

APPLIED ICT

<p>Paper 9713/02 Practical Test A</p>

General comments

There were 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 manipulate time values within the spreadsheet caused a number of candidates some issues.

A small number of candidates did not 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 did not 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 attain marks. As in previous sessions, 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.

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

Not all candidates created the rows and columns at the top of the bus spreadsheet as shown. Gridlines were frequently omitted from the appropriate cells and not all candidates reduced the height of row 5. Some candidates produced the correct results for this in their Evidence Document but did not have this contained within their bus spreadsheet when this was printed out. Candidates frequently did not embolden the text in row 3 and/or row 6.

Question 3

Most candidates calculated this as specified but some did not check to see if the bus was early and place 00:00 in the cell. There were a variety of correct formulae used by candidates to perform this.

Question 4

This question was completed well by most candidates with the correct application of the MINUTE function. A small number erroneously used the MIN function.

Question 5

Most candidates used a MID function to extract the correct character for the bus route from the bus code. Some candidates elected to change this into a numeric value at this stage using a variety of approaches. These included multiplying the extracted character by 1, using the value function or adding 0.

Question 6

Most candidates completed this as specified, although a small number of candidates did not use the original data file for the lookup, instead referring to the original source file renamed as a spreadsheet or a range of cells in the current worksheet or workbook, where presumably the original data had been copied. Potential marks were frequently lost when some candidates did not expand the column widths so that all of this formula could be seen.

Question 7

While many candidates completed this step as instructed, some only extracted the destination code from the bus code and placed this part of the formula in this cell. Where the full formula was present, potential marks were frequently lost when some candidates did not expand the column widths so that all of this formula could be seen.

Question 8

Replication was completed as specified by almost all candidates.

Question 9

This required four different formulae placed in the merged cells in row 4. Very few candidates achieved the correct results using the ROUND function. ROUNDUP, ROUNDDOWN and INT were frequently seen when candidates acknowledged the part of the question requiring them to return an integer value. Whilst most candidates used appropriate functions such as AVERAGEIF, MAX and COUNTIF some did not place the mathematical operation in speech marks, e.g. ">0" within these functions.

Question 10

Almost all candidates centre aligned the appropriate cells but fewer applied appropriate formatting to all cells. Whilst the type of formatting was not specified examiners were looking at consistency in the formatting of cells and columns containing similar data.

Question 11

This was frequently completed as specified although some typographical errors were seen.

Question 12

Although this was frequently completed as specified, a significant number of candidates did not show row and column headings or ensure all data was fully visible; often formulae were truncated.

Question 13

The data was frequently sorted into the correct order; the most common error was sorting the data but not maintaining its integrity.

Question 14

Most candidates selected the correct data, although some did not include those buses that were due at 12:00 and 12:30.

Question 15

This question was frequently completed as specified although some typographical errors were seen.

Question 16

This question was frequently completed as specified.

Question 17

The most efficient solution to this question was the use of the COUNTIFS function which some candidates applied correctly, more frequently candidates used a COUNTIF function and therefore could only apply one of the two criteria to this. Despite instructions to the contrary, many candidates used additional cells or a second worksheet to attempt this question.

Question 18

This question was frequently completed as specified although some typographical errors were seen.

Question 19

This question completed as specified by most of the candidates.

Question 20

This question was frequently completed as specified although not all candidates included the row and column headings in their printout.

Question 21

This question was not attempted by all candidates. Those who did attempt this rarely selected the correct routes, although many did get correct values for the number of journeys. These could be credited from the bar charts produced by many candidates, although it was more difficult to credit the average delay calculations as many candidates had not recalibrated the secondary axis into whole minutes. Few candidates who submitted this chart added adequate labelling. The labelling should have included detailed and meaningful axis labels, axis titles and a chart title.

Question 22

This and subsequent questions were not attempted by all candidates. Several made good attempts at this section, often producing correct calculations but ignoring the requirement for this spreadsheet to be used for modelling. Those candidates, who did so, placed the value of 0.0213 rupees in a single cell, appropriately labelled to be referenced from other formulae in the sheet. Many candidates who attempted this focussed their attentions on the calculations for each journey and not an analysis to each destination.

Question 23

This question was completed as specified by most candidates who attempted **Question 22**.

Question 24

This question was completed as specified by most candidates who attempted **Question 22**.

Question 25

This question was completed well by most candidates although few attained all 7 marks. Most created the rule and the error message with 100% accuracy, including detail of the acceptable values but only a few candidates also included appropriate advice for entering the data.

APPLIED ICT

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

Key messages

Centres would benefit from careful consideration of the evidence that candidates should provide.

General comments

Candidates were well prepared for this session. Almost all were able to attempt every task and it is pleasing to note that many used efficient methods to provide accurate solutions.

