Cambridge Nationals

ICT

Level 1/2 Cambridge National Award in ICT **J800**

Level 1/2 Cambridge National Certificate in ICT **J810**

Level 1/2 Cambridge National Diploma in ICT **J820**

OCR Report to Centres June 2015

OCR (Oxford Cambridge and RSA) is a leading UK awarding body, providing a wide range of qualifications to meet the needs of candidates of all ages and abilities. OCR qualifications include AS/A Levels, Diplomas, GCSEs, Cambridge Nationals, Cambridge Technicals, Functional Skills, Key Skills, Entry Level qualifications, NVQs and vocational qualifications in areas such as IT, business, languages, teaching/training, administration and secretarial skills.

It is also responsible for developing new specifications to meet national requirements and the needs of students and teachers. OCR is a not-for-profit organisation; any surplus made is invested back into the establishment to help towards the development of qualifications and support, which keep pace with the changing needs of today's society.

This report on the examination provides information on the performance of candidates, which it is hoped will be useful to teachers in their preparation of candidates for future examinations. It is intended to be constructive and informative and to promote better understanding of the specification content, of the operation of the scheme of assessment and of the application of assessment criteria.

Reports should be read in conjunction with the published question papers and mark schemes for the examination.

OCR will not enter into any discussion or correspondence in connection with this report.

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OCR REPORT TO CENTRES

Understanding computer systems (R001)

General Comments

The overall level of performance in the most recent series was roughly equivalent to that displayed in previous Summer sessions, although compared to the January paper, marks were slightly down.

Centres are reminded that they should cover the specification for the unit and then, having done so, spend some time preparing for the examination by using the areas for suggested study given in the pre-release materials. Hopefully, in doing so, centres will then allow candidates the opportunity to answer the whole of the paper with sufficient understanding and depth.

Comments on Individual Questions

Question 1

This question was intended to settle candidates into the paper and the evidence would suggest that this was achieved. The vast majority of candidates scored full marks on this question.

Question 1bi was equally accessible and was targeted at candidates with relatively low target grades. As with question 1a, the vast majority of candidates were able to identify microphone as the correct answer.

Question 1bii caused some issues. Many candidates confused ‘ways’ with ‘methods’ and wrote about which software could be used, whilst other candidates missed that the question was about editing a file that already existed and suggested that the file could be edited by recording it again. Where candidates realised that the question was asking for changes that could be made to files, many failed to describe the way and achieved one mark for identifying.

Question 2

Questions 2a and 2b required candidates to be able to differentiate between the use of software to create graphics and creating graphics by hand. Whilst there were some very good answers, where candidates, for example, talked about the use of specialist tools, some candidates gave extremely vague answers, such as "makes it clear" or "it’s easier". Where candidates are asked to compare two methods or identify reasons why one process is better than another, they must focus on the differences between the two methods. In many cases the answers given could equally well have applied to creating a graphic by hand and so marks were not awarded.

A significant amount of candidates missed that question 2c was asking for ways in which files could be protected from being stolen and so suggested that the file should either be encrypted or that a back-up should be made. Whilst these two actions could alleviate the impact of theft, they would not prevent theft. In questions such as these, candidates need to write answers that clearly answer the context of the question. So, for example, where candidates stated that one suitable method was to save to an external hard drive and take that away, marks were awarded. However, where the candidate simply stated that files should be saved to an external hard drive, with no indication that this would be taken away, marks were not awarded.

Question 3

Question 3a again relied on the context. Candidates were informed that Catherine and Ali did not have time to visit each other and that Ali lives in California. Furthermore, candidates were informed that the previous designs had been stolen. Despite this, some candidates suggested that Catherine and Ali could meet, or could send details by post or could use social media to share the designs. In all cases, marks were not awarded as these answers did not meet the context of the question. However, where candidates showed awareness of the need for speed and security, marks were awarded. Indeed, where candidates suggested that social media might be used, and indicated that this would be in a secure area of that medium, rather than public, marks were awarded. As with other questions, it is worth mentioning that a significant minority of candidates simply identified methods, rather than describing.

The importance of context continued for question 3b. Many candidates scored well on this question, with the majority identifying that file size was an issue, as was the need for security. However, some candidates suggested that one of the issues might be that Catherine may not have the same software as Ali. Within the context of a working relationship, it was felt that this was highly unlikely and so marks were not awarded for this answer.

Answers to question 3c suggested that many candidates had prepared an answer about calculating Ali's pay, because many candidates gave clear answers explaining how a spreadsheet could be used for this purpose. Unfortunately, this is not what the question was about and so candidates were slightly hampered by these answers. Candidates as a whole showed good technical understanding in this question and were able to suggest a formula or function that would be suitable for the purpose.

Question 4

This banded response question again worked well and produced some good, well-balanced answers. The vast majority of candidates attempted the question, which is an on-going improvement on previous years, and, of those, most were awarded marks from within MB2. It is clear that centres have worked on this area of the question paper and the general improvement in performance is good to see.

Question 5

Question 5a posed little problem to the vast majority of candidates and many were also able to explain the rationale behind double entry. However, there was a disturbing number of candidates who thought that the email address was entered twice so that Richard would have two copies, should one get lost.

Question 5c, however, clearly was a problem for most candidates. Whilst the question was aimed at the more able, the area of the specification with which this deals is clear and a valid one from which questions may be drawn.

A significant number of candidates failed to focus on the implication to the customer for question 5d and gave implications to Richard. In some cases, they then repeated these answers for question 5e. Both questions were answered fairly well, although there were some very vague answers across those candidates who failed to score well across the paper as a whole.

Question 6a required candidates to be able to discriminate between social media and websites in order to identify advantages. Despite this being clearly stated in the questions, many candidates simply stated advantages of using the web and therefore failed to score. Answers where candidates stated that Richard would "be able to receive feedback" were therefore not awarded, as this is as true of websites as it is for social media.

However, many candidates did address the focus of the question and were able to identify advantages such as that the social media site would have far more hits and so would generate more custom.

Question 6b was again aimed at the more able. However, a surprising number of candidates were aware of the loss of unique rights when posting an image onto a social media site, or correctly identified that Richard may post an image that included an image for which he had not received permission to use. Where candidates stated that Richard might post an image of someone else, this was not awarded as this is not an issue.

