLIED ICT

Paper 9713/11
Written A

Key messages

Overall, candidates appeared to have been fairly well prepared for this assessment.

Candidates showed a reasonable level of understanding, although there are still areas of the syllabus which appear to be left untouched by many candidates.

On much of the paper some elaboration and detail is required. It is not sufficient to give brief answers.

Questions requiring simple and straightforward answers were done well, while the answers to more stretching questions needed to contain more explanation or discussion.

Centres are again reminded that this is 'Applied ICT' and candidates are expected to apply their knowledge to the context of the scenario. It is important for candidates to realise that they need to refer back to the scenario when answering questions.

General comments

Some questions which required simple one word or single phrase answers were done well, such as **Questions 3(a), 3(c)(i) and 5** were answered very well.

There still appeared to be a degree of rote-learned answers from previous years' mark schemes. Rote-learning mark schemes is strongly advised against as, although questions might cover a similar topic, the questions themselves might change considerably. This was sometimes the case with **Question 1(b)** where some candidates wrote about methods of collecting information rather than the implications. In **Question 3(b)** a number of candidates wrote about the features of a DFD rather than a system flowchart.

In this paper, as with any exam paper at this standard, candidates are required to show a level of understanding as well as a depth of knowledge. As has been highlighted in previous reports, this cannot be achieved by simply repeating mark points from previous mark schemes.

Comments on specific questions

Question 1

Overall, candidates did quite well on this question, with parts **(a)** and **(b)** being fairly well answered.

- (a)** Many managed to gain at least two marks for describing the use of the device, though most failed to describe the actual phone or DVD player in sufficient detail.
- (b)** Again, many managed to make at least two good points although only the most able went on to make many more points. Duties of confidence and fidelity were referred to without necessarily expanding on these. The need for confidentiality regarding the information was sometimes described though frequently in isolation. A number of data protection principles were written about although these again seemed to provide the bulk of the answer without additionally referring to the duties of confidence or fidelity.
- (c)** This was disappointingly answered. The candidates often knew the packages and what they were capable of but seemed unable to apply it to the question or scenario. One issue that did arise was

that there was a significant increase of candidates who used brand names and consequently deprived themselves of marks.

Question 2

The majority of candidates found this question difficult. Parts **(a)** and **(b)(ii)** proved easier than part **(b)(i)** though these two parts did not gain the candidates many marks.

- (a)** A surprising number of candidates did not attempt this question. Of those that did, most managed to gain one or two marks although only the most able gained more than half marks. Many candidates were able to describe IVR and redirecting the calls to an appropriate operator but few were able to describe how such a system operates in any depth.
- (b)(i)** Candidates struggled with the question with many missing the point regarding 'before opening the email'. Many mentioned viruses without going into any detail. Very few gave spam.
- (ii)** This part of the email question was answered much better with most candidates gaining one or two marks with all possible answers being covered.

Question 3

This was quite well answered with only part **(c)(ii)** causing difficulty.

- (a)(i)** Most candidates gained at least one mark with many getting both. A large majority of candidates gained the mark for the drawback with variations of the Hawthorne effect but seemed to struggle defining the benefit.
- (ii)** This was the weakest answered of the part **(a)** questions though even then, many candidates gained at least one mark, usually for the drawback though some candidates struggled to get any marks.
- (iii)** This was quite well answered with most candidates gaining at least one mark. This was usually for the benefit rather than the drawback, usually giving the answer that moving away from the script is possible to ask a more in depth question.
- (b)** Many candidates managed to achieve at least two marks although a surprising number tried to describe a data flow diagram. Very few candidates gained 4 or more marks. Although a number of candidates managed to identify some of the symbols, most failed to describe the flow arrows and the general process.
- (c)(i)** Most candidates gained 1 or 2 marks with the most able gaining full marks.
- (ii)** This was not as well answered as the other parts of **Question 3**. It seemed that, unlike previous years, candidates had not prepared very well for an online banking question. There were many incomplete answers with candidates making part of the mark point but unable to provide sufficient detail to gain the mark.

Question 4

Candidates, generally, performed reasonably well on part **(a)** but seemed to struggle with part **(b)**.

- (a)** Candidates, on the whole, managed to do a lot better with this question than they normally do with a computer control question. Most candidates managed to gain at least 2 marks with a number gaining substantially more. There is a surprising number of candidates, however, who think that the sensor controls everything. There was also a number of candidates who described central heating systems without mentioning computer control at all.
- (b)(i)** This question elicited the weakest responses of any question on the paper. Even the most able candidates failed to gain more than one mark and even then it was usually only for saying that all the records have to be processed when the payroll is run.

- (ii) This was slightly better answered than part (i) although even here only the more able gained any marks. A substantial number of candidates did not attempt this question. Too many candidates confused files and records.

Question 5

Candidates, generally, performed very well on part (a), less so on part (b) and struggled with part (c).

- (a) The vast majority of candidates gained at least 3 marks though very few went on to gain 4 or more. A number of candidates seemed to think that ItemLocation was a date despite the middle value being 71. A substantial number of candidates gave the field type number for some fields without specifying the type of number despite the question specifying this requirement.
- (b) Candidates did fairly well on this question with many gaining at least half marks. Most identified it as being the key field with a number of these candidates successfully naming it and its role in linking the tables.
- (c) Candidates were required to state the check and describe it. Most candidates were only able to name a check but failed to describe it or relate it to the ITEM file. Many of the most able candidates were able to gain three marks, usually for giving good descriptions of range checks on the appropriate fields.

Question 6

This question was not as well answered as other questions. Many seemed unprepared for this type of question. Those candidates that did achieve marks usually gained them for the distribution of the document but rarely mentioning other possible mark points. Many referred to video-conferencing.