Comments on specific questions

Task 1

In this task candidates were required to create Player_IDs, calculate the age of the players, use the age to determine the Player_Status as Junior, Adult or Senior, and lookup the Player_fee.

Apart from the calculation of the age almost all candidates managed to complete the task successfully although a few made some errors with the age boundaries and logic in the IF statements for the Player_status.

Very few candidates managed the calculation of the player age successfully however. The player age had to be calculated as on the date of the examination. The most efficient method for this calculation was the use of the DATEDIF function. Unfortunately, this was very rarely used. Nearly all other ways of working out the answer gave incorrect ages at some point.

It was pleasing to note that most candidates formatted the Player_fee to euros and 0 dp as required.

Task 2

Task 2 required candidates to use a database application to import the data and create a report.

All candidates imported the data successfully, set appropriate data types and set a primary key. Very few, however, provided evidence that they had set the Player_fee to euros and 0 dp. A number of candidates also had extra (empty) fields at the bottom to the table, e.g. Field 13. Extra fields are not acceptable in an efficient solution.

The report itself was straightforward but very few candidates managed to present it as required. Although almost all candidates grouped the results correctly, very few seemed to be able to present each group on a separate page of the same report. Many resorted to 3 individual reports and therefore each group had a header and title.

Most candidates managed to display the totals for each group with an appropriate label.

Task 3

In this task candidates were required to use the database to select the recipients of the Fees_due_letter. Some candidates provided evidence that the database had been used, but many missed doing so. It was obvious some candidates had used the spreadsheet to complete the task.

For the selection of the recipients, evidence of a query or a SKIPIF to find those whose fees were due was acceptable but use of the Edit Recipients options in the word processing application was not. A mail merge task should require as little manual selection/deselection as possible. It was, however, reasonable to manually exclude Gurdeep Dasgupta from the list since this was an example of an exception.

In general, the exclusion of Gurdeep Dasgupta was carried out successfully by nearly all candidates. A few however chose to exclude by Player_forename and Player_surname. This was not acceptable since there was another player with the same surname.

In the merge document, some candidates did not include the 'junior' option in their conditional text. This may have been because no junior letters would be created, but the task specifically asked them to include this condition.

It was pleasing to note that most candidates showed the date as a field, and were accurate with their punctuation and spacing with the merge fields; this was an improvement on previous sessions.

Several candidates, however, left the display options set to show fields in the merged letters and so the actual date was not shown. Also worth noting is that many candidates did not notice the € sign did not appear with the Player_fee mergefield. Proof reading the merged letters should have enabled candidates to correct these errors.

Task 4

In this task candidates had to calculate the points scored by the teams listed in the League_table file, create a macro to sort the teams into descending order of points, assign the macro to a button and update the data with two new results.

Although almost all candidates created correct formulae for the calculation of the points for each team, most candidates did not manage to use the macro to assign the correct positions.

The sorting of the data was very poorly done by many candidates. Often candidates included the first column positions in the sort; a quick visual inspection of the results should have confirmed this error.

Those candidates who did realise the results were wrong, resorted to resorting the first column to achieve the correct results. This is clearly an inefficient solution.

Candidates were also required to add programmer's comments to explain sections of the macro. Most provided comments for sorting, but few provided them for the selection of the ranges or areas. Some candidates used callouts or review bubbles after exporting the text but these were not acceptable.

The requirement to assign the macro to a button was rarely satisfied. A few candidates provided evidence of the creation of a button, a shape or a menu item called 'Update League Table', even fewer provided evidence of the macro being attached. Since many candidates did create a macro this omission seems an issue centres could profit from covering in more depth.

Task 5

Task 5 required candidates to mail merge labels as place cards for the teams that had more than 40 points. This should have resulted in 5 place cards. Unfortunately, many candidates did not provide evidence of how they filtered for teams with more than 40 points. The issue of providing appropriate evidence is a recurring one.

Most candidates did generate 5 labels as a follow through from their data in task 4. This often produced an incorrect winner and runner up however.

The labels also had to be printed with 4 per page; many candidates did not manage to provide 4 labels on a page, most only having two per page.

In conclusion

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

- the provision of evidence for methods or steps that are not explicit in solutions
- the importance of some manual inspection of results to ensure that results are valid
- practice with sorting selected columns within a table
- the need for practice in the assignment of a macro to buttons, shapes or menu items.

APPLIED ICT

Paper 9713/11
Written A

Key messages

Overall, candidates appeared to have been better prepared for much of this assessment.

Candidates showed a reasonable level of understanding though there were areas of the syllabus of which many candidates appeared to lack detailed knowledge.