Candidates also scored highly in questions 6c and 6d, although some candidates missed the point of question 6c and described the use of cables as methods by which the image could be transferred. As this was meant to be a relatively straight-forward question that sat very much within candidates day-to-day experience, it is no surprise that candidates performed well here.

Questions 7a and 7b both dealt with health and safety issues. The vast majority of candidates coped with both questions well, although some failed to appreciate that question 7a required a configuration change and identified physical changes.

Moderated units (R002 – R011)

General Comments:

Many of the issues identified by moderators were similar to those seen in previous series and centres are recommended to refer to previous Chief Examiner's reports for commonly occurring issues.

Whilst most centres submitted their marks to OCR by the required deadline, many did not send the moderator copies and Centre Authentication Form (CCS160) at the same time. This process is explained in Section 8.6 of the 2014-15 Admin Guide and Entry Codes document for Cambridge Nationals qualifications. Centres are requested not to wait until the sample is requested before sending this information to the moderator. Centres are reminded that where there are 15 or fewer candidates, the work of all candidates should be sent to the moderator, without waiting for a sample request email.

Most centres chose to submit their evidence by post or through the OCR Repository but centres choosing visiting moderation appreciated the opportunity to meet the moderator and to ensure electronic files were viewed on the centre's equipment. In some visits work was not ready, delaying the start of moderation. Centres are reminded that all the work from the requested sample should be ready for the visiting moderator on arrival and that any necessary equipment required for the viewing of electronic evidence should be provided, and checked to ensure all necessary software and fonts are installed and working so that candidates' work can be viewed accurately.

As in previous sessions problems were encountered in some OCR Repository entries because files were not uploaded using the naming convention outlined in the OCR Repository Centre User Guide. If loading files for multiple candidates, they must be named using the following format: 4-digit candidate number followed by an underscore, followed by any other text. For example: 1001_specification. This is so the system can map the file to the correct candidate and if the convention is not followed there is a danger that the moderator will receive the wrong files for at least some candidates. Several centres had to be asked to re-upload their candidate work to ensure the correct files could be seen by the moderator for each candidate. Some centres experienced difficulties uploading files to the repository because they exceeded the 20Mb limit. In such cases a postal or visiting entry should be made and files submitted on DVD/memory stick.

Most centres correctly completed an OCR Unit Recording Sheet (URS) for each candidate to show the marks allocated. For repository entries these should be uploaded with the candidate files, rather than in the administration area. Where centre staff added comments to show why each mark had been awarded and where specific evidence could be found this helped the moderator agree with centre marking and provide more detailed and relevant feedback. Regrettably, many centre comments were less helpful as they tended to restate or reword the assessment criteria rather than explaining why it was felt that these criteria had been met. Only a minority of centres provided page numbers or file names to enable the moderator to locate the evidence required for each area of the marking criteria and some centres provided no comments at all. Where centre staff do not explain their marking decisions the feedback from the moderator can be only at a general level, as any centre misinterpretations of the marking criteria will not be sufficiently clear.

Choosing to submit evidence electronically does not remove the responsibility from candidates of preparing and submitting a portfolio of evidence to be marked. Centre staff should not have to make their own decisions about which files in a candidate's user area are relevant and it is not acceptable for centres to submit for moderation folders containing irrelevant files that have not been prepared under the required conditions for coursework. Appendix C of the specification document clarifies the procedures that should be followed for the submission of electronic portfolios, the structure required and file formats that can be accepted. Some centres did not submit the sample portfolios to the moderator within three days, as required, and in the majority of cases this was because the work was not all ready to be sent. It is a requirement that all portfolios are submitted, marked and then held securely in the centre; if this is done then preparing the sample for the moderator should not be an arduous task.

Some centres provided files in formats that are not included in the list of acceptable file formats in Appendix C of the specification document, most notably Microsoft PowerPoint, Adobe Photoshop and Serif applications. Whilst these file formats might be included in candidate folders to demonstrate filing structures and storage of files, centres need to understand that they cannot expect moderators to be able to open such files if postal or repository moderation is chosen and if the content of these files needs to be seen then they need to be exported to non-proprietary formats for viewing. Where Microsoft Excel or Access files are submitted it is wise to ensure that the moderator is provided with details of the version used, as there are some slight incompatibilities between versions that might prevent some features added by candidates being seen by a moderator using an earlier version.

One of the most obvious advantages of using electronic evidence is that the assessor and moderator can see exactly what the candidate has created, whether that be a spreadsheet, database, image or multimedia product. It was disappointing therefore to see some centres submitting only documents, with candidates evidencing their products only by screenshots. Whilst the ability to produce one coherent document rather than a myriad of shorter ones is to be commended, had these been accompanied by the electronic file of the product created this would have entailed much less work on the part of the candidate to create the evidence as well as providing a more accurate overview of the product to the local assessor and moderator.

There was concern that some centres had given their candidates the final OCR model assignment before they had completed the teaching and learning for the unit. This is not appropriate and teaching candidates through the assignment tasks is not permitted. Candidates should be provided with the OCR model assignment and a copy of the marking criteria for the unit when completing the assessment and teachers may explain the marking criteria to them. Centre staff may give candidates support and guidance that focus on checking that they understand what is expected of them and giving general feedback that enables them to take the initiative in making improvements, rather than detailing what amendments should be made. Writing frames, specific design guidance, additional instructions and/or specific feedback that identify errors or omissions must not be provided. Centres are advised to ensure all staff have read and understood the contents of the JCQ Instructions for the Conduct of Coursework and that all candidates are provided with a copy of the candidate guidance included at the end of this document.

It is a requirement of this specification that an OCR model assignment is used for all units except R011, where it is not appropriate to provide an assignment. There is some scope for contextualisation to suit local circumstances but the wording of the tasks may not be changed, which limits possibilities for R002, R003 and R004, where the nature of the units mean that some tasks have to be specific to the scenario. It is concerning to note that a small number of centres did not follow this procedure and used practice assignments or other tasks devised in-centre, thereby failing to follow the required procedure for assessment. In a few cases where centres had used their own scenario this was less complex than the original, providing candidates with reduced opportunities to demonstrate their ability to analyse a client brief and produce success criteria that would meet the requirements of the highest mark band. Where

centres have changed the scenario of an assignment it is important that a copy of this is sent with the sample to the moderator – without this it is not possible to ascertain the extent to which candidates have recognised and met the user requirements.

