INFORMATION TECHNOLOGY

Paper 9626/02
Practical

General comments

This was the first June sitting of this new qualification. Some candidates omitted one or more of the required files to be submitted for assessment, or submitted work in the wrong format, for example the video. Other candidates saved their spreadsheet work in csv format. This format does not retain any formatting or any formulae, so examiners could not mark any formulae section where this happened. At AS Level candidates are expected to understand a variety of file formats and interchange between them.

Comments on specific questions

Question 1

(a) This question was completed reasonably well by most candidates, although in a significant number of cases candidates saved their spreadsheet as a text file in csv format so the evidence of this was lost. Many candidates used a NOW() function to display the date and time, but did not display this as specified on the question paper. There were a number who did not use a sans serif font.

(b) This question was completed well by many candidates, using concatenation methods with the & or the CONCATENATE function. In a significant number of cases the completed result was visible but no formula used, perhaps indicating that candidates had ignored the instruction to use a formula and had used copy and paste and search and replace to change the old e-mail server with the new. Not all candidates used the LOWER function to ensure that the address was in lower case. A number of candidates inserted additional columns and entered functions that frequently attained the correct results. Although these solutions worked, this method was less efficient than using single formulae.

(c) This question gave very mixed results. Some candidates omitted it; others identified the potential for duplicate email addresses which was the expected response, whilst other candidates, having examined the source data file identified characters that would not be accepted within an email address. These ranged from a simple space in the surname to regional characters (e.g. Chinese characters) which had replaced those characters containing accents. Any of these responses allowed the candidate to identify the method of recognition, one example of an affected email address and suggested solutions. Where candidates had identified the problem, the vast majority found good solutions and corrected the affected email addresses.

(d) The first seven characters of the payroll number caused few problems for candidates, although manipulating the data to obtain the last three characters proved more taxing. The best solutions involved using strings and extracting the right three characters from a concatenation of 00 and the branch code. Some candidates used a TEXT function to obtain this. A significant number of candidates used less efficient (but still workable) methods using nested IF statements. A number of candidates inserted additional columns and entered functions that frequently attained the correct results. Although these solutions worked, this method was less efficient than using single formulae.

(e) This question was much more testing, a whole range of correct methods were seen using two VLOOKUP statements, VLOOKUP and MATCH as well as INDEX and MATCH. Some of the weaker candidates created solutions that worked by editing the original data table and gained partial marks for this. Few of them did so by cell referencing so if the original rates of pay were edited their solution would no longer give the correct results. Many omitted the last part of the question to display the pay column as euros with 0 decimal places.

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(f)   This question proved very taxing for a significant number of candidates. Many ignored the clue in the question to display subtotals. Where subtotals were used candidates used the filter to remove the Executive pay rates with relative ease. Where candidates had not used the SUBTOTAL function there were a vast array of solutions using SUMs, COUNTs and AVERAGEs, often with SUMIFs etc. Many worked for the given data but would not work if data was changed.

(g)   Many of the candidates who attempted this question got a working solution linking the data between the sheets as specified. Some obtained the correct results if Executive pay was not excluded from the SUBTOTALS.

(h)   Most candidates who attempted this question showed the data for the SUM and AVERAGE pay for each branch. Fewer candidates placed the data sets alongside each other when creating the chart, resulting in both bars for each venue together. Appropriate labelling of the chart was completed poorly by many candidates. The chart titles were frequently too short and did not indicate that the data contained no executive pay.

(i)   There were a significant number of poor responses to the definition of a formula. Some good answers indicated that formulae frequently performed calculations, but few candidates indicated that a formula could include one or more functions. The definition of a function produced better results with some good descriptions of functions being pre-defined within the spreadsheet software. The examples were often present but not always labelled to indicate which was the formula and which was the function; however a significant number of candidates used examples that were not used in their TTSMerge file.

Question 2

Where candidates had exported their finished video clip into mp4 format, this question was frequently performed well. Despite this, significant number of candidates submitted files in package specific file formats rather than exported into a generic container (mp4). It is crucial that all Centres have the required software to enable candidates to change files from one format into another (both for audio and video files). For this series every effort was made to convert videos that were in the wrong format, in to a format that could be marked by the examiners. We will not be doing this in future series.

The vast majority of candidates set the image ratio to 16:9. Many candidates lacked precision in the required timing of their clips, often leaving the videos and/or captions in the default lengths used in their editing packages. Most candidates had placed the clips in the correct order although there were a number who did not use transitions between the clips. There were a significant number of typographical errors in the text displayed in the clip.