On much of the paper some expansion and detail is required. It is not sufficient to give brief answers. Questions which required a recall response were handled well by most candidates but it appeared they struggled to apply their knowledge and understanding to a given scenario.

Discuss questions also require benefits and drawbacks to be given. It is important that comparisons are made rather than just giving features.

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

It was refreshing to see the decrease in the number of candidates on this paper that used brand names of software packages within their answers. In **Question 5(a)**, for example, it was pleasing to see that the vast majority of candidates used generic names such as spreadsheet, database or word processing.

General comments

Candidates need to be conversant with the command words used in questions. For example, **Question 7** required candidates to describe methods of research yet many candidates seemed to think it was acceptable to give one word answers.

Comments on specific questions

Question 1

Candidates did well on this question with the majority of candidates gaining at least three marks. Incorrect answers seemed to be evenly distributed among the provided responses, although a number seemed to think that flyers would have a much larger potential customer base.

Question 2

Candidates did just as well on this question with many gaining three or more marks. Incorrect answers seemed to be evenly distributed among the provided responses.

Question 3

This question was not particularly well answered, though candidates did better on part **(a)** than part **(b)**.

- (a)** The majority of candidates gained at least one of the two marks available. This was predominantly for the fewer days' aspect of the question. Many higher ability candidates gained both marks.

- (b) This part was not well-answered with only the higher ability candidates gaining two or more marks. Many candidates concentrated on the speed of working and mistakenly thought that the workers would work fewer hours.

Question 4

Candidates did very well on this question and candidates appeared to be very knowledgeable about the topic.

- (a) Most candidates gained at least half marks. Most gained marks for the points about shopping at any time of day, expensive to buy the equipment and wider range of goods.
- (b) This was not as well-answered as part (a), but most candidates still managed to achieve at least two marks usually with answers relating to costs being saved by employing fewer workers and how there would be increased costs due to creating a website.

Question 5

Candidates did equally well on both parts of this question, but few candidates achieved more than four marks overall.

- (a) Many candidates gave answers relating to aspects of CTI software despite the question saying not to. A number of candidates gained at least one mark usually for an appropriate description of database software or word processing software.
- (b) This was well-answered by the more able candidates with most of these gaining at least two marks, usually for briefly describing the two types of software. Few candidates were able to go into the detail required for more than half marks.

Question 6

This question was fairly well answered with the large majority of candidates gaining at least four marks overall.

- (a) Many candidates gave the correct formula. Some, however, used < signs where <= was required and some used Boolean operators inappropriately, forgetting that there is a fairly structured way of using these in spreadsheets.
- (b) Many candidates were able to identify the function required but seemed unable to explain what would happen or what changes would need to be made.

Question 7

Many candidates just gave one word answers for each method. Some were unable to give the benefits and a number were unable to come up with any suitable methods.

Question 8

This question produced some of the weakest responses on the paper. Many candidates did not appear to have studied data flow diagrams. Those that had some insight seemed content to just name the component without fully answering the question which required descriptions and their use. A substantial number of candidates did not attempt this question.

Question 9

The majority of candidates gained 2 or more marks for this question. Candidates seemed to have revised this topic very well with many referring to duty of confidence, anonymising and aggregating information.

Question 10

Apart from the most able candidates, many did not appear to have studied this topic and often gave very vague answers. A substantial number of candidates did not attempt an answer. Many candidates described how a system would be implemented or even evaluated but few were able to answer the question. For those candidates who did seem to understand the topic tended to concentrate on types of test data without considering other aspects of the question.

Question 11

Many candidates gained at least three of the 8 marks overall, though candidates did better on part **(a)** than part **(b)**.

- (a)** Many candidates mentioned the use of public calendars and a number went on to describe how private calendars would be used.
- (b)** Only the more able candidates gained more than one mark. Most referred to alarms but many went on to expand their answer to part **(a)** and ended up missing the point of the question. Those that did well concentrated on allocation of time and resources to tasks as well as mentioning Gantt charts.

APPLIED ICT

Paper 9713/12
Written A

Key messages

Overall, candidates appeared to have been better prepared for much of this assessment.

Candidates showed a reasonable level of understanding though there were areas of the syllabus in which many candidates appear to lack detailed knowledge.

On much of the paper some expansion and detail is required. It is not sufficient to give brief answers. Questions which required a recall response were handled well by most candidates but it would appear that they struggled to apply their knowledge and understanding to a given scenario.

Discuss questions also require advantages and disadvantages to be given. It is important that comparisons are made rather than just giving features.

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

It would appear that candidates repeated phrases from text books or past paper marks schemes based on a single word that they saw within a question rather than reading the whole question and responding appropriately to the given scenario.