APPLIED ICT

Paper 9713/12
Written A

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APPLIED ICT

Paper 9713/13
Written A

Key messages

Overall, candidates did not appear to have been as well prepared for this assessment as last year.

Candidates seemed to lack a good level of understanding with a number of areas of the syllabus which appeared to be left untouched by many candidates.

On much of the paper some elaboration and detail is required. It is not sufficient to give brief answers.

Questions requiring simple and straightforward answers were done fairly well, while the answers to more stretching questions needed to contain more explanation or discussion.

Centres are again reminded that this is 'Applied ICT' and candidates are expected to apply their knowledge to the context of the scenario. It is important for candidates to realise that they need to refer back to the scenario when answering questions.

Many questions were left unanswered by candidates, much more so than in previous sessions.

General comments

There still appeared to be a degree of rote-learned answers from previous years' mark schemes. Rote-learning mark schemes is strongly advised against as, although questions might cover a similar topic, the questions themselves might change considerably. This was particularly the case with **Question 6(b)** and **6(c)** where a variety of answers unrelated to the question were given.

Comments on specific questions

Question 1

Candidates did not do very well on this question. Candidates found it a difficult question. Very few tended to gain any marks on this question with a number getting zero or not attempting it. Of those that did answer it, some did well realising that the master document was a template, whilst other candidates confused it with a master file and referred to transaction files as a consequence. It appeared that candidates did not understand the term 'master document'.

Question 2

Overall, this was one of the better answered questions on the paper but even then it was not particularly well answered. Candidates did better on part **(a)** than they did on part **(b)**.

- (a)** Candidates did fairly well on this question with the large majority gaining 2 or more marks. Candidates struggled to give reasons in sufficient detail for Price and NumberInStock.
- (b)** Candidates struggled with the concept of relational databases and seemed unable to describe even the basics of this topic. Many repeated the question or wrote about relational databases in general. Few wrote about tables referring to files and/or databases.

Question 3

Candidates, generally, did not perform well on this question.

- (a) Only the more able managed to gain even one mark with very few gaining more than this. One mark tended to be awarded when they stated that the file was in a particular order.
- (b) Over a quarter of the candidates did not attempt this question and the majority of those that did, failed to gain marks. There was very little evidence that candidates understood the term 'access'.

Question 4

This question was generally not well answered. Candidates did, however, do rather better on part (b) than they did on parts (a) and (c).

- (a) Candidates did not understand input device in this question or that fact that keyboard and mouse had been given to them. Therefore, mouse, especially, featured in the answers as well as monitor, printer, speaker etc. Even the more able candidates only achieved one or two marks.
- (b) Those candidates that realised that this question referred to safety and not health scored well. However, some gave descriptions of two health and two safety, in the hope of gaining at least two marks, though some candidates gained all 4 marks. Taking food and drink into the lab and not overloading sockets were the most popular answers.
- (c) This was not well answered at all. Even those few candidates who managed to describe the principle, struggled to explain them in this context. Therefore, 3 marks was the highest mark that the vast majority could achieve on the question. Some wrote answers such as duty of fidelity, duty of confidence among others.

Question 5

This was, again not well answered. Many candidates referred to the skills necessary to send emails despite the question stating that the candidates already knew how to do this. It seemed that the majority understood what emails are but equally seemed to be unable to answer the question and hence gained few marks.

Question 6

This question was, overall, not very well answered. However, many candidates did gain marks on part (a) but seemed to struggle with parts (b) and (c). One sixth of candidates did not attempt parts (b) and (c).

- (a) Most candidates gained at least two marks. Most seemed able to identify the terminators, process or stores but only the more able could go on to describe the diagram in full.
- (b) Again this should have been a straightforward question but candidates struggled to answer it. Some managed to state analysis, testing and implementation when clearly the question was about design. A worrying number of candidates described aspects of analysis. Some referred to types of documentation. Those that did concentrate on design referred to general terms such as the 'design of input' or the 'design of output' without going into any detail.
- (c) Candidates referred to brand names rather than the generic names. Those few candidates who appeared to understand the question named CTI, IVR, database and spreadsheet software. Those that did manage to name them regularly failed to describe them. A question that seemed straightforward was found difficult by the candidates. Several candidates referred to methods of implementation and some answered with methods of data collection.

Question 7

After question 1 this was found, by the vast majority of candidates, to be the most difficult question on the paper with very few candidates managing to achieve marks.

- (a) (i) The vast majority of candidates were unable to give the correct answer with most just rewording the question.

- (ii) Again, candidates did not seem to know the answer with many clearly not understanding the concept of random access.
- (b) This, again was not very well answered overall with even the most able finding it difficult to gain more than one mark. Those that did referred to speed of access. Over one fifth of the candidates failed to answer the question.

Question 8

This question was the best answered question on the paper with many candidates gaining marks.

- (a) Candidates, on the whole, managed to do a lot better with this question than they normally do with a microprocessor control question. Most candidates managed to gain at least 2 marks with a number gaining substantially more. There is a surprising number of candidates, however, who think that the sensor controls everything.
- (b) This question was answered fairly well as well, with candidates gaining at least one mark for the customer wanting to control their own room's temperature.

APPLIED INFORMATION & COMMUNICATION TECHNOLOGY

Paper 9713/02
Practical Test A

General comments

This paper gave significant differences in the range of results from Centre to Centre and from candidate to candidate within Centres. The paper gave a good spread of marks and candidate errors were spread evenly over the sections of the paper, although the application of candidates' knowledge to produce appropriate and creative solutions in the calculation of the Capacity formulae caused a number of candidates some issues.

A small number of candidates failed to print their name, Centre number and candidate number on some of the documents submitted for assessment. Without clear printed evidence of the author of the work, Examiners were unable to award any marks for these pages. It is not acceptable for candidates to annotate their printouts by hand with their name as there is no real evidence that they are the originators of the work.