(a)   This question was completed with mixed results; there were some excellent submissions and some with little evidence of any audio editing. Most candidates edited the audio clip so that only the birdsong remained and added the dove call, this was required in two of the quieter periods although some candidates added it in several other places as well. A number of submissions were still stereophonic rather than being compressed into a single monophonic channel. A significant number of candidates did not set the audio clip to the same length as the video clip before saving it and sometimes not saved with the correct bit rate.

(b)   The file DoveCall.wav was not frequently seen exported at the correct bit rates. The resulting file sizes were therefore not always correct. The answers to the audio questions in the Evidence Document frequently lacked the technical knowledge of audio files required at this level. General answers like 'The mp3 saved at 128 kbps is smaller' do not indicate an understanding that it is a smaller file size (than wav format), therefore requires less storage capacity and can be transferred more quickly from one device to another. There were very few descriptions of lossy compression and lossless compression.

INFORMATION TECHNOLOGY

Paper 9626/04
Advanced Practical

General comments

Very few candidates were well prepared for this session. Many were unable to attempt every task.

Comments on specific questions

Task 1a

In this task candidates were required to recreate a logo involving gradient fills and text fitted to a curve. All candidates managed to create a logo but most did not maintain the proportions shown. In particular, not enough attention was paid to the size and spacing of the horizontal bars.

Task 1b

Most candidates clearly understood the difference between bitmap and vector graphics but few realised that since there were 6 marks for the question they should describe six characteristics. Centres could profit from clarifying this principle to candidates.

Task 2

In Task 2 candidates had to create an animation with very specific requirements. The task involved a fairly simple key frame animation with text and objects appearing at specified intervals. Almost all candidates managed to create an animation but very few satisfied all the requirements. In particular, most did not complete the smooth rotation of the logo and very few timed it to remain for the two seconds as specified. It seems that accurate timings were an issue for many candidates.

Task 3

Almost all candidates completed this task well. All managed to create the relational database consisting of only two tables and most set the data types, the primary keys and the relationship correctly. Most candidates set the validation rule correctly and added appropriate text. A few candidates listed all the numbers 1-10 instead of giving a range; this is not an efficient solution.

Task 4a

The creation of a form with a subform was not a problem for most candidates but once again satisfying all the requirements specified in the question was an issue. In particular, many seemed unfamiliar with the setting of properties to control the subform scroll bars and the default form navigation controls.

Task 4b

Whilst it was clear that almost all candidates understood the issues involved in flat file and relational databases, most did not recognise the importance of the "Discuss" command word. From the syllabus, "Discuss" means, *give the important arguments for and against, often requires a conclusion; this command word requires 'Analysis' and 'Evaluation'.* Although a conclusion was not required, candidates needed, to explain the advantages and disadvantages of the characteristics of each type of database.

Task 5

The mail merge task consisted of three parts; the selection of the recipients, the insertion of the mergefields in the merge document and the production of the merged letters. Almost no candidates completed this task successfully.

The selection of the recipients was logically fairly simple, but most candidates seemed unfamiliar with the use of *Count* in a query. Many candidates did manage to determine the correct recipients but most used inefficient methods or even manual inspection. Centres would profit from giving candidates experience of the use of aggregate functions in database queries.

The insertion of the unconditional mergefields was attempted by all candidates, but a surprising number did not realise that the forename and surname mergefields needed to be inserted in the body of the letter and also in the voucher section.

The logic of the order of the conditional mergefields defeated nearly all candidates, but again, many managed to determine the correct inclusions and thus earn the marks for the correct letters. Centres should note that it is worth reminding candidates that many of the marks for the correct letters may be independent and even manual correction and proofing may earn marks.

Task 6a

This task was not attempted by many candidates even though a simple solution would have been to declare variables to match the form names and use conditional statements to test for null entries. The few candidates that did attempt this task did so quite well and some of the more sophisticated solutions also checked that only numbers were accepted for the telephone numbers and the number in the party. Even these candidates, however, often did not add sufficient explanatory programmer comments.

Task 6b

Candidates were asked to explain the difference between a *counting loop (for* or *for/in)* and a *conditional loop (while* or *do/while).* There were five marks for this question and so by listing a valid example of each type candidates merely had to describe three characteristics covering the two types of loop.