There was a major increase in the number of candidates who used brand names of software packages within their answers. It is explicitly stated in the syllabus, as well as having been pointed out in previous sessions, that no marks will be awarded for such answers.

General comments

Candidates must read questions carefully before answering. **Question 6**, for example, required candidates to explain the rights of the individual but candidates were happy just to list the contents of a typical data protection act. This was again the case with **Question 7(b)**, candidates were informed about a pressure sensor being used yet many proceeded to write about how temperature affected the output.

Comments on specific questions

Question 1

Candidates did well on this question with the majority of candidates gaining at least three marks. Incorrect answers seemed to be evenly distributed among the provided responses, although a number seemed to think that magnetic tape has quicker data access than a hard disk.

Question 2

Candidates did quite well on this question with many gaining three or more marks. The main weakness shown by many candidates was ticking 'Verification is to check that data is correct.'

Question 3

Some candidates gained good marks for naming and describing a suitable use for software which was related to the scenario. Many however gave software names such as MS Word or Excel in the answer. A number of candidates referred to producing learning resources and did not refer to the test or report despite the question being about a teacher using the new procedures. Some candidates only provided answers that described general uses of the software.

Question 4

Candidates identified that computers would make it easier to read answers, particularly if the student had a handwriting problem, but few could give any other advantages. The disadvantages were not very well answered with many responses describing health problems. Most candidates thought that it was faster to complete the test using the computer. Very few candidates mentioned the inclusion of video/sound to illustrate questions. The most popular answer was related to a power cut so work was lost.

Question 5

This question was, as a whole, well answered. Candidates did better on **part (a)** than the other parts. There were very few misspellings of function names although this was more of an issue with concatenate.

- (a) Many candidates gave the correct formula. Some, however, provided extra items within the brackets which would cause it not to work.
- (b) This was well-answered with many candidates gaining full marks.
- (c) Many candidates gave the correct formula but fewer than for **part (a)**. Again, however, some provided extra items within the brackets which would cause it not to work.
- (d) This part was not as well answered by the candidates as the other parts although the majority managed to gain at least one mark. A number gave an incorrect order for the cell references.

Question 6

This question was not answered well. The question was about the rights of the individual as set out in data protection legislation. Many responses merely described all the principles of the data protection act.

Question 7

This question provided very mixed responses with **part (a)** producing much better responses than **part (b)**.

- (a) Many candidates gave correct answers. The majority gave compressor for B thereby gaining a mark but many were unable to identify A and C, sometimes using other elements of an air conditioning unit such as fans or refrigerant.
- (b) Many candidates provided answers related to temperature, thereby missing the point of the question. Very few candidates showed sufficient understanding of control to gain marks.

Question 8

Most candidates seemed fairly well prepared for this topic and gave reasonable answers.

- (a) The majority of candidates gained two or more marks. Candidates gave good descriptions of using appropriate devices and their related software to create the report and then send it to the editor. Some responses also described the typesetting which was more suitable for the answer to **part (b)**.
- (b) This part of the question was reasonably well answered with a number of candidates gaining two or more marks. Many candidates were able to describe kerning and leading but some did not expand when they wrote about font type and size.

Question 9

Candidates often struggled to give more than one drawback. Most candidates seemed to have learnt about home working and treated the question as though the journalists were working from home. Many candidates described working from home rather than recognising that the journalist was working at the location where the story was unfolding. The answers ranged from being distracted by family and having to pay for utilities such as electricity. Most popular valid answers related to less chance to impress the editor and difficulty in attending meetings.

Question 10

This question was not well answered. Apart from the more able candidates, many did not appear to have studied this topic and often gave very vague answers. A substantial number of candidates did not attempt an answer. Many candidates described the printing process itself despite the question referring to the production of a plate *before* the printing process begins.

Question 11

The majority of candidates did not appear to have studied this topic. Where candidates did gain marks it was usually for stating the different types of financial information that could be gathered. Exception reports were not so well described. Some responses described other financial reports about purchasing, sales and profits which were not related to payroll.

Question 12

Part (b) produced much better responses than **part (a)** in this question.

- (a) Many candidates talked about watching the employees or observation in general without mentioning the specific ways in which she would do this. Very few actually mentioned the use of cameras to observe. Many discussed issues related to interviews/questionnaires.
- (b) Most candidates who gained marks did so for the overall view of the whole system and people changing the way they behave when observed. Many responses described the process of observing rather than the advantages or disadvantages of this activity. Other answers described interviews and questionnaires.

Question 13

Most of the more able candidates were able to gain some marks through their knowledge of the systems life cycle and some understanding of parallel and sequential activities but few other candidates seemed to know the workings of a Gantt chart in any great detail.