Some candidates omitted one or more of the pages from the required printouts. A small number of candidates submitted multiple printouts for some of the tasks and failed to cross out those printouts that were draft copies. Where multiple printouts are submitted, Examiners will only mark the first occurrence of each page. Candidates must be aware of the dangers of cutting and pasting cropped versions of evidence in order to save space on a sheet. It often looks impressive but this invariably leads to the loss of crucial data which could achieve marks. Some candidates printed work that was too small to read even using magnification devices. Candidates MUST ensure that all text can be easily read with the naked eye.

As in previous sessions, some centres punched holes in the corners of the scripts, then joined the pages together with treasury tags or tied them with string. Sometimes these holes obscured text which was required for marking, resulting in the loss of potential marks. In some cases a number of treasury tags were used to group the pages, making it very difficult for Examiners to read all of the script.

Overall the paper performed very well.

Comments on specific questions

Question 1

This question was completed well by most candidates, as evidenced by their subsequent printouts of this evidence document.

Question 2

Most candidates deleted rows 2 and 3 from the file but a significant number did not save the file as a spreadsheet, retaining it as a comma separated values text file.

Question 3

This question gave a diverse range of candidate responses. There were many successful responses using MID, LEFT and even RIGHT functions to elicit the correct results. Some candidates extracted the first 4 characters from the string but did not change the order of the characters as specified in the question paper. Some candidates did not show evidence of replication of their formulae.

Question 4

This question gave an interesting array of responses. Many candidates worked through the logic of the problem and resolved it using a variety of MID, LEFT and RIGHT functions while some candidates successfully used the ISNUMBER function. There were a variety of solutions using error trapping, checking to see if the number of characters selected gave an error, then conditionally selecting the appropriate substring. Few candidates correctly turned the string value into a numeric one using functions; instead they applied formatting to make the string look like a number. A small number of candidates searched the internet for solutions. Even after attempting to edit these to match the requirements, few of which gave working solutions to this particular task. Some candidates did not show evidence of replication of their formulae.

Question 5

Most candidates who attempted this question had named ranges with the correct names, but a large number of these did not show evidence of the range of cells that the name was applied to.

Question 6

Many candidates who attempted this question completed all elements of the task as specified, although quite a number of scripts did not set the font to a serif font, many used a sans-serif font. Some candidates included row 2 in the named range. Many candidates did not evidence the full range to show H1 was merged.

Question 7

Few candidates used LOOKUP formulae to obtain the correct results for this question. The most common error was the use of VLOOKUP which would not extract the correct data due to the structure of the spreadsheet being used as the external data source. Many candidates ignored the specification that the named ranges created in step 5 were to be used for these formulae. The formulae print frequently had the row and column headings omitted. Few of the candidates who used the LOOKUP function changed the resulting string into a numeric value.

Question 8

This question proved challenging for many candidates with a whole array of different methods, formulae and logical solutions. A significant number of candidates created solutions that required part of a person for each venue, rather than a whole person. Few used ROUNDUP for this so the number of crew required was often one below the expected value where other forms of rounding had been used. Several candidates included the 'Storage' rows in the values printout. On the formulae printout a large number of candidates did not select the required print area (often including the cell H14), or failed to include row and column headings to enable Examiners to assess this.

Question 9

There were a variety of chart types selected by candidates, many displaying the correct data. There were also a number which included those with a venue of Storage, despite a clear instruction to omit this. At this level a candidate needs to select the appropriate data for the chart, not just allow the software to 'guess' what is required. Labelling of the chart was frequently minimal, the chart should be easy for a user to understand and clear labelling is therefore required. Most candidates included the venue names and locations, but fewer created the comparative chart with a secondary axis appropriately scaled and labelled.

Question 10

Almost all candidates added the labels as specified. Many candidates calculated 40% and 30% of the crew with accuracy but did not address the issue of having whole people, with numerous responses with decimal values. A large number of candidates rounded the data to 0 decimal places but frequently used ROUND or ROUNDDOWN rather than ROUNDUP. The formatting elements of this question were frequently performed well.

Question 11

Despite the instruction for a column, a large number of candidates produced horizontal bars rather than vertical bars. The stacked bar chart was frequently seen displaying follow through values from step 10 rather than the correct data. In many cases the contrast shown between the elements of each column made it difficult (and in some cases impossible) to read. Labelling was often minimalist and did not give the user of the chart a clear understanding of the data presented.

APPLIED ICT

Paper 9713/31
Written B

Key messages

Many candidates did not apply their knowledge to the given scenarios and to the context set in the questions and, while they appeared to know the syllabus content quite well, they failed to score the top marks because their knowledge was not applied appropriately.

It was also apparent that some candidates did not carefully read the questions before attempting their answers and they appeared to look for 'key words' in the question and then wrote answers based on those keywords without applying their knowledge to the question or scenario. Many candidates appeared to have good subject knowledge and some excellent technical descriptions were seen. However, it is imperative that candidates read the scenarios carefully.

Some candidates did not attempt to answer all the questions and consequently lost the opportunity to score the marks. A number of candidates wrote extended or replacement answers in the white spaces on the examination paper or added extra pages to the answer booklet. However, many made no reference or indication that they had done this and left the Examiner to find the additional answers and so risked not having the extra responses marked. While Examiners are trained to look for, and to mark, additional answers, they cannot be expected to search every examination paper for a few lines of orphaned writing for every candidate. When candidates write additional or extended answers outside of the lines supplied, it is essential that candidates indicate on the main question paper that they have done so and to indicate where the Examiner can find the additional parts to their responses – a simple 'continued on..' would suffice.