Acceptable responses would include:
* *counting loops repeat a set number of times*
* *a count is added to/updated each repetition until the set count total is met*
* *a condition loop repeats till a condition is met*
* *a condition loop repeats until a condition stops being met*
* *the condition is set and tested in each loop.*

In conclusion

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

* attention to the full list of specifications given in a task
* the importance of covering the number of issues to match the marks allocated
* the accuracy of timings in an animation
* the use of form control property settings
* practice with aggregate functions such as count, sum and average in a query
* the order or nesting of conditional fields in a mail merge
* the advantages of correcting and proofing post-merge documents
* basic JavaScript practice.

INFORMATION TECHNOLOGY

Paper 9626/11
Theory

Key messages

Simple straightforward questions were well answered, but questions that required in depth answers lacked full explanations in the responses given. Candidates need to refer to the marks given when answering the question.

There were a number of candidates who are giving brand names rather than the generic names. It is clearly stated in the syllabus 'Note that no marks are awarded for brand names in candidate responses.'

Candidates should think very carefully about what is being asked in a question and answer the question as it has been set. They should be reminded to read each question thoroughly to ensure they are clear of the focus and that they can produce an answer that is relevant to the question as set.

Candidates should use the appropriate technical terminology when answering questions. At this level of study vague, generalised answers will not be given credit.

Candidates should be encouraged to write their answers clearly in the spaces provided on the examination paper.

If candidates use additional sheets or blank spaces within the question paper the continuation of the answer should be clearly indicated. It is also essential, particularly in questions that require formulae that candidates indicate in some way the answer which is to be marked if any draft work has been produced.

It would appear that candidates are repeating phrases from text books or websites based on a single word that they see within a question rather than reading the whole question and responding appropriately to the given scenario. Teachers would be well advised to further develop the skills of their learners beyond recalling points of information to enable them to gain better results at this examination level.

General comments

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

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

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

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.

Comments on specific questions

Question 1

Candidates did well on this question with the majority of candidates gaining at least three marks. A number of candidates seemed to think that a WAN was a Wireless Area network.

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

Candidates did quite well on this question with the majority gaining at least two marks. Popular answers related to giving an appropriate example, how difficult it is to change data and how quickly the data can become outdated.

Question 4

Candidates did not do very well at all on this question with few candidates gaining more than a single mark. Many reworded the question saying that it was a method of reading a document to find errors. Candidates often gave incorrect answers which were unrelated to how the creator of the essay would proofread it himself. There was very little understanding shown of the meaning of proofreading.

Question 5

This question was not well answered with few candidates gaining more than two marks. In the syllabus it clearly defines the command word 'analyse'. Candidates must explain the main points or effectiveness in detail, identify their characteristics and examine closely. Candidates usually gained marks only for describing the characteristics and even then they were very sparse in their descriptions. Very few actually discussed their effectiveness i.e. would they always pick up invalid data? It was worrying that even though the candidates were provided with the names of the checks they were still unable to answer the question appropriately.

Question 6

This question was fairly well answered with the large majority of candidates gaining at least one mark on each part.

(a)   Many candidates gained at least two marks, describing the features of a compiler quite well. Though few were able to elaborate on their answers to show a full understanding of the topic.

(b)   Most candidates gained at least one mark with a general description of the features of an interpreter. Many, however, were unable to describe it in sufficient detail other than to be awarded just that one mark.

Question 7

This question was reasonably well-answered with most candidates gaining at least two marks.
Many answers described suitable sensors for collecting physical variables as well feeding back the data and conversion from analogue to digital. Candidates also included lengthy descriptions about different process control systems unrelated to the question. It was disappointing to see how many candidates had rote-learned the processing involved in control systems and repeated it here on a monitoring system. Many candidates thought that the weather conditions could be controlled using a weather station.

Question 8

This question was well answered with the majority of candidates gaining at least three of the six marks available overall.

(a) The majority of candidates were able to display some knowledge of what is meant by smishing. Many candidates, however, were unable to expand on their initial definition and a sizeable minority confused smishing with phishing.

(b) Many, though not as many as in **Part (a)**, seemed to be able to give a reasonable definition. There were some who confused phishing with pharming. Some had leant the concept of malicious code, but thought it was aimed at planting viruses and nothing to do with banking/personal data.