APPLIED ICT

Paper 9713/13
Written A

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Candidates need to be conversant with the command words used in questions. For example, **Question 7** required candidates to describe methods of research yet many candidates seemed to think it was acceptable to give one word answers.

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Candidates did well on this question with the majority of candidates gaining at least three marks. Incorrect answers seemed to be evenly distributed among the provided responses, although a number seemed to think that flyers would have a much larger potential customer base.

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APPLIED ICT

Paper 9713/31
Written B

Key messages

Centres are reminded to ensure that candidates read the questions carefully before attempting their answers as candidates appear to look for or 'spot' 'key words' in the question and then proceed to write answers based on those keywords; there is often little application of their knowledge to the question or scenario. This type of answer may score a few marks but will not give access to the full range of available marks.

It is essential that candidates read the scenarios before a set of questions very carefully and apply their knowledge when answering the subsequent questions. Many candidates appeared to have good subject knowledge and some excellent technical descriptions were seen but most did not apply their knowledge to the given scenarios or to the context set in the questions. As noted in previous reports, the consequence of this was that, while they appeared to know the syllabus content quite well, they did not score the higher marks because their knowledge was not appropriately applied.

It is very important that, when answering the questions, candidates read the rubric and give, where appropriate, the required number of responses. Too many candidates are still giving too many or too few responses and risk losing marks. There were a number of candidates who gave more than the required responses to questions that asked for only e.g. two as in **Question 1(c)**. There were also a significant number of candidates who created numbered bullet points for questions that required a free-response set of descriptions, for instance, for **Question 2(c)**. As has been noted in previous reports, this is to be discouraged as, for example in **Questions 3(a)** and **(b)**, candidates are asked to 'describe' or 'explain' a topic but when using numbered bullet points they rarely produce little more than simple points or short statements with no description or explanations. These answers rarely score the marks. Candidates who wrote in sentences and paragraphs produced descriptions/explanations that scored marks. In questions that require descriptions/explanations, points or simple statements are not enough to gain credit and score marks e.g. in **Question 6** the simple statement that doctors can use email or use video-conferencing is not sufficient; to gain credit a candidate must describe the required hardware in some detail.

As has been noted previously, some candidates, although fewer than in previous series, did not attempt to answer all the questions and consequently lost the opportunity to score the marks. Once again, a small number of candidates wrote extended or replacement answers in the white spaces on the examination paper. Further, most of those candidates who did so made some reference or other indication that they had done this, which is to be encouraged, and is appreciated by the Examiners as the Examiners cannot be expected to search every examination paper for a few lines of orphaned writing for every candidate. So, as stated in previous reports, when candidates write additional or extended answers outside of the lines supplied, it is important that candidates clearly indicate on the main question paper that they have done so and indicate where the examiner can find the additional parts to their responses – a simple 'continued on..', as written by a number of candidates this series, is sufficient.

Comments on specific questions

Question 1

- (a) Most candidates produced good descriptions of the on/pulses representing the codes.
- (b) This question was about the use of infra-red and not about the use of remote-controls. Good answers described how infra-red is usually restricted to short distances and does not pass through objects. Poor answers referred to users not having to get up and go to the television set' to control it.
- (c) Most candidates could describe appropriate input devices but a significant few described output devices such as speakers for enhanced sound. It is important that candidates know and can recall basic information technology content

Question 2

- (a) Most candidates could describe the use and purpose of a router. However, few managed to describe the features of routers in the context of the question. Good answers referred to e.g. the ports for connecting to LAN/VLAN/WAN, security features to control access to the LAN and the provision of DHCP. Weak answers stated the purpose of a router without describing the features.
- (b) Good answers described the passage of IP packets, the interrogation of these by a router and how the router decides where to send the packets so that they reach the specified server from the specified device. Poorer answers lacked details of the process.

Question 3

- (a) Some candidates could describe this well. Others appeared to have no knowledge of it despite spread spectrum transmission being clearly stated in the syllabus.
- (b) Many candidates described the benefits of Wi-Fi and did not answer the question as set. Good answers included how spread spectrum transmission could be used to increase security and resistance to interference if used by Wi-Fi devices.
- (c) Many candidates, despite a poor performance in parts (a) and (b), answered this question well giving examples such as Bluetooth.

Question 4

This question asked candidates to explain why modifications to its knowledge base might affect the accuracy of results produced by the expert system. Many candidates did not address this aspect of the question but described how an expert system might be used – as required in **Question 5** – or how it works. Good answers described the vast amounts of inter-dependent knowledge stored and how updating or modifying some items may have a cascade effect on other items and this might, in turn, affect the 'facts' created by forward or backward-chaining.

Question 5

In many cases, this question elicited good answers which described uses by doctors when diagnosing illnesses. Weaker answers focussed on the benefits which were not required here.