Candidates who give too many or too few responses risk losing marks. Where a question asks for e.g. three descriptions then only the first three descriptions will be marked and subsequent descriptions will be ignored by the marker. It is important, therefore, that when answering the questions, candidates read the rubric and give, where appropriate, the required number of responses.

Comments on specific questions

Question 1

- (i) This question asked candidates to give reasons why a reporter would use an A4 scanner when preparing an article. Most candidates correctly stated that the device would be used to input an image or article available only in hardcopy and this would enable the reporter to edit/manipulate the resource for use in the article. A few candidates stated that an A4 scanner was an input device – restating the question – and scored no marks.
- (ii) Again, candidates who merely restated the question scored no marks. Those that pointed out that the reporter could use the microphone to record interviews or notes for later transcription by speech-to-text/speech recognition for use in the article scored the marks.

Question 2

This question asked candidates to describe the limitations of laptops for creating and sending articles from the reporter to the editor. Good answers referred to the limitations of battery power, restricted keyboards, and smaller screens and often a reduced specification compared to desktop PCs; and how this would impact on the reporter's ability to create and send the articles. Poorer responses referred to hacking and theft of the laptop.

Question 3

Few candidates appeared to understand the term 'automated document' and so did not score many marks. Good answers referred to the need to ensure that all the assets are in a suitable electronic format, collected together or easily referenced, and are then copied and pasted into a master document or referenced by e.g. hyperlinks. Some lengthy descriptions of mail merge were seen and these scored few marks.

Question 4

This question was not well answered. The question was about the use of 'computerised-plate making' in a printing process. Few candidates produced good answers. Many appeared to be aware of the process but could not properly describe it. Good answers should have included the fact that text and images are brought together and the data is used to produce an image on plate or drum, with separate plates for different colours, using e.g. ultraviolet or laser light beams while the plate on the drum is rotating on its axis. The plates are then used for printing the articles. Poorer answers described the use of ink jet printers.

Question 5

This question was misunderstood by many candidates who wrote about the end user experience of viewing electronic magazines rather than the production process. The question asked for the benefits and drawbacks of producing/creating the electronic version so good answers referred to reduced costs due to no more printing hardcopies, reduced distribution costs and to the need to produce the magazine in different formats for different devices and the lack of security of the content.

Question 6

- (a) This question was about telephone interviewing and was answered quite well by many candidates.
- (b) This question was about the use of email for interviewing and was answered quite well by many candidates. However, too many wrote generic answers for the disadvantages about lack of power, no Internet connection or not having an email address – candidates must apply their answers to the scenario in question. Better answers referred to the time delay in responding, the fact that the email may never be answered at all, and the inability to ask follow-up questions immediately.

Question 7

- (a) Most candidates answered these questions quite well. However, too many candidates were not able to describe a 'supercomputer' with any confidence – poor answers stated that it was 'a big' or a 'fast' computer. At this level, more in-depth technical descriptions are required.
- (b) This question was quite well answered by some candidates who could describe how a supercomputer would be used to search through databases of drugs to find chemical compounds that could be used as a basis for new drugs and to cross-match results of previous research with results of new drugs under development, to create and run a model of the effects of the drugs on humans, and to predict the effects/possible side effects of the new drug. However, there were too many answers that lacked the detail necessary to score marks at this level.

Question 8

- (a) (i) This question was well answered by most candidates who could describe the use of a digital camera in this context. Too many candidates, however, gave generic answers without referring to the scenario. Good answers described the capture of an image for use on the ID badge or in the database.

- (ii) This question was well answered by most candidates who could describe the use of a keyboard in this context. Too many candidates, however, gave generic answers without referring to the scenario. Good answers described the input of the technician's details into the database or for use on the ID badge.
- (b)(i) This question was not answered well. Candidates knew about data types but not why they are assigned to fields. Good answers referred to the ability to use validation rules, enabling the computer to determine how to store the data or to be able determine the other field attributes.
- (ii) Both parts of the question were poorly answered. The ability to assign data types to exemplar fields is fundamental knowledge so it was disappointing that most candidates did not score the marks on this question.
- (iii) This question was also not answered well. This was a relatively easy question but few candidates could explain why a telephone number is not considered to be a number.

Question 9

- (a) Many candidates could state the features of a relational database but could not explain why these would persuade a HR department to use a relational database rather than a flat file database. For instance, candidates could explain that using a relational database avoids data replication but few gave a reason why this is advantageous.
- (b) The question required candidates not to just identify the relationship but to explain it. To score the mark, the fact that it was one-to-many '*because each technician has more than job role*' had to be given.
- (c) The question required candidates not to just identify the relationship but to explain it. To score the mark, the fact that it was one-to-one '*because each job role has only one title*' had to be given.
- (d) This question was not answered well by many candidates. Details of verification and validation were not required; all that candidates were required to do was to explain why both would be needed when the details of the technicians were being entered. Good answers referred to the need to ensure that data must be copied correctly or must match that supplied by the technician to ensure that the data can be relied upon, and that validation ensures that the data is reasonable when being entered.

Question 10

While most candidates could describe how a financial model might be used, many candidates could not answer this question. Good answers referred e.g. to determining the data to be input into model, deciding the parameters that would be used and the use of 'what if' and of goal seek to determine a break-even point. Many candidates, however, gave poor generic answers about computer models and did not score marks.

Question 11

This question was quite well answered. Most candidates could describe how the microprocessor controls the conditions and gave good descriptions of the collection of data, its use and how the microprocessor signals actuators to turn the heater on and off, and to control the valve for the alkali.

Question 12

- (a) Most candidates could answer this question well.
- (b) Many candidates could answer this question well. However, a significant number of candidates appeared to have little knowledge of how computers are used for primary market research. Some candidates referred to the use of the Internet to search for information.