Moderators' judgements are based solely on the evidence provided, which should be exactly the same as that which has been used by centre staff to make their own assessment decisions – if centres do not provide moderators with all of the evidence they have used, eg electronic files, then the moderator is unlikely to be able to agree the marks they have awarded. In some cases centre comments suggested that internal marks had been awarded on the strength of evidence other than that provided to the moderator. Some printed evidence, most particularly where this was contained within screenshots, PowerPoint slides and/or spreadsheets, could not be read by the moderator because it was too small or because of insufficient colour contrast and/or draft printing. In many such cases it appeared that centre staff had accessed candidates' electronic files in order to make their judgements, in which case the paper portfolios should have been supplemented by these electronic files. Some centres submitting evidence in electronic format included scans of hand-drawn designs, which were of insufficient quality for details to be read and it is likely that centre staff used the original paper copies to make their own judgements. Centres are reminded that both paper-based and electronic evidence can be submitted when choosing either postal or visiting moderation. Some centres submitting work electronically by post or for visiting moderation also included printed copies of the unit recording sheet for each candidate in the sample, which was much appreciated by moderators.

Some centres included witness statements within the evidence for some or all their candidates. Whilst these are an acceptable form of evidence if they meet the requirements of the specification, as explained in Appendix A of the specification document, many of the statements submitted did not meet these requirements. In particular it is important that any witness statement must describe exactly what has been witnessed and not simply repeat or paraphrase assessment criteria. In the majority of cases witness statements submitted were too vague to provide any admissible evidence.

Some centres appeared to have awarded marks on the strength of the amount that candidates had written or the fact that tasks had been completed, with insufficient attention paid to the accuracy and relevance of what was written. This led to marks being over-generous.

Some candidates demonstrated a good range of software skills and creative thinking, especially in the optional units, although the documentation produced by candidates did not always match the quality of their final products, with specifications and testing often being weaker areas. Where assessment criteria require candidates working at higher levels to explain and/or justify decisions made, candidates often simply described what they had done, which did not meet these requirements, and such responses were often over-generously assessed by centres.

Most units require candidates to make their own choice of software to carry out the required tasks and in most cases the reasons for their choice are also assessed. It is therefore important that candidates are given sufficient experience in the use of a range of appropriate software so that they can make informed choices. Whilst it is understood that it is unlikely that candidates will be fully proficient in more than one or two possible packages, to attract marks above the lowest mark band for choice of software their reasons must extend beyond familiarity. The best explanations of software choice were found where candidates had a clear idea of what they wanted to produce, with clear designs where appropriate, and then related software features to the needs of their design ideas.

Centre marking was often found to be inaccurate where centres had not paid sufficient attention to the subject content of the specification. Assessment criteria need to be interpreted in the light of this content as well as the needs specified in the assignment. Additionally, the glossary in Appendix D of the specification document provides useful guidelines in the interpretation of key words used in the assessment criteria for the units.

Centres are reminded that support material for teachers is available through the OCR CPD Hub but that any material obtained from this source is confidential and must not be shared with candidates.

R002

As the only mandatory unit for both Award and Certificate, this unit comprised the majority of entries this session.

There are two model assignments for this unit: 'JB Clothing Emporium' ('Tailored Tops') and 'MStreamIT', both of which provide a vocational scenario within which the all the tasks should be carried out. Where candidates remained aware of this throughout their work they generally produced more appropriate outcomes. Centres are reminded that the 'Little Theatre Company' assignment is provided for practice purposes only and must not be used for the final assessed work.

Some problems were encountered where no evidence could be found to support criteria credited by the centre, most particularly in Learning Outcome 1, where the file structure and search criteria used need to be assessed. Centres are reminded that moderators can only make judgements on evidence that is submitted. Centre staff may advise candidates about the evidence they need to provide in their portfolios, as outlined in section 3 of the tutor notes within the model assignment. If candidates do not provide screenshot evidence of their folder and filing structure, teachers can supplement printed evidence with the electronic files from candidates' user areas or they can assess the evidence within candidates' network user areas and create their own screenshots, which can be inserted into witness statements. Where candidates' evidence of filing structures showed folders but not the files within them, this was inadequate to verify achievement above the lowest mark band. Whilst writing frames may not be used, centres should remind candidates of the need to provide evidence of search criteria used. Both assignments include tasks which ask candidates to search for information on the internet and it was surprising to see candidates from some centres providing evidence of internet searching in a different context.

Many centres over-generously assessed filing structures at the highest level when they were simply based on the assignment tasks rather than being appropriate to the business scenario provided, which should elicit folders and files with names that would allow company staff to easily locate information both now and in the future. Similarly, where candidates had not provided evidence of the appropriate use of versions and/or had not shown that they had taken appropriate measures to protect their files from *loss* they did not meet the requirements at the highest level and this was not always recognised by centres.

Whilst most candidates were able to demonstrate a reasonable knowledge of how to use email tools, this was not always shown within the context of the assignment task and examples did not always demonstrate good business practice. Some candidates produced lists of email etiquette rules but then failed to demonstrate any understanding of the importance of these in the emails they included as examples. In many cases candidates failed to provide evidence of completing both of the email tasks within the assignment – this was the case for both assignments.

Many candidates chose to use standard source tables to show their sources of information and were often disadvantaged by this choice, as the headings on a standard table are unlikely to match fully the specific requirements of an assignment. In most cases candidates using such generic tables identified the URL and whether or not the item was copyrighted but did not identify any details of the copyright holder, which is what the assignment and marking criteria require. Since it is not permissible for a centre to provide specific writing frames for an assignment and a standard source table is unlikely to fully meet requirements, centres might wish to advise candidates not to use standard source tables but to create their own documents from scratch – this would have the added advantage that if they chose to create a table they would be demonstrating additional capability within learning outcome 3. Some candidates were over-generously credited with understanding copyright when they simply identified URLs or provided details of third-party websites rather than copyright holders.

Most candidates chose appropriate software for the data-handling tasks although those who chose to use spreadsheet software for both tasks were able to meet many, though not all, of the stated requirements.