Question 6

To score the higher marks, candidates had to refer to the several possible uses of the internet. Good answers referred to the benefits and drawbacks of e.g. email, video-conferencing, chat rooms and instant messaging. Weaker answers focused on only one use.

Question 7

Most candidates answered this question well with some descriptions of how patients can be monitored by computer systems. The use of sensors, ADCs and how the data could be used were described well.

Question 8

The use of digital certificates was not described well by candidates. Many did not describe how the digital certificate system works or how it is put to use. Good answers should have included the use of HTTPS, the issuing of digital certificates to website owners by authorities and why/how this re-assures users.

Question 9

- (a) Most candidates answered this question very well. Answers referring to passwords at least 8 characters long with a mixture of uppercase and lowercase characters and numbers, symbols and not being recognisable as words or relating to the user scored the high marks. Weaker answers included password policy guidelines such as regular changing etc. which were not required.
- (b) This question focused on the problems caused by strict password policies and candidates were expected to refer to issues such as complex passwords being easily forgotten, the need to write down the multitude number of passwords that are needed, the difficulties of managing many different passwords and the difficulties associated with entering special characters from some devices. Good answers were seen from a number of candidates but few could go beyond the forgetting and writing down issues. Problems experienced by users and by the companies that insist on adherence to strict password policies were accepted.

Question 10

Few candidates could describe the stages in the prototyping of a software model. Good answers included identifying the basic requirements such as input and outputs, developing initial prototypes and the examination by end-users leading to feedback and changes. Weak answers showed poor understanding and references to aspects not required by the question e.g. the advantages of the use of software models.

Question 11

Good answers showed an understanding of the benefits such as the reduced costs and reduced time scale of development, the ability to experiment with a prototype before full production of the final product and the increased user involvement along with drawbacks such as the possibility of inadequate analysis of what is required and the possible creation of overly-complex prototypes as a result of user intervention at many stages. Weaker answers lacked any detail and often just referred to costs and times.

APPLIED ICT

Paper 9713/32
Written B

Key messages

Centres are reminded to ensure that candidates read the questions carefully before attempting their answers as candidates appear to look for or 'spot' 'key words' in the question and then proceed to write answers based on those keywords; there is often little application of their knowledge to the question or scenario. This type of answer may score a few marks but will not give access to the full range of available marks.

It is essential that candidates read the scenarios before a set of questions very carefully and apply their knowledge when answering the subsequent questions. Many candidates appeared to have good subject knowledge and some excellent technical descriptions were seen, but most did not apply their knowledge to the given scenarios or to the context set in the questions. As noted in previous reports, the consequence of this was that, while they appeared to know the syllabus content quite well, they did not score the higher marks because their knowledge was not appropriately applied.

It is very important that, when answering the questions, candidates read the rubric and give, where appropriate, the required number of responses. Too many candidates are still giving too many or too few responses and risk losing marks. There were a number of candidates who gave more than the required responses to questions that asked for only e.g. two as in **Question 2(b)** or **6(a)**. In a similar fashion, there was significant number of candidates who created numbered bullet points for questions that required a free-response set of descriptions, for instance, for **Question 5**. As has been noted in previous reports, this is to be discouraged as, for example in **Questions 6(b)(i), (ii)** and **8(b)**, candidates are asked to 'describe' or 'explain' a topic but when using numbered bullet points they rarely produce little more than simple points or short statements with no description or explanations. These answers do not score the marks. Candidates who wrote in sentences and paragraphs produced descriptions/explanations that scored marks. In questions that require descriptions/explanations, points or simple statements are not enough to gain credit and score marks e.g. in **Question 7(a)** the simple statement that 'a video camera is needed' is not a description of the hardware required for video-conferencing as required by the question; to gain credit a candidate must describe the required hardware in some detail.

As has been noted previously, some candidates, although fewer than in previous series, did not attempt to answer all the questions and consequently lost the opportunity to score the marks. Once again, a small number of candidates wrote extended or replacement answers in the white spaces on the examination paper. Further, most of those candidates who did so made some reference or other indication that they had done this, which is to be encouraged, and is appreciated by the Examiners as the Examiners cannot be expected to search every examination paper for a few lines of orphaned writing for every candidate. So, as stated in previous reports, when candidates write additional or extended answers outside of the lines supplied, it is important that candidates clearly indicate on the main question paper that they have done so and indicate where the Examiner can find the additional parts to their responses – a simple 'continued on..', as written by a number of candidates this series, is sufficient.

Comments on specific questions

Question 1

Most candidates could explain what computer simulations are and how they are used but few applied their knowledge to the simulations used when designing the new nuclear reactor. To achieve high marks, answers must be applied to the scenario. Generic answers rarely score many marks. A number of very weak answers referring to physical models were also seen.