Question 9

This question was reasonably well answered with most candidates able to gain at least two of the six available marks. Many gave a reasoned explanation, but candidates often did not mention both sides of the divide. Some candidates did not give both groups and concentrated on the groups with little or no access. Other candidates just concentrated on one aspect and went into greater detail. A common misconception was that it applied only to internet access.

Question 10

The question required candidates to answer all aspects of the question, but some concentrated on just the name of the field and its data type. Candidates frequently forgot to use underscores in names of fields where more than one word was used. The amount of storage required was usually wildly exaggerated and many candidates appeared to have little idea of how much was required. Candidates needed to provide reasons for their choice of data type and storage needed, but these were frequently omitted.

Parts (i) and **(ii)** produced better answers than **Parts (iii)** and **(iv)**, usually as a result of the choice of data type.

Question 11

This question was not at all well answered. Many candidates did not read the question thoroughly and ignored the fact that the hardware and software had already been checked. Many candidates listed the hardware required and wasted a lot of effort and time toward this end. The question required candidates to describe how the conference would be set up by Rajvinder yet many of them described what would happen during the conference and what the other participants would do.

Question 12

This question was slightly better answered, but only the most able candidates succeeded in gaining more than one or two marks. Candidates tended to gain marks for stating that using models was safer than running live tests in a real reactor and that it was less expensive than building a reactor. However, few answers gave anything more than these points. The responses indicated that candidates understood what a model was, but they could not describe why it would be used in a given scenario. Particularly lacking were answers regarding the drawbacks of modelling.

Question 13

This was a better answered question with many candidates gaining at least half marks. A number of candidates did not refer to sectors or portions when describing what and where information would be added. Some also did not refer specifically to the scenario when giving their answer. Often candidates wrote about adding a title without giving an example.

Question 14

This question was well answered. Many candidates managed to get at least half marks. However, few candidates paid much attention to the relative lengths of the fields. Most candidates did not include either navigation or help buttons and sensible titles were also uncommon.

Question 15

This question was quite well answered with many candidates gaining at least three of the eight marks available overall.

(a)   Most candidates gained at least half marks though many did not copy the field names accurately or omitted to identify the tables. Indication of primary keys was also often an omission. The majority of candidates managed to draw the link and a large number also identified it as a one-to-many relationship.

(b)   Candidates struggled more with this part of the question. The descriptions were more often than not describing what a relational database consists of rather than answering the question regarding how to create one. Many of the correct terms were used by the candidates, but with little understanding being shown.

INFORMATION TECHNOLOGY

Paper 9626/12
Theory

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

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

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

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.

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The question required candidates to answer all aspects of the question, but some concentrated on just the name of the field and its data type. Candidates frequently forgot to use underscores in names of fields where more than one word was used. The amount of storage required was usually wildly exaggerated and many candidates appeared to have little idea of how much was required. Candidates needed to provide reasons for their choice of data type and storage needed, but these were frequently omitted.

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This question was quite well answered with many candidates gaining at least three of the eight marks available overall.

(a) Most candidates gained at least half marks though many did not copy the field names accurately or omitted to identify the tables. Indication of primary keys was also often an omission. The majority of candidates managed to draw the link and a large number also identified it as a one-to-many relationship.

(b) Candidates struggled more with this part of the question. The descriptions were more often than not describing what a relational database consists of rather than answering the question regarding how to create one. Many of the correct terms were used by the candidates, but with little understanding being shown.

INFORMATION TECHNOLOGY

> **Paper 9626/13**
> **Theory**

Key messages

Straightforward questions were well answered, but questions that required in depth answers lacked full explanation. Candidates need to refer to the marks allocation when answering each question.

There were a number of students who gave brand names rather than the generic names. It is clearly stated in the syllabus 'Note that no marks are awarded for brand names in candidate responses.'

Candidates should think very carefully about what is being asked in a question and answer the question as it has been set. They should be reminded to read each question thoroughly to ensure they are clear of the focus and that they can produce an answer that is relevant to the question as set.

Candidates should use the appropriate technical terminology when answering questions. At this level of study vague, generalised answers will not be given credit.

Candidates should be encouraged to write their answers clearly in the spaces provided on the examination paper.

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It would appear that candidates are repeating phrases from text books or websites based on a single word that they see within a question rather than reading the whole question and responding appropriately to the given scenario. Teachers would be well advised to further develop the skills of their learners beyond recalling points of information to enable them to achieve better results at this examination level.

General comments

Overall, candidates did not appear to have well prepared for this assessment.

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

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

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.