Some centres awarded marks over-generously in learning outcome 2 when candidates had completed all the data handling tasks but not obtained accurate results. Centres are advised to work through the tasks themselves, to enable them to check the accuracy of candidates' results. Errors in consistency and case within database amendments were commonly ignored in centre marking but would be important to a company. In some cases, especially where evidence was provided electronically, candidates provided evidence only of their final spreadsheet file, so some of the stated requirements were not shown, as they had been overwritten, for example by modelling activities.

Although candidates from some centres using the MStreamIT assignment created a range of different products for the item of publicity required in task 2, most submissions were limited to one style of item, often a simple page of text and graphics, sometimes with no obvious function. This demonstrated little creative thought on the part of the candidates and often limited the range of file types produced. It is expected that candidates will have been taught the range of software tools listed in the specification, allowing them to select the type of promotional item they think will be most effective.

Candidates using the JB Clothing Emporium assignment generally created some creative PowerPoint slideshows, although some merely copied the instructions rather than creating their own text that met the client's requirements. Candidates from some centres appeared to have been taught only how to create an interactive slide show rather than one that would run automatically, which would be the most appropriate mode for the scenario given.

There are some generally agreed standards for a business letter and many candidates were over-generously assessed when their letters would not have been acceptable in a business environment. Common errors were to omit the date and/or addressee details or to put these in the wrong place, to be inconsistent in the use of paragraph spacing and to use inappropriate salutation and/or valediction.

The range of file types assessed in learning outcome 3 should be those involved in communicating information, as indicated from the subject content of this learning outcome. The use of data handling software is assessed within learning outcome 2. Some centres over-generously gave credit to candidates for creating a range of file types when the only relevant files were, for example, .doc and .pub or .ppt. Candidates from some centres produced all of their documentation using MS PowerPoint, which cannot be considered the most appropriate method of producing formal documents. It was then not possible to agree the highest mark in this section for these candidates.

Merging information from different sources, including the use of mail-merge, is assessed in learning outcome 3. In many cases it appeared that candidates had been taught to set up a mail-merge template and preview its results but not to produce the final merged documents. Where printed portfolios are being produced it is not necessary for candidates to print out all the letters they produce – clear evidence can be provided through screenshots showing the number of letters produced.

Marks in the highest mark band of learning outcome 4 were sometimes over-generously awarded by centres when candidates had used only a limited number of formatting tools and, whilst what they had done had enhanced the readability of the work, much more could have been done to make it more appropriate. The specification provides a list of formatting techniques that candidates should be taught and it is expected that a wide range of techniques will be evident in the work of candidates scoring highly in this area. Where candidates had used formatting to improve some, but not all, of their work, the centre sometimes over-generously awarded full marks in mark band 2. Spreadsheets and database output need to be assessed in this learning outcome and many candidates failed to apply any significant amount of formatting to their letters.

The level of independence when formatting work is assessed in learning outcome 4. Many centres provided no evidence for this. Where centres made a comment on the unit recording sheet that clarified any support given, this was helpful and appropriate.

R003

There is one OCR Model Assignment for this unit – 'Make the Grade'.

Most centres provided the electronic spreadsheet file appropriately as part of the evidence for this assignment. Where this was not provided it was not always possible to clearly ascertain the overall structure created by candidates, nor the consistency and appropriateness with which some tools, validation, comments and conditional formatting for example, had been used as candidates often only evidenced one or two examples of each skill rather than providing clear evidence of the extent to which various features had been implemented. The use of over-cropped screenshots often prevented the moderator seeing where features had been added and therefore assessment of their appropriateness was not always possible. The overall appropriateness of the final product is key to assessment, rather than simply evidence of using different tools. When sending electronic files, centres are requested to inform the moderator of the version of software used, as some features such as drop-down lists may not work on earlier versions than that used by the candidates.

Many candidates produced effective solutions that met many of the requirements in the model assignment, although few considered the issue of enabling new customers and new products to be added. Where macros were included these were largely for fairly generic purposes such as navigation between sheets and simple routines such as saving and printing. Some created macros for routines such as printing for which there is already a software button, in which case they added little if any functionality to the solution.

A few candidates had given a lot of thought to ways in which their solutions could be made user friendly, but most solutions could have been significantly improved in this area and marks in band 3 of learning outcome 1 were often over-generously awarded by centres. Whilst most candidates were able to apply formatting to emphasise headings, for example, in their spreadsheets, few used it well to help users understand how to use the spreadsheet, such as to identify clearly those cells where data needed to be entered and those which contained formulae and so would be automatically updated. Use of comments and input/error messages was often limited and few candidates added any instructions/explanations for the user. The best solutions gave full guidance to enable a new user to use the system with ease and ensured that the invoice would fit onto a sheet of paper when printed, with some candidates adding appropriate headers/footers.

Whilst testing is not specifically assessed within the marking criteria it is a key element of teaching and learning within learning outcome 2. It was disappointing to note that many candidates' solutions contained fundamental errors that prevented them obtaining correct invoice totals, even though they had been supplied with a sample invoice that could have been used to test the product.

Centres often over-generously awarded marks in the highest mark band of learning outcome 2 to solutions which contained some elements of efficiency, for example, LOOKUP functions, but which could have been significantly improved. An efficient solution is one where the user is not expected to enter any more data than is necessary, also where functions are used correctly and where values such as VAT rate, discount policies and delivery policies, which may need to be changed in the future, can be edited easily by the user without ever having to edit formulae. Many candidates appear to be confused about the use of the SUM function, using it unnecessarily in most, or all of their arithmetic formulae. Candidates who had used LOOKUP functions in their invoice but had no method of avoiding errors if lines were blank were sometimes over-generously assessed by centres.

Candidates did not always provide explanations for their choices of formulae and modelling techniques that matched the quality of their solutions, thereby lowering their overall mark. Centres often over-generously awarded marks where candidates had described what they had done or what a formula did rather than explaining *why* these methods/tools had been used. To be considered 'thorough justification' it would be expected that candidates would explain, where appropriate, why particular methods had been used rather than alternatives – this would be most likely where they had refined a basic solution to make it more efficient.