Question 2

- (a) This question was the use of about super computers. Candidates are expected to be able to distinguish between the types of high-end computers and be able to explain their appropriate use. Few drawbacks other than the high costs involved were identified by candidates.

Good answers referred to the very high processing power available and how it would be of use when simulating the complexities of nuclear reactions and/or research.

- (b) There was some confusion between super computers and expert systems. Weak answers referred to the uses of expert systems in situations where a super computer would not be used. Good answers referred to weather forecasting, uses in medical research of new drugs and other situations where large numbers of calculations are required in a very short time.

Question 3

Gantt charts seem to well be understood by most candidates and some very good answers were seen. These referred to e.g. the provision of a visual representation that is easy to understand with an accurate timeline that shows sequential and parallel tasks.

Question 4

- (a) Good answers referred to letters going to the right address, residents might not receive the letters if the data was not accurate or residents might be angry if their names were spelled incorrectly. Weak answers did not describe these in any detail.

- (b) These questions were not answered very well. Candidates did not seem to understand the differences between flat file and relational databases. Weaker answers muddled the two parts of the question or repeated the answers in both parts.

- (i) Better answers referred to the use of the data for a single purpose i.e. only for the letters, fewer people live in the area therefore all the records can be stored in one file and the database is easy to maintain using standard office applications

- (ii) Better answers referred to data being stored only once so letters are only sent out once and data can be extracted from many tables at once so complex queries can be carried out so letters are sent to different individuals living at same address. Weaker answers mentioned the features of relational databases without linking them to the scenario.

Question 5

This question was about monitoring physical variables. Better answers made reference to appropriate physical variables associated with the presence of a nuclear reactor e.g. temperature of the cooling waters being discharged into the sea or rivers. Poorer answers referred to the physical variables associated with general environment monitoring e.g. air pressure, amount of sunlight and did not refer to the scenario. Answers that described the monitoring or radiation did not score marks as this was explicitly excluded by the question. As noted above, candidates were expected to write descriptions – one word answers or short statements did not score marks.

Questions 6 and 7

There appears to be much confusion between Voice-over Internet Protocol (VoIP) and video-conferencing.

Question 6

The question was also focused on the representatives rather than the company. Weaker answers did not sufficiently refer to the representatives but made generic comments about VoIP.

- (a) Descriptions of two methods were required but weaker candidates repeated their answers. Good answers mentioned the use of a software application on a smartphone, or other suitable computing device, or an adapter that could be used with a 'normal' phone to connect/convert it to a VoIP system.

- (b)(i)** Candidates were required to describe the benefits to the representatives of using VoIP. Good answers referred to the ability to use different computing devices, the use of phone conferencing with multiple callers in one conversation, and the use of advanced call features such as call forwarding and call waiting.
- (ii)** Candidates were required to describe the drawbacks to the representatives of using VoIP and good answers could have included the need for a reliable internet or network connection, the voice quality being variable or poor and the need for training. Weak answers referred to the lack of video and the inability to sign documents – muddling VoIP with video-conferencing.

Question 7

- (a)** Good answers identified the hardware and software and described the use of each or gave a reason for the requirement.
- (b)** Many candidates confused echo-cancelling with noise-cancellation or reduction. Good answers explained the problem of echoes and why/how these interfere with the quality of the audio.

Question 8

- (a)** Candidates were expected to explain why video-conferencing is to be preferred over e.g. VoIP or 'normal' telephone calls or email etc. Good answers referred to e.g. being able to see all participants simultaneously during conference which is not possible during a phone call and non-verbal information can be transferred unlike an ordinary phone call. Weaker answers gave the generic 'don't have to travel', or 'can see each other' type of answer which did not score many marks.
- (b)** Many people prefer not to participate in video-conferencing because they get anxious when in front of cameras or their behaviour may change when in front of a cameras. Candidates were required to explain these, and other, reasons why people may not want to use video-conferencing to communicate. Weaker answers quoted the generic drawbacks of video-conferencing such as power outages, network issues which did not score many marks. Candidates must read the question as set and tailor their answers accordingly.

Question 9

This question was answered well by most candidates with some very good answers seen to all parts of the question.

- (a)** Good descriptions were seen. Good answers included references to room availability, room types, tariffs and local amenities. A significant few candidates misunderstood the question and described the details that would be entered into a booking system for a hotel room. Again, candidates must answer the question as set.
- (b)** Good descriptions were seen with references to billing addresses, loyalty membership details, details of payment methods, and residency statistics.
- (c)** Good answers described reports that included weekly or monthly reservations summaries, guest demographics and summaries of room usage. Weaker answers described financial breakdowns that would not be found in a central reservation system.