Comments on specific questions

Question 1

Candidates did well on this question with the majority of candidates gaining at least three marks. A number seemed to think that text fields could not contain numbers.

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

Candidates did quite well on this question with most gaining at least two marks. Popular answers related to how difficult or otherwise it is to change data, how current the data is and expanded answers along these lines.

Question 4

Candidates did not do very well at all on this question although their answers to **part (b)** were slightly better than those to **part (a)**.

(a)   Very few candidates gained marks on this question. In the syllabus it clearly defines the command word 'evaluate'. Candidates must discuss the importance of, weigh up the advantages and disadvantages, judge the overall effectiveness and weigh up their opinions. However, responses were very poor. Candidates gave answers which described how the input devices would be used in the scenario, often inaccurately, rather than evaluating their use.

(b)   Candidates did manage to achieve one or two marks on this question, but responses were often poor. Candidates gave answers which described the two storage devices rather than evaluating them. Responses frequently lacked both sides of the argument. Some responses gave points which were disjointed and also included incorrect comments about the device.

Question 5

This question was quite well answered.

(a)   Many candidates gave answers which merited marks, though few gave a completely correct answer. Most gave the correct function and expression, but the use of speech marks was variable with some omitting them completely and others putting them over parts of the formula where they were not needed.

(b)   This was part was well-answered with many of the higher ability candidates gaining full marks. Some candidates, however, seemed to be unable to think through the problem logically with a number, again, including speech marks unnecessarily.

(c)   This was not as well answered as the other parts although, again, many of the able candidates gained full marks. Weaker candidates were unable to sequence the arguments accurately. A number of candidates used the x operator rather than the spreadsheet * operator.

Question 6

This question was fairly well answered with the large majority of candidates gaining at least one mark on each part.

(i)   Many candidates gained at least one mark with a general understanding of what phishing entailed. Many, apart from the more able, however, were unable to explain it in much detail. A number confused phishing with pharming, writing in detail about the effects of downloading malicious software.

(ii)   Many candidates gained at least one mark with a general understanding of what vishing entailed. Many were unable to explain it in much detail.

Question 7

This question was not as well answered as anticipated.

(a)   Many candidates did not refer to the international or global aspect and appeared not to have much in the way of technical knowledge on this subject. A substantial number confused the internet with the World Wide Web. This was particularly disappointing as the syllabus clearly requires candidates to know 'the difference between the internet and the World Wide Web'.

(b)   This part of the question was much better answered with most candidates gaining at least two marks. Candidates were able, in the main, to identify services provided by the internet, although many gave answers which were generally subsets of the World Wide Web and there was much duplication of answers.

Question 8

Many candidates were less than specific in how to perform these tasks. It appeared that candidates were often unfamiliar with video editing software or were unable to put their experiences into words. Many generalised their experiences of video editing and few were able to describe how the techniques would be used. They tended to concentrate on what would be the result of using the techniques rather than how they would be used.

Question 9

This question produced some of the weakest responses on the paper. Most candidates made a brief reference to data security. Many responses demonstrated a lack of knowledge and understanding of a VPN, with some answers describing it as a proxy server. A number ignored the question which referred to the benefits and drawbacks to Bruce and concentrated instead on the benefits to his company, which is not necessarily the same thing.

Question 10

Candidates seemed to be unfamiliar with validation checks in general and could not provide the detail required. Many candidates chose to ignore the stem of the question and referred to presence checks. Many ignored the question and wrote about length and type checks. A number provided answers relating to range and format checks without going into sufficient detail to merit a second mark. Most seemed unaware of the existence of lookup and consistency checks despite this being a requirement of the syllabus.

Question 11

This question produced better responses.

(a)   The majority of candidates were able to display some knowledge of what is meant by custom written software. Many candidates, however, were unable to expand on their initial definition.

(b)   Many, though not as many as in **part (a)**, seemed to be able to give a reasonable definition. It was clear, however, that some candidates had learnt phrases they had been taught without actually understanding the topic. When called upon to explain their thoughts many produced confusing and contradictory statements.

Question 12

This question was fairly well answered with the many candidates gaining a mark on each part.

(i) Many candidates gained at least one mark for correctly identifying which type of chart should be used. The vast majority were unable to describe the chart or what it would look like, in any detail. A small number, however, were able to give reasons.

(ii) Not as many candidates were able to achieve one mark for correctly identifying which type of chart should be used. Even those that did, were unable to describe the chart or what it would look like. Most were unable to provide reasons for their choice other than repeating the question and saying it would show trends.