The first part of learning outcome 3 – sorting, filtering and creating graphs – was generally completed very well by candidates and assessed accurately by centres, although some candidates did not provide clear evidence of the outcome of their sorting and filtering, especially where evidence was submitted electronically and candidates relied on the final spreadsheet file rather than producing any documentary response to the tasks.

Most candidates attempted some of the modelling scenarios, although few provided a range of solutions where these were required. Where candidates did provide a range of solutions they rarely considered how to present this information to the customer, although some did use the scenario manager tool, which summarised the results, albeit usually requiring a little additional explanation to enable them to be fully understood. Marks in this last section of learning outcome 3 were often limited by a lack of explanation of the results and of the tools used. Many candidates used the goal-seek tool appropriately, but candidates from some centres were over-generously assessed when they had not made any use of advanced modelling tools such as this. Some candidates were over-generously assessed where they had used the goal-seek tool where it was not the most appropriate method, due to the fact that it only allows modelling on one variable at a time.

R004

There is one OCR model assignment for this unit – 'Cards by James'.

Where candidates submitted their final databases in electronic format this provided the clearest evidence of the structure of their solution, including all field names, types, lengths and validation/input masks used, which is difficult to achieve in a purely paper-based portfolio without extensive use of screen shots. Centres are requested to provide moderators with the name and version of any database software used.

The key to success in this unit is an effective table structure. Where candidates enforced referential integrity within their solutions they were able to ensure that the links were functional and some realised that this formed a key part of their testing process. Where referential integrity could not be enforced, this demonstrated a fundamental flaw in the structure. Centres are recommended to ensure candidates are taught to enforce referential integrity and to interpret any error messages that might be encountered at this point.

Some candidates were over-generously assessed in learning outcome 1 where their structures were not efficient. For example, where additional fields had been added but to the wrong table or where field lengths had been left at their default values.

Most candidates demonstrated good understanding of validation, although sometimes the validation set was not consistent with the data provided and/or the scenario, demonstrating a lack of testing. Some candidates provided only one or two examples of validation, concentrating on showing that they knew how to set rules rather than using validation to minimise data entry errors in the scenario provided. Similarly, some candidates changed other field properties effectively for only a few fields. Although candidates from most centres appeared to have been taught how to create a lookup from values typed in, few appeared to know how to create a lookup from values in a table, which would have allowed them to validate foreign fields and further improve their database.

Queries were generally carried out well by candidates and assessed well by centre staff, although the quality of reports did not always meet the requirements when higher marks had been awarded. For mark band 3 they should require little or no amendment to the layout in order to make them fit for purpose. Common problems that were not recognised by centres were a failure to consider the fields that needed to be output to meet client needs; the use of inappropriate colours, impairing readability; and a failure to set up reports appropriately for printing.

For candidates' interfaces to be considered effective, there needs to be a data entry form for every table for which this is appropriate. Although the assessment criteria for mark band 3 state that forms need to be created for *most* tables this is in recognition of the fact that some tables, for example lookup tables, do not require a data entry form, rather than allowing candidates to achieve full marks for a solution that is not fully usable. Although many candidates were able to add function buttons to their forms they did not always show that they had considered which would be the most appropriate. Some candidates added every button that could be easily added, in their default format, whilst others just added buttons such as navigation that repeated functions already available without considering what a user might want to do, for example delete a record, that was not already easy to do. The best forms were clearly laid out with a logical tab order and clearly labelled buttons that would allow an inexperienced user to view and amend data easily. Candidates from some centres had been taught how to add sub-forms, which added to the functionality of their solutions although this was additional to the requirements of the unit.

The mark band 3 requirement to provide access to 'forms, queries and reports' from the user interface can be considered met if candidates' interfaces provide direct access to all forms and all reports, so long as there is a form for every table and a report for every query – access to queries for day-to-day users is through the reports and access to tables is through the forms. To be considered fully-effective candidates' menus are expected to load at start up.

The weakest section of most portfolios was learning outcome 4, where candidates often did not document well the testing they had carried out, did not explain the methods they had used and did not include any evidence of testing another person's user interface. The test methods candidates are expected to be taught are listed in the teaching content of the specification. Few candidates showed any appreciation of the need to test queries and validation with a range of data. Some candidates included evidence of other peoples' testing of their user interfaces, which is a valid part of their testing, but failed to include evidence of their own testing of someone else's user interface, on which they need to be assessed. If, when marking the portfolio, centre staff find that this is the case it should be possible to find the feedback that has been given by the candidate and ensure it is included in the portfolio.

R005

There are two OCR model assignments for this unit – 'Out and Up' and 'Wind and Waves'. Work from both of these assignments was used successfully this session, as well as assignments that had been adapted by centres inserting their own scenario. Where centres had created their own scenario this was generally successful but in some cases candidates were disadvantaged because the scenario was more limited in scope than the original and in some cases the client brief was unrealistically vague, expecting candidates to make their own decisions on aspects that a real user would have specified. This limited the extent to which candidates could demonstrate their ability to analyse a client brief and produce clear, measurable success criteria.

Candidates completed this unit using a range of approaches, including websites and stand-alone products created using MS PowerPoint and Matchware Mediator. Mobile apps were more common this session than in previous sessions.

Most centres provided electronic evidence of the final products, which is appropriate. However, some problems were encountered when these products had not been checked on a stand-alone computer to ensure all features, including sound, video and hyperlinks, worked. If it is found that a product does not work fully on a stand-alone system then some means of providing more complete evidence to the moderator needs to be found. Sometimes this can be achieved by exporting the final product in another format (eg PowerPoint exported to CD) and sometimes additional evidence can be provided by, for example, video, screen capture software and/or witness statements confirming the features that work when the product is viewed in the candidate's user area. Centres choosing visiting moderation generally were able to show products working. Where candidates had produced a mobile app the evidence was more often limited to screen shots and functionality was not always clear.

Candidates from some centres made use of online web-creation tools. Where these are used well they can allow candidates to design and create suitable solutions but when assessing the outcomes it is important that centres take into consideration the tools that candidates have used and the extent to which the outcome is a result of their own design ideas and efforts rather than provided by the tool being used. Whilst the type of product to be created and the software used for the task must remain the independent choice of each candidate, centres should make sure that candidates understand that the use of pre-populated templates is not acceptable.