APPLIED ICT

Paper 9713/32
Written B

Key messages

Many candidates produced some good answers, but most did not apply their knowledge to the given scenarios or to the context set in the questions. The consequence of this was that, while they appeared to know the syllabus content quite well, they failed to score the top marks because their knowledge was not appropriately applied.

It was also apparent that some candidates did not carefully read the questions before attempting their answers and they appeared to look for 'key words' in the question and then wrote answers based on those keywords without applying their knowledge to the question or scenario. Many candidates appeared to have good subject knowledge and some excellent technical descriptions were seen. However, it is imperative that candidates read the scenarios carefully.

Some candidates did not attempt to answer all the questions and consequently lost the opportunity to score the marks. Again, a number of candidates wrote extended or replacement answers in the white spaces on the examination paper or added extra pages to the answer booklet. However, Examiners reported that many of these candidates made no reference or other indication that they had done this. The Examiners, as a result, had to search the question booklet to find the additional answers and so candidates risked not having the extra responses marked. Examiners cannot be expected to search every examination paper for a few lines of orphaned writing for every candidate. When candidates write additional or extended answers outside of the lines supplied, it is essential that candidates clearly indicate on the main question paper that they have done so and to indicate where the Examiner can find the additional parts to their responses – a simple 'continued on..' would suffice. A few candidates did this and it proved helpful to Examiners.

Candidates who give too many or too few responses risk losing marks. Where a question asks for e.g. three explanations then only the first three explanations will be marked and subsequent descriptions will be ignored by the marker. It is important, therefore, that when answering the questions, candidates read the rubric and give, where appropriate, the required number of responses. There was an increase in the number of candidates who gave four or more responses to questions that asked for only e.g. three as in **Question 1a**. In a similar fashion, there was significant number of candidates who created numbered bullet points for questions that required a free-response set of explanations, for instance, for **Questions 6 and 9**. This is to be discouraged as, for example in **Question 9**, candidates are asked to 'discuss' a topic but when using numbered bullet points they rarely produce little more than simple statements with no discussion and so do not score the marks.

Comments on specific questions

Question 1

- (a) This question was not answered well. A significant number of candidates confused 'Internet auctions' with online shopping and write generic answers describing the process of buying goods online without any mention of an auction. Many candidates knew about Internet auctions but were unable to give any details of the types and how they operated; most seemed aware of ascending bid auctions but could only quote that an item was sold to highest bidder. Descending, sealed bid and reverse auctions were rarely seen in the answers given by candidates, although time restrictions and 'buy it now' references were seen in a number of responses.
- (b) There were some good answers seen for this question with candidates able to write about the worries of fraud when goods are not delivered, goods are not of expected quality and the fraudulent use of personal and financial details that might be stolen/leaked from unscrupulous sellers or when

in transit between buyers and sellers. A few candidates wrote about the risks of fake auction sites and of fake bidding to raise prices but few mentioned these in any detail.

Question 2

There was considerable confusion between the advantages to the *buyer* the advantages to the *seller*, as well as a failure to distinguish between the advantages and the disadvantages, to the seller of the use of credit cards. Also, many candidates seemed to be under the impression that a buyer can use a credit card to pay in instalments *to the seller* so can buy goods even if they do not have enough money. This misconception was common so it should be noted that, when a credit card is used to purchase goods, the full amount is charged to the card and the seller receives the full amount; the buyer can then choose to pay the full amount to the credit card company/issuer or to pay in instalments to the card issuer – in either case, the seller still receives the full amount at the time of purchase and is not disadvantaged in this way by allowing the use of credit cards.

- (a) Many candidates could explain why the use of a credit is advantageous by writing about the lack of the need to worry about currency conversions, the lack of necessity of sending cash in the post, the guarantee that the seller will be paid, and the protection afforded by the credit card issuer and by consumer protection laws. Common errors included lengthy descriptions of how credit cards are used, the lack of the need to carry large amounts of cash, the added costs of delivery and the risks of being mugged/robbed while buying the goods, the lack of any need to travel – none of which are relevant to the *use of credit cards* when buying goods from Internet auctions.
- (b) This question was about the **seller** and candidates should have written about the transaction fees applied by credit card issuers so the seller does not receive the full asking price, the costs of administering the credit payments, and the problems of chargebacks many months after the purchase. Many candidates could make some reference to these issues but most answers lacked any detail. Common errors included references to hacking and the theft of personal/financial details from the seller and the consequences; while these may be a problem they are not common disadvantages when the card is being used.

Question 3

This question elicited some answers that did not relate to the safe methods of paying for goods purchased from Internet auctions including the posting of large amounts of cash, traveling to the auction, and installing firewalls and anti-virus software. The question asked for ways *other* than using credit cards not for generic methods of keeping data secure. Good answers referred to the use of third-party payment systems or the use of direct credit transfer using online banking, cash on delivery or the use of debit cards to immediately transfer cost from buyer account to seller account. To score marks with these answers, candidates were required to describe the method rather than simply state it.

Question 4

- (a) Candidates were required to explain that the barcode is made up of black and white lines with the widths and the spacing of the lines encoding 1s and 0s. These 1s and 0s code for various items of information such as a product code. A few candidates could explain this and some went on to explain how a check digit is used to ensure the integrity of the data in the barcode. Common errors included descriptions of the physical use of the barcodes and how barcodes are used in e.g. stock control.
- (b) Many candidates knew about two dimensional barcodes but few could describe the benefits of using them. Good answers referred to storage of more data than linear barcodes, the use in encoding for e.g. URLs that linked to product details on websites and the scanning by apps on smartphones. Common errors included a lack of detail in the descriptions and references to 'faster stock control' or taking up a smaller space on the packaging.