INFORMATION TECHNOLOGY

> **Paper 9626/31**
> **Advanced Theory**

Key messages

Centres should 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 as set. This type of answer may score a few marks but will not give access to the full range of available marks.

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Candidates should be given the opportunity to practice the skills of analysis, evaluation and discussion as it was apparent that candidates did not answer these types of questions at all well.

Overall, it appeared that candidates were not well prepared for this examination.

Comments on specific questions

Question 1

(a)   Risk analysis involves identifying the risks and prioritising them so that strategies can be put in place to mitigate the effects if the identified risk actually occurred. Good answers should have referred to how this is done. Most candidates were unable to answer this question well; answers lacked detail and were superficial referring to the actual risks rather than to risk analysis.

(b)   Most candidates could answer this question well. There were some good answers explaining why the given passwords were rejected e.g. too short, identifiable sequences of characters.

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Question 2

A number of candidates correctly gave examples of the types of project management software but few went on to describe them. Good answers should have included a description of the software.

Question 3

Version 2 of the JavaScript code shown in the question calls an external file containing more code. This option is preferred by some programmers because the code can be re-used by being called several times from different pages. The re-used code needs to be written and tested only once. Some candidates could explain this accurately but many could not.

Question 4

(a)   The syllabus requires candidates to be able to describe network protocols and they are expected to be able to answer these types of question.

   (i)   This question was not answered well. Few candidates seemed to know that HDLC is High-Level Data Link Control used in e.g. point-to-point leased lines and has some error correction.

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(c)   Most candidates could describe how a router is used but few described its operation in detail. Good answers should have described how a router reads the headers in data packets, refers to routing tables and policies, forwards some packets and drops others to provide the required connectivity. Weaker answers described little more than the use as a connection to the internet – a fact given in the question.

Question 5

Most candidates could describe the use of the 'cloud' as storage for data but a few could only relate this to its use by small businesses. The question required a discussion so both benefits and drawbacks were required for high marks to be awarded. Good answers referred to e.g. the reduced IT support requirements by the company so reducing their costs, the reduced cost requirements for storage devices and the fact that backups are managed by 'cloud' company reducing the costs of media along with a description of any security issues and the need for a reliable internet connection. Weaker answers referred to the generic concepts of access from anywhere and at any time but added little detail as to how or why this was of benefit, or was a drawback, to the small business.

Question 6

Candidates were required to analyse the differences between white box and black box testing. Good answers should have given the characteristics of each and explained how they differ in their effectiveness when testing. Good answers could have made reference to e.g. White Box testing is a testing method in which the internal structure is known to the tester while Black Box testing is a testing method in which the internal structure is NOT known to the tester and then a comment on how this might or might not be effective in testing.

Question 7

This question was answered quite well by some candidates who made good points about 3D printing and its use in manufacturing. Good answers referred to remote printing in work places or homes so there is no need to transport the final product from the factory to a destination and the fact that there may be limited materials available for printing so product ranges could be restricted. To score good marks in questions that require evaluation, candidates must provide both sides of the issue.

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This question asked candidates to choose an image format that would be suitable for a high-quality image that would be displayed on a website. Often, websites use compressed images to shorten download times but compressed images often lack resolution so are poor quality. Candidates were expected to use the information in the question to choose e.g. PNG which is lossless even when compressed so retains quality while comparing the characteristics of the format to those of JPG and/or GIF.

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This question asked candidates to identify and explain, with reasons for their choice, why a particular method of implementation would be chosen. The most appropriate method for the given scenario would be either phased or parallel implementation as these would allow the new system to be introduced while retaining aspects, or all, of the existing system in the large company, so avoiding massive disruption if failures occur. Some candidates correctly identified the method and give some reasons but most did not fully explain their reasoning in sufficient detail to achieve the highest marks.

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INFORMATION TECHNOLOGY

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Comments on specific questions

Question 1

(a) (i)   Good answers defined video-conferencing as the simultaneous two-way video and audio communication between two or more participants/locations via the internet. Weaker answers lacked detail describing it as e.g. 'seeing each other over the internet'.

   (ii)   Teleworking is working remotely from an office/normal place of work e.g. at home using IT systems. Many candidates could answer question well but few candidates could describe this succinctly and accurately. Poorer answers mentioned the use of computers to work or referring to telephone conversations.