Centre comments on the unit recording sheets were sometimes invaluable in helping the moderator understand and credit the tools used by candidates.

Some candidates produced very extensive products, beyond the expectations for this unit, perhaps limiting the amount of time they had to complete documentary evidence. Whilst for the highest marks in learning outcome 2 there must be sufficient pages to allow candidates to demonstrate their ability to create a clear and coherent navigation structure, making use of drop-down/sub-menus according to the type of product being created, candidates should be discouraged from creating many more pages than they need. However, the assignments do not specify the number of pages needed and it is not permissible for centres to do so – the structure of their product must be each candidate's own decision.

A significant number of centres awarded marks over-generously for learning outcome 1 where candidates' specifications were over-brief and general or where they did no more than repeat the scenario they had been given. In some cases candidates did not appear to have been taught that a specification begins with a statement of the task/client brief and simply listed success criteria. To be considered 'sound' it would be expected that specifications will address all aspects of user requirements given in the assignment brief and that clear and measurable success criteria that are specific to the user requirements will be clearly identified. Many

candidates' success criteria resembled design ideas rather than criteria by which the final product could be assessed whilst others provided lists of criteria which were not inappropriate but were not specific and could equally well have applied to any other design brief. Such specifications were sometimes over-generously assessed by centres. The best specifications began with a clear statement of the task to be carried out and included a clear list of success criteria that were sufficiently specific and measurable to cover all aspects of the client brief and to enable a thorough evaluation of the final product against this brief.

Candidates from some centres made very effective use of planning techniques such as spider-diagrams and mood boards but some candidates appeared to have created one or more of these items in isolation rather as part of their planning. Other candidates' planning was limited to a storyboard and in these cases centre marks were often over-generous. Site plans are a key element in the planning of an interactive multimedia product and it was surprising to see all candidates from some centres omitting these.

There was evidence that many candidates had been taught about areas of legislation such as photo permissions and privacy but, as in previous sessions, there were many centres where simple comments about basic copyright were over-generously assessed. The assignments ask candidates to consider the legal implications of using each of their chosen components in their products. Generic statements about copyright are not appropriate responses to this task and were often over-generously assessed by centres.

As in R002, candidates from many centres chose to list their components using a generic source table and this may have discouraged them from providing clear explanations and justification for their choice. In some cases centres over-generously assessed explanations that did not go beyond identification of the subject of each image or a statement of where it would be used. Full 'justification' would normally include evidence that some alternatives have been considered, with some comparison of suitability and reasons for choosing some rather than others. Candidates from some centres appear to have been taught to include in a source table a range of different components, with reasons for using some and not using others. Where these statements were unrelated they did not amount to justification. Candidates from some centres were over-generously awarded marks where they had not provided a list of components, leaving a significant section of this part of the assessment criteria not met.

It is significant that the assignments ask candidates to plan their products before they choose their software or list their chosen components. Where candidates followed this order they were better able to justify their choices with reference to the needs of their particular design ideas.

Most candidates were able to produce a working interactive system with at least some choice of pathways. However, to fully meet the mark band 2 requirements of being a sound navigation system it must be robust and allow a user to move easily between pages in whatever order is required. Where candidates have used MS PowerPoint and not removed the 'advance on click' option, a user could easily bypass any navigation system and click through and out of the presentation. Where candidates have produced applications that operate in full-screen mode with no obvious exit these would cause an ordinary user problems. A website or other product with an inconsistent or inappropriately sized and/or labelled navigation bar would be considered to have poor usability. In none of these cases could the navigation system be considered fully sound. Those candidates who had put more thought into their navigation systems, providing both internal and external links in a logical and structured way, considering where a user might want to go from each page as well as providing all other options were able to access the highest mark band. Where there were very few pages, requiring only the simplest navigation bar, it generally did not provide opportunity for candidates to demonstrate a system that was more than 'sound'.

Although most candidates' products were well organised many had limited multimedia components and the page layouts were often very simple. Where candidates had used MS PowerPoint they had fewer options for interactive features. Although extremely effective interactive multimedia products can be created using this software this is only possible when its more advanced features, including a range of triggers, are fully utilised. Some centres' marking in the second part of learning outcome 2 was over-generous in the absence of any interactive features other than the basic navigation system, which is assessed in the first part of this learning outcome. Where electronic evidence was not provided it was often not possible to determine whether or not any additional interactive features or effects had been implemented and, if there was some evidence of their existence, the extent to which they were effective in meeting user requirements.

Some candidates added a range of multimedia effects to their products, apparently in an attempt to demonstrate their ability to add them, rather than to enhance the product. Where the effects were inappropriate, making the user experience frustrating, this best fit mark band 1 criteria. It was interesting to note that where effects were used poorly, perhaps using animations to add content but in an inappropriate order or making a user wait for multiple elements to be added to a menu page before the menu could be used, these problems were not identified during testing.

Evidence of testing was not always clear. Whilst extensive screenshot evidence of testing is not required there must be clear evidence what the candidates have actually done. Vague claims such as 'test all hyperlinks' do not show the extent to which all hyperlinks have been tested or how this has been done. Some candidates added dates in an attempt to show that some testing had been carried out as the product was being created but these did not always match the type of test being carried out, which in many cases could only be done on a completed product. Where tests are only documented after the product is completed it is likely that most, if not all, of the genuine testing that takes place as components and features are added, and all error correction, has already been completed. Where candidates provided documentation to show what they had done at different stages of the creation of their product, including testing features as they were added and making amendments as necessary, however minor, this evidence was much clearer and enabled credit to be given.

To be considered 'thorough', tests must be clearly identified for all areas of the product, identifying specific areas of the product that need to be tested. Test tables that included only generic areas to be testing do not demonstrate a high level of achievement. Some interactive features, eg forms, require more than one test to ensure they will work in all circumstances. Such thorough testing was rarely seen.

The appropriateness of the feedback obtained is an important element of the assessment criteria for the final section of learning outcome 3. Factors to be considered include the questions to be asked and the people to be asked, including consideration of how many people to ask. Where candidates' initial success criteria were not clear, it was more difficult for them to achieve high marks here. Some candidates carried out their own evaluation against their success criteria rather than analysing the results of their feedback. This did not meet the assessment criteria.