Question 5

While many candidates could describe how a hand-held 'scan and go' system is used, many confused this with a static self-service checkout. Good answers describe the mobility of the device and its use as the customer moved around the supermarket scanning items as they were picked off the shelves, the taking of the goods and the device to a kiosk and the subsequent downloading of the purchase details for payment. Many candidates managed to score points for some of the details as they are quite similar to that when using a static self-service checkout but marks were not scored for responses that described 'placing all of the items on the scanner', 'scanning all the items at the same time' or references to RFID tags being used – the hand-held scanner scans the barcodes on the items, RFID tags are not used for this operation.

Question 6

This question was answered quite well with many candidates referring to the increased rate of checkouts by customers/faster checkout procedures for customers, the reduction in wage bills due to fewer staff being needed and to the increased incidence of thefts as there are fewer checks by staff at the kiosks, the annoyance by some customers when items do not correctly scan or register at the payment kiosk. Again, to score the marks on this question, answers had to be in some detail as generic answers such as 'faster', 'cheaper for the store', 'less staff' were not given credit.

Question 7

- (a) Good answers that referred to the benefits of using the expert system for identifying plants included references to there being fewer errors in the identification as the system holds the knowledge of many experts, the enhancement of the scientists own knowledge as a result of using the system, and the reduction in the time taken for an identification the system can collate/search for the identification faster than the scientist. Many generic answers about expert systems or the use of computers were seen e.g. 'can work 24/7', 'more accurate'; these lacked details and did not refer to the scenario so did not score many marks.
- (b) Good answers that referred to the drawbacks of using the expert system for identifying plants included references to the system being unable to identify previously unknown plants as it had no information about them, the need for updates that include new findings and the demotivation that some scientists might experience when using the expert system for identifications as it may make them feel that their knowledge is not appreciated. Again, many generic answers about expert systems or the use of computers were seen e.g. 'may not work', 'may lose the Internet', these did not score marks.

Question 8

- (a) This question was about the how the knowledge base was set up/created, not about how it is used for the identification of plants. Many candidates could describe how a knowledge engineer might collect information about plant identification from botanists/scientists, use data mining then extract information from existing research and then enter the data into the knowledge base. Some went on to describe the creation of the rules base that would use the facts. Common errors were to state the points but not give any detail about *how the knowledge base is setup* e.g. 'collect information', or to describe how the expert system would be used by the scientists to identify plants or describe the actual plants.
- (b)(i) This question was not well understood and was not well answered. Candidates did not know what forward-chaining is and how it would be used by the inference engine to identify a plant. Vague statements of 'going forwards' were common but there were some good answers that referred to the data being used to reason towards an identification with the use of IF-THEN statements.
- (ii) This question was again not well understood and was not well answered. Candidates did not know what backward-chaining is and how it would be used by the inference engine to identify a plant. Vague statements about of 'going backwards' or 'the opposite of forward-chaining' were common.

Good answers about the identification of a plant being the starting point and this being used to search for data to support the identification were rare.

Question 9

This question required candidates to discuss the use of ICT in the teaching of geography. Good answers related the benefits and drawbacks to the teaching of geography with references to e.g. accessing interactive maps and the use of email and video-conferencing to contact candidates around the world and to the issues surrounding the reliability of information found in the Internet compared to that imparted by teachers, the problem of candidates accessing inappropriate materials on the Internet while working on geography projects. Poorer answers did not relate the discussion points to teaching or to geography and simply referred to the use of ICT in generic terms e.g. 'can play games online' or 'might be hacked' and these responses did not score marks.

Question 10

- (a) Some good answers were seen for this question: candidates explained the workings of a firewall in some detail writing about the scanning/inspecting of data packets and the use of a database of IP addresses that would be e.g. forbidden and the subsequent actions taken by the firewall. Poorer answers simply quoted the question e.g. 'unauthorised users would not be allowed access' or lacked any technical detail.
- (b) Encryption appears to be well understood with some very good answers seen for this question. Poor answers lacked the details of the candidate data being unreadable/not able to be understood without the relevant keys or software to unencrypt the encrypted data e.g. 'the data cannot be seen' and were not awarded marks.

Question 11

Many candidates answered this question well. Good answers referred to use of a proxy server by a school, thus referencing the scenario, and referred to the caching of frequently accessed websites for speedier access to the web pages, the use as a firewall with the need for a username and password to be entered for web access. Poor answers referred to 'hiding the IP address' without explaining why this could be useful or even necessary in a school e.g. allowing many internal IP addresses to access the Internet by using only one IP address; this is often the function of the router rather than a proxy server. In any case, the concept of network address translation was not well understood by candidates. Answers referring to IP anonymity in order to access forbidden areas of the Internet were not given credit as this is not a use that a school would find for a proxy server.

APPLIED ICT

Paper 9713/33
Written B

Key messages

Many candidates did not apply their knowledge to the given scenarios and to the context set in the questions and, while they appeared to know the syllabus content quite well, they failed to score the top marks because their knowledge was not applied appropriately.

It was also apparent that some candidates did not carefully read the questions before attempting their answers and they appeared to look for 'key words' in the question and then wrote answers based on those keywords without applying their knowledge to the question or scenario. Many candidates appeared to have good subject knowledge and some excellent technical descriptions were seen. However, it is imperative that candidates read the scenarios carefully.

Some candidates did not attempt to answer all the questions and consequently lost the opportunity to score the marks. A number of candidates wrote extended or replacement answers in the white spaces on the examination paper or added extra pages to the answer booklet. However, many made no reference or indication that they had done this and left the Examiner to find the additional answers and so risked not having the extra responses marked. While Examiners are trained to look for, and to mark, additional answers, they cannot be expected to search every examination paper for a few lines of orphaned writing for every candidate. When candidates write additional or extended answers outside of the lines supplied, it is essential that candidates indicate on the main question paper that they have done so and to indicate where the Examiner can find the additional parts to their responses – a simple 'continued on..' would suffice.