(b)   Despite the poor answers to **Question 1(b)(ii)**, there were some good answers to this question. Good answers referred to the difficulties of managing workers who were not in usual working places, the increased costs of providing IT equipment and the lack of easy time-management of employees. Weaker answers muddled employers and employees and referred to drawbacks that did not apply to employers such as distractions from other occupants in the home.

Question 2

(a)   This question required candidates to evaluate the use of a firewall, not merely to describe or explain the use of a firewall. Good answers should have included the provision by a firewall of protection to multiple networked computers simultaneously by monitoring traffic coming in and going out of a network, firewalls enforcing password controls for use by the network to try to prevent unauthorised users from gaining access etc. with a comment on the effectiveness of this approach e.g. firewalls are the central point of attack by hackers/potential intruders and once breached there are no further defences or that firewalls can block legitimate process/applications so manual adjustment of settings may be required. To score good marks in questions that require evaluation, candidates must provide both sides of the issue.

(b)   Good answers described how proxy servers are used to provide a buffer or intermediary between a network and other networks/ the internet and can control access to websites etc. Weaker answers confused proxy servers with firewalls.

Question 3

This question was answered well. The majority of candidates produced well designed Gantt charts. Weaker candidates did not accurately transfer the data given in the table onto their Gantt chart or correctly put the tasks into an appropriate order. Some ignored e.g. the dates that the reports were due; these errors and omissions meant that the higher marks were not available.

Question 4

This question was not well answered. Most candidates scored very few marks. There was much confusion with flowcharts. A DFD should use appropriate, conventional shapes for objects and show the flow of data through the system.

Question 5

(a)   This question produced some good answers but many were very vague, lacking any detail about linking the letter to the data source and the placement of merge fields/place holders for the appropriate items. Explanations require a 'how' and 'why' response from candidates. Vague answers referred to importing the data from a spreadsheet and writing the items into the places in the template.

(b)   This question required candidates to explain how to exclude records from a mail merge. Some good explanations were seen but, as in part **(a)**, many answers were vague about the details. Good answers included filtering and what was to be filtered.

Question 6

(a)   This question was about the storage of data within QR codes and not about how QR codes are used and accessed. Good answers referred to the black and white squares/shapes representing codes that are converted into machine readable code that holds useful data, such as a URL, along with any required error correction algorithms. Weaker answers included descriptions of how the codes are read using e.g. applications on smartphones, which was not answering the question.

(b)   A number of candidates produced good answers referring to the ability of the advertiser to decide the action the consumer to take when the code is scanned and being able to update the information provided more easily. Many also referred to the advertiser not needing to reprint advertising material when it needed updating. Some candidates included drawbacks which were not required by the question. Candidates must read the question carefully and not waste time giving answers that are not required.

(c)   This question produced some good answers that referred to links being redirected or to links downloading malicious code to the device that is scanning the QR code. Weaker answers described hacking and unauthorised collection of user details but gave no details as to how this might occur in this context.

Question 7

Candidates did not answer this question well. There was confusion between morphing, tweening and transitions. The syllabus expects candidates to be able to understand the use of these. Good answers should have referred to the warping of images from one shape to the final shape and the use of transition images. Few candidates were about to describe these in any detail.

Question 8

Good answers referred to the increased quality of product and the focus on problems that are critical to end users along with a flexible/adaptable process, and included some disadvantages such as the, often, poor design of prototypes as developers constantly make minor changes to individual components. Weaker candidates wrote at length about costs and time issues but included very little detail.

Question 9

Candidates showed some good understanding of JavaScript and could explain the loops in the code quite well. Good answers went into detail about the code being embedded in HTML, the iterations and how these worked, and how the resulting table and contents were output. Weaker answers described the code and not how it worked.

Question 10

This question required candidates to evaluate the use of satellites and not to explain how they are used. The question required candidates to explain reasons for and against the use of satellites for internet connectivity and to give an opinion on this. Most candidates described how satellites were used and gave some of the benefits but few, if any, gave details of the drawbacks of such use. To score good marks in questions that require evaluation, candidates must provide both sides of the issue.

Question 11

There were some good answers referring to the use of global resources and the use of online tools, the ability to customise languages to reflect the first language of students etc. However, many candidates restricted their answers to generic comments about accessibility from anywhere and at any time without expanding on these points. Questions that ask for descriptions require more than the making of a few points.

INFORMATION TECHNOLOGY

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