R006

There are two OCR model assignments for this unit – the original 'The Camera Never Lies' and more recent 'Keep Pets', with the later assignment used by many more centres than in previous sessions. Regrettably many centres using this assignment (Keep Pets) misinterpreted the client brief as simply to produce a logo, ignoring the additional requirement 'Sam also wants you to design artwork, using composite digital images, that reflects the company's friendly service and aspects of the company's slogan'. This resulted in candidates from many centres producing only very simple, single, graphics, demonstrating a very limited range of skills only, thus limiting the marks accessible within learning outcome 2.

'The Camera Never Lies' requires candidates to create a competition entry that promotes their local area. Although some candidates included both aspects of this scenario within their specifications many concentrated on only one – either the title of the competition or the local area promotion – and so did not demonstrate a sound understanding of the client brief. Some centres had replaced the brief with their own scenario and where this was not of equivalent complexity candidates were unable to demonstrate the same level of analysis and understanding.

Consistent with R005 and R007, some candidates did not demonstrate good understanding of what success criteria are, providing lists of design ideas or generic criteria rather than clear, measurable criteria that would allow them to assess the success of their work and which demonstrated their understanding of the brief.

Candidates from some centres made good use of a range of research methods, including spider diagrams, interviews/questionnaires and competitor research but in some cases marks were awarded over-generously where candidates had included examples of some or all of the above, without any coherent thread or evidence that this was part of the planning of their solution rather than the carrying out of previously determined tasks for reasons that were clearly not understood.

To be considered 'clear and detailed', candidates' design plans must be sufficient for a third party to implement with little or no additional instruction. Many candidates' designs were limited to a few written ideas rather than a design plan and in some cases it was not possible to ascertain what centres had credited as designs. It is expected that a clear design plan will lead logically to a search for appropriate components.

Comments in R005 above relating to lists of components, reasons for choice and legislation constraints also apply to this unit.

In some cases in this unit moderators were unable to support centre marks where no evidence could be found to support them. The main areas where this was the case was the first part of learning outcome 2, where clear evidence that candidates have set image size and resolution before starting to create their images was not always evident, and in both parts of learning outcome 3, where evidence was not always provided to show the storage of digital files and/or the size, resolution, output medium and colour of the image to be presented to the client. Even when digital files were provided for moderation, often the working files were not included, so there was no evidence of the appropriate storage of both working files and final output. Although a moderator is unlikely to be able to open the raw files they do not need to be removed from candidates' folders if they provide evidence of storage. A single printout of an image does not show all the settings, if any, that have been chosen by the candidate.

In the first part of learning outcome 2, candidates are expected to set both image size and resolution if this is appropriate and possible within the software being used. The and/or in the specification is intended to provide flexibility in the type of image and software chosen. For example, resolution would be irrelevant for a purely vector-based image. Where it is possible/appropriate (which is most likely when the scenario is based around photographs) it is expected that both will be set. The marking criteria assess candidates' reasons for their choices and many centres were over-generous in their marking where candidates had stated what they had done but not provided any reasons. In some cases marks were awarded over-generously when candidates had clearly not made appropriate choices of size and/or resolution. Some candidates imported a background image, regardless of its size, and then adjusted the canvas size, often reducing the resolution of the image to an unacceptable level and demonstrating a lack of understanding.

Many candidates, especially when using the 'Camera Never Lies' assignment, provided good evidence of the use of a range of techniques to produce complex images but in some cases the final product was assessed over-generously when it did not communicate the intended, or indeed any, message. The final image alone often does not effectively evidence all the techniques that have been used and candidates should be advised to ensure assessors and moderators can clearly see the range of tools and techniques that have been used. This is especially important where some candidates have put a lot of effort into making very subtle edits which are effective but not immediately obvious.

The second part of learning outcome 2 assesses not only the candidates' use of image editing software but also their evaluation and feedback on digital images. Although most candidates did include some evaluation of their own images, there was often no evidence of any feedback they had given to others. It should be emphasised that both are required in order to gain full marks in a mark band, although the mark band itself should be chosen according to the quality and appropriateness of the image created.

Where candidates provided evidence of their folder structures these were often weaker than those seen in R002. Centres are recommended to ensure that candidates are taught the subject content of the specification, including the benefit of saving intermediary versions of their final product, in editable form, using appropriate version control, and of the use of folders to clearly separate source files, working files and final products. Some centres appeared to have credited the use of folders to separate work for different units, rather than to organise the work for this particular unit – this was not appropriate. The learning outcome concerns the storage and retrieval of digital images, not documents, so storage of documents is irrelevant to the assessment, except inasmuch as they are stored separately from images.

Candidates from some centres included lengthy explanations about different file formats, which were not required by either assignment tasks or marking criteria.

The assignment asks candidates to present their image for the competition. It is important that they make their own decision about the method they wish to use and that their choice is made clear within their portfolio. In some cases where centres had made repository entries it appeared that candidates had limited any consideration of presentation method to simply submitting the final file. Had they chosen other methods, the centre could have evidenced this using an electronic format.

R007

There are two model assignments for this unit – 'Local Area Promotion' and 'The Shoulderpads', both of which were used by centres, with equal success. Candidates appeared to engage well with both of these scenarios.

Although this unit allows candidates to create solutions using audio, video or animation the majority of products presented for this unit were video clips and it was regrettable that many candidates appeared to think that the client brief was to produce a video clip. Most centres provided evidence of the final products electronically, which is the most effective method of demonstrating the quality and effectiveness of the products. In some cases problems were encountered when trying to upload to the OCR Repository, where the maximum size for any individual file is 20Mb. In such cases centres could enter candidates for postal or visiting moderation. However, when both briefs require the final product to be accessible via a website it was surprising to see that few candidates considered the final file size when they chose their components and exported their final file.

Some well-designed, creative solutions were seen this session but many products were relatively simple slide-shows of images or successions of clips with no obvious coherence or logical progression and these had often been over-generously assessed by centres. At the higher levels it is important to be able to determine some originality and creativity in the design of the product.

The level of independence when defining the specification is assessed in learning outcome 1. Many centres provided no evidence for this. Where centres made a comment on the unit recording sheet that clarified any support given, this was helpful and appropriate.