Candidates who give too many or too few responses risk losing marks. Where a question asks for e.g. three descriptions then only the first three descriptions will be marked and subsequent descriptions will be ignored by the marker. It is important, therefore, that when answering the questions, candidates read the rubric and give, where appropriate, the required number of responses.

Comments on specific questions

Question 1

- (i) This question asked candidates to give reasons why a reporter would use an A4 scanner when preparing an article. Most candidates correctly stated that the device would be used to input an image or article available only in hardcopy and this would enable the reporter to edit/manipulate the resource for use in the article. A few candidates stated that an A4 scanner was an input device – restating the question – and scored no marks.
- (ii) Again, candidates who merely restated the question scored no marks. Those that pointed out that the reporter could use the microphone to record interviews or notes for later transcription by speech-to-text/speech recognition for use in the article scored the marks.

Question 2

This question asked candidates to describe the limitations of laptops for creating and sending articles from the reporter to the editor. Good answers referred to the limitations of battery power, restricted keyboards, and smaller screens and often a reduced specification compared to desktop PCs; and how this would impact on the reporter's ability to create and send the articles. Poorer responses referred to hacking and theft of the laptop.

Question 3

Few candidates appeared to understand the term 'automated document' and so did not score many marks. Good answers referred to the need to ensure that all the assets are in a suitable electronic format, collected together or easily referenced, and are then copied and pasted into a master document or referenced by e.g. hyperlinks. Some lengthy descriptions of mail merge were seen and these scored few marks.

Question 4

This question was not well answered. The question was about the use of 'computerised-plate making' in a printing process. Few candidates produced good answers. Many appeared to be aware of the process but could not properly describe it. Good answers should have included the fact that text and images are brought together and the data is used to produce an image on plate or drum, with separate plates for different colours, using e.g. ultraviolet or laser light beams while the plate on the drum is rotating on its axis. The plates are then used for printing the articles. Poorer answers described the use of ink jet printers.

Question 5

This question was misunderstood by many candidates who wrote about the end user experience of viewing electronic magazines rather than the production process. The question asked for the benefits and drawbacks of producing/creating the electronic version so good answers referred to reduced costs due to no more printing hardcopies, reduced distribution costs and to the need to produce the magazine in different formats for different devices and the lack of security of the content.

Question 6

- (a) This question was about telephone interviewing and was answered quite well by many candidates.
- (b) This question was about the use of email for interviewing and was answered quite well by many candidates. However, too many wrote generic answers for the disadvantages about lack of power, no Internet connection or not having an email address – candidates must apply their answers to the scenario in question. Better answers referred to the time delay in responding, the fact that the email may never be answered at all, and the inability to ask follow-up questions immediately.

Question 7

- (a) Most candidates answered these questions quite well. However, too many candidates were not able to describe a 'supercomputer' with any confidence – poor answers stated that it was 'a big' or a 'fast' computer. At this level, more in-depth technical descriptions are required.
- (b) This question was quite well answered by some candidates who could describe how a supercomputer would be used to search through databases of drugs to find chemical compounds that could be used as a basis for new drugs and to cross-match results of previous research with results of new drugs under development, to create and run a model of the effects of the drugs on humans, and to predict the effects/possible side effects of the new drug. However, there were too many answers that lacked the detail necessary to score marks at this level.

Question 8

- (a) (i) This question was well answered by most candidates who could describe the use of a digital camera in this context. Too many candidates, however, gave generic answers without referring to the scenario. Good answers described the capture of an image for use on the ID badge or in the database.

- (ii) This question was well answered by most candidates who could describe the use of a keyboard in this context. Too many candidates, however, gave generic answers without referring to the scenario. Good answers described the input of the technician's details into the database or for use on the ID badge.
- (b)(i) This question was not answered well. Candidates knew about data types but not why they are assigned to fields. Good answers referred to the ability to use validation rules, enabling the computer to determine how to store the data or to be able determine the other field attributes.
- (ii) Both parts of the question were poorly answered. The ability to assign data types to exemplar fields is fundamental knowledge so it was disappointing that most candidates did not score the marks on this question.
- (iii) This question was also not answered well. This was a relatively easy question but few candidates could explain why a telephone number is not considered to be a number.

Question 9

- (a) Many candidates could state the features of a relational database but could not explain why these would persuade a HR department to use a relational database rather than a flat file database. For instance, candidates could explain that using a relational database avoids data replication but few gave a reason why this is advantageous.
- (b) The question required candidates not to just identify the relationship but to explain it. To score the mark, the fact that it was one-to-many '*because each technician has more than job role*' had to be given.
- (c) The question required candidates not to just identify the relationship but to explain it. To score the mark, the fact that it was one-to-one '*because each job role has only one title*' had to be given.
- (d) This question was not answered well by many candidates. Details of verification and validation were not required; all that candidates were required to do was to explain why both would be needed when the details of the technicians were being entered. Good answers referred to the need to ensure that data must be copied correctly or must match that supplied by the technician to ensure that the data can be relied upon, and that validation ensures that the data is reasonable when being entered.

Question 10

While most candidates could describe how a financial model might be used, many candidates could not answer this question. Good answers referred e.g. to determining the data to be input into model, deciding the parameters that would be used and the use of 'what if' and of goal seek to determine a break-even point. Many candidates, however, gave poor generic answers about computer models and did not score marks.

Question 11

This question was quite well answered. Most candidates could describe how the microprocessor controls the conditions and gave good descriptions of the collection of data, its use and how the microprocessor signals actuators to turn the heater on and off, and to control the valve for the alkali.