APPLIED ICT

Paper 9713/33
Written B

Key messages

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It is essential that candidates read the scenarios before a set of questions very carefully and apply their knowledge when answering the subsequent questions. Many candidates appeared to have good subject knowledge and some excellent technical descriptions were seen but most did not apply their knowledge to the given scenarios or to the context set in the questions. As noted in previous reports, the consequence of this was that, while they appeared to know the syllabus content quite well, they did not score the higher marks because their knowledge was not appropriately applied.

It is very important that, when answering the questions, candidates read the rubric and give, where appropriate, the required number of responses. Too many candidates are still giving too many or too few responses and risk losing marks. There were a number of candidates who gave more than the required responses to questions that asked for only e.g. two as in **Question 1(c)**. There were also a significant number of candidates who created numbered bullet points for questions that required a free-response set of descriptions, for instance, for **Question 2(c)**. As has been noted in previous reports, this is to be discouraged as, for example in **Questions 3(a)** and **(b)**, candidates are asked to 'describe' or 'explain' a topic but when using numbered bullet points they rarely produce little more than simple points or short statements with no description or explanations. These answers rarely score the marks. Candidates who wrote in sentences and paragraphs produced descriptions/explanations that scored marks. In questions that require descriptions/explanations, points or simple statements are not enough to gain credit and score marks e.g. in **Question 6** the simple statement that doctors can use email or use video-conferencing is not sufficient; to gain credit a candidate must describe the required hardware in some detail.

As has been noted previously, some candidates, although fewer than in previous series, did not attempt to answer all the questions and consequently lost the opportunity to score the marks. Once again, a small number of candidates wrote extended or replacement answers in the white spaces on the examination paper. Further, most of those candidates who did so made some reference or other indication that they had done this, which is to be encouraged, and is appreciated by the Examiners as the Examiners cannot be expected to search every examination paper for a few lines of orphaned writing for every candidate. So, as stated in previous reports, when candidates write additional or extended answers outside of the lines supplied, it is important that candidates clearly indicate on the main question paper that they have done so and indicate where the examiner can find the additional parts to their responses – a simple 'continued on..', as written by a number of candidates this series, is sufficient.

Comments on specific questions

Question 1

- (a) Most candidates produced good descriptions of the on/pulses representing the codes.
- (b) This question was about the use of infra-red and not about the use of remote-controls. Good answers described how infra-red is usually restricted to short distances and does not pass through objects. Poor answers referred to users not having to get up and go to the television set to control it.
- (c) Most candidates could describe appropriate input devices but a significant few described output devices such as speakers for enhanced sound. It is important that candidates know and can recall basic information technology content

Question 2

- (a) Most candidates could describe the use and purpose of a router. However, few managed to describe the features of routers in the context of the question. Good answers referred to e.g. the ports for connecting to LAN/VLAN/WAN, security features to control access to the LAN and the provision of DHCP. Weak answers stated the purpose of a router without describing the features.
- (b) Good answers described the passage of IP packets, the interrogation of these by a router and how the router decides where to send the packets so that they reach the specified server from the specified device. Poorer answers lacked details of the process.

Question 3

- (a) Some candidates could describe this well. Others appeared to have no knowledge of it despite spread spectrum transmission being clearly stated in the syllabus.
- (b) Many candidates described the benefits of Wi-Fi and did not answer the question as set. Good answers included how spread spectrum transmission could be used to increase security and resistance to interference if used by Wi-Fi devices.
- (c) Many candidates, despite a poor performance in parts (a) and (b), answered this question well giving examples such as Bluetooth.

Question 4

This question asked candidates to explain why modifications to its knowledge base might affect the accuracy of results produced by the expert system. Many candidates did not address this aspect of the question but described how an expert system might be used – as required in **Question 5** – or how it works. Good answers described the vast amounts of inter-dependent knowledge stored and how updating or modifying some items may have a cascade effect on other items and this might, in turn, affect the ‘facts’ created by forward or backward-chaining.

Question 5

In many cases, this question elicited good answers which described uses by doctors when diagnosing illnesses. Weaker answers focussed on the benefits which were not required here.

Question 6

To score the higher marks, candidates had to refer to the several possible uses of the internet. Good answers referred to the benefits and drawbacks of e.g. email, video-conferencing, chat rooms and instant messaging. Weaker answers focused on only one use.

Question 7

Most candidates answered this question well with some descriptions of how patients can be monitored by computer systems. The use of sensors, ADCs and how the data could be used were described well.

Question 8

The use of digital certificates was not described well by candidates. Many did not describe how the digital certificate system works or how it is put to use. Good answers should have included the use of HTTPS, the issuing of digital certificates to website owners by authorities and why/how this re-assures users.

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