Question 12

- (a) Most candidates could answer this question well.
- (b) Many candidates could answer this question well. However, a significant number of candidates appeared to have little knowledge of how computers are used for primary market research. Some candidates referred to the use of the Internet to search for information.

APPLIED ICT

<p>Paper 9713/04 Practical Test B</p>

General comments

The majority of candidates were well prepared for this session and many Centres are to be congratulated for addressing issues highlighted in previous reports.

Comments on specific questions

Task 1– Calculate Profit values

In the first task candidates were required to:

- calculate the profit for each component by the difference between the sale_price and the cost_price
- use an efficient lookup method to calculate the profit on the number of items in an order
- calculate the profit made per order.

This task was done well by most candidates and nearly all succeeded with the first stage of the task.

For the second stage of the task, however, the vast majority failed to use the most efficient lookup method for the second calculation. In order to use the VLOOKUP formula, the data in the file had to be manually manipulated and the order of columns changed. As stated in previous reports candidates must bear in mind that they are looking for solutions that are repeatable as files are replaced or updated, so manual manipulations need to be avoided. Centres would benefit from highlighting the situations where the use of the INDEX and MATCH formulae is more efficient. Only one mark was lost if VLOOKUP was used successfully but the use of LOOKUP was too inefficient. In any case, candidates who used this formula rarely managed to achieve the correct results. Surprisingly a number of candidates forgot to multiply the result of the lookup by the number of each component in the order.

The third stage required candidates to calculate the total profit for each order by summing the profit for each component in the order using the SUMIF formula. A surprising number used SUMIFS but since there was only a single criterion to satisfy, using SUMIF was actually a more efficient solution. There was no penalty for using SUMIFS however.

The question paper asked candidates to print copies of the spreadsheet displaying the values and the formulae for each stage. It is worth Centres noting that when the instructions are that clear, the use of only screenshot evidence is not satisfactory. In particular the use of a screenshot to provide evidence of a formula by displaying it in the formula bar will lose the mark for valid replication.

Also worth noting is that scenario instructions at the beginning of the paper usually contain some important instructions that apply to all the tasks. In this case candidates were required to include a logo in the top right of each document, format all currency in Euros (€) and set all dates to dd/MM/yyyy format. Many candidates did not always remember to satisfy these strictures.

Task 2– Create a relational database to organise and manipulate data on customers, orders and components.

This task was done very well by almost all candidates. The only common error was in choosing the primary key for the components table. Some candidates chose the component name as the index and whilst this was legitimate since each component name was unique, the relationship between the component numbers in the components table and the order_items table was indeterminate.

It was pleasing to see that almost all candidates provided sufficient evidence of the database structure and the relationships.

Task 3 – Prepare a report to show orders that were overdue

The report required needed to be based on a query using the orders table with the dispatched field criteria set to false. Candidates were required to add a calculated field to the query comparing the date_required and the current date with a criterion of >0.

Most candidates thought to use the DateDiff function but many used it to calculate the difference between the date_ordered and the date_required. This was not a correct solution.

The correct use of the function was: **DateDiff("d",Date()-(date_required),Now())**

An alternative solution was: **Date()-(date_required)** but while using the date of the exam produced the correct results, the formula **#23/03/2016# – (date-required)** was not acceptable.

The report itself was surprisingly poorly done by many candidates. A number did not include the correct fields or sort the data by the order_date. Most did, however remember to provide evidence of how the average number of days overdue was calculated and so a follow through mark for the average of their data could be awarded.

Task 4 – Prepare a report for an Invoice based on a parameter query

This was a fairly straight forward task to create an invoice. The parameter query was created successfully by most candidates and almost all paid attention to providing enough information for a user as a prompt. The vast majority however, failed to realise that they had to create a calculated field in the query that multiplied the cost of the component by the number ordered. Many therefore summed the sale_prices and arrived at a total of €520. The correct sum for the total cost was €820.

An invoice is a document that must satisfy the business context so the formatting of the report was important. The customer details were required at the top of the report and the order details positioned below. The grouping and layout was done well by only a small number of candidates. Many did not adhere to the instructions in the question paper. Centres might benefit from stressing the importance of comparing outcomes to descriptions before finalising a submission.

Task 5 – Mail merge a letter with conditional text to selected customers.

The recipients of the letter were to be restricted to those on the mailing list who had ordered 4 or more components. It was possible to select the recipients on the mailing list using the edit recipients' option in the merge document or the SKIPIF rule, but the most efficient solution was to use a query in the database. The use of a query enabled the calculation of the count of the components. Many candidates appeared to find this difficult.

Field:	customer_forename	customer_surname	mailing_list	account	order_number	component_number
Table:	customers	customers	customers	customers	order	order_items
Total:	Group By	Group By	Group By	Group By	Group By	Count
Sort:						
Show:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Criteria:			True			>=4
or:						

Centres might be wise to spend some time on similar examples. The screenshot above is probably the simplest solution.

Apart from the count of the components mergefield, many, indeed most, candidates managed to create a suitable merge document and printed the merged letters.

Marks for the merge document were awarded for the insertion and spacing of the correct fields, the syntax of the conditional field and the mergefield criteria.

Clearly, any errors in position, spacing, or spelling and punctuation in the conditional field would also be apparent in the merged letters. Careful “proofing” of the printouts was therefore important.

In conclusion

For this session, the main issues for Centres to bear in mind seem to be:

- the importance of efficient solutions and in particular, that solutions should be designed to be repeatable with minimal intervention if data is changed
- the provision of the required evidence in terms of printouts or screenshots, particularly evidence of the replication of formulae
- the consideration of the business context in documents such as invoices etc.
- the importance of “proofing” printouts with respect to layout, spacing, formatting, punctuation etc. and comparing the result of a solution with the requirements stated in the task and the scenario.