In order to assess the level of complexity, originality and creativity of the proposed solution within the first part of learning outcome 1 it is necessary to assess the candidates' design plans, timeline storyboards for example. These need to be detailed before the required aspects can be clearly assessed. Some candidates did not provide any documentary evidence of their designs and some centres submitted poor-quality scans or photographs of paper storyboards, which did not allow the contents to be read easily. Screenshots/printouts from completed or partially-completed products cannot be credited as designs.

Where centre staff provided comments on the unit recording sheets to identify aspects of the design that they felt were particularly original and/or creative this was very helpful and increased the chance of the moderator agreeing.

Comments in R005 above relating to success criteria, lists of components, reasons for choice and legislation constraints also apply to this unit.

The final product alone may not effectively evidence all the techniques that have been used and candidates should be advised to ensure assessors and moderators can clearly see the range of tools and techniques that have been used. Where effects have been used well the final result is often subtle, so it is easy to miss if it is not documented.

The unit allows centres to provide a bank of resources for use by candidates but resources can be provided simply through access to the internet and most centres allowed candidates the freedom to choose their own components from the internet and/or their own resources, which allowed them to express their own ideas with much less restriction than where centres provided a resource bank. However, it should be noted that this unit assesses the combination of components into a final product, not the creation of individual components. Candidates from some centres appeared to have spent a lot of time planning and shooting photographic, video and/or sound content, which contributed little, if anything, to their final mark.

Whilst the inclusion of some original components is expected in mark band 3 this does not mean that including some original photographs, video footage and/or narration automatically means that a mark in this band is appropriate – mark bands should be chosen on a best-fit basis, considering all the assessment criteria, most of which are qualitative. In many cases the weakest part of the final product was the message, which at best was often unclear and not infrequently indiscernible.

In some cases it was not possible to find any evidence for the second part of learning outcome 2. Although many centres provided the final exported files for moderation, evidence that the product had been saved in raw editable file format was not always provided. To demonstrate understanding of advantages and disadvantages of different file types some documentary evidence, either from the candidate or in the form of a detailed witness statement documenting verbal explanations, is needed. Additionally, this information needs to be explained and compared, in context, to fully justify the final choice of file type – simply listing the advantages and disadvantages of each one, without any comparison, does not fully meet the requirements of mark band 3. Some candidates experimented by exporting their products into different file formats and comparing the outcome. These candidates generally demonstrated better understanding and were more able to justify their final choice than those who simply regurgitated learned features, not all of which were necessarily relevant to their particular product and scenario.

Many candidates provided detailed test plans, showing both functionality and qualitative tests carried out, although some test plans were assessed over-generously where they did not clearly identify the tests to be carried out (ie how the item was to be tested) and/or expected outcomes. Detailed test plans identified the different features of the product that needed to be tested, considering the original design ideas and the client brief, as well as technical aspects of the final product.

To be credited, there must be some clear evidence of testing during completion, not simply a candidate statement saying that this had been done or a date implying this. In many cases tests that were claimed to have been carried out during completion would not have been appropriate or possible until the product was completed, for example testing the length of the final clip or qualitative assessments of the product. If candidates were encouraged to complete an implementation log, this would more easily and effectively demonstrate the genuine tests that are carried out as components and effects are completed/added.

R008

There is one OCR model assignment for this unit, which is sufficiently open to allow candidates significant freedom to choose the focus and range of features for their program.

A good range of effective programs was seen again this session, with many candidates demonstrating good understanding of the chosen programming language through clear and thorough annotation of their programs. Where the products were provided electronically this aided moderation, so long as the moderator was able to freely download any software required to open them. Guidance for moderators about how to view programs, on the unit recording sheets, would be welcomed

A range of programming tools was used successfully by candidates, including Scratch, Python and Small Basic, with the majority of submissions using Scratch.

Learning outcome 1 was generally the weakest area, with selection of a programming language often being based upon familiarity alone or generic, unrelated to the scenario/candidates' design ideas. Most candidates did not demonstrate any experience in the use of more than one language.

Success criteria were not always clear and comments relating to these in the R005 section above are also relevant here.

Where candidates analysed the problem well they identified the outputs, inputs and processing requirements accurately but in many cases candidates wrote about what would happen in their games without fully analysing what this required in terms of inputs, processing and outputs within the program. To fully meet MB3 requirements in learning outcome 1, inputs, processing and outputs should be analysed in terms of what the program needs to do rather than simply what the user will see on the screen.

The first part of learning outcome 2 was often very strong and accurately marked, with well-structured, effective programs produced, using an appropriate range of constructs, variables and operators to produce interesting, playable games that met all or most of the criteria from the assignment. In only a minority of cases were the problems too insignificant and/or the solutions insufficiently complex to warrant the mark awarded by the centre although some candidates' designs lacked imagination and it could not be considered that the finished 'game' was either easy to learn or fun to play. The highest marks in the second section of this learning outcome were achieved where candidates clearly demonstrated their understanding of different programming constructs in their annotations. In some cases marks were over-generously awarded where candidates re-iterated what their programs did, often identifying the overall function of procedures/sections of code but without demonstrating understanding of the individual lines of code and/or the types of construct used within them and without the use of any technical language. Others meticulously 'translated' in words each line of code, but in doing so demonstrated little understanding and did not identify the different constructs used. Centres often over-generously assessed these responses, as they looked superficially detailed even though they added little to the code itself.

Centre marks for learning outcome 3 were sometimes over-generously awarded where candidates' testing was very limited, often running the program once, without considering the range of different situations that might occur. Candidates should be taught to develop test plans to test the different types of error that might occur, using different test data/methods as appropriate. The best testing also demonstrated consideration of time and efficiency by editing programs so that higher levels could be tested without having always to fully complete the lower levels. To be considered comprehensive, candidates need to consider the different states that need testing at various points within their programs, rather than just seeing if they can get to the end.

R009

There is one OCR model assignment for this unit – 'Urban Mobile'.

This is a technical unit and in many cases candidates' portfolios failed to demonstrate the level of technical understanding required to justify the centres' marks, which often failed to take account of the teaching content of the unit.

The scenario in the model assignment includes a number of different aspects that need to be addressed before mark band 3 can be considered by an assessor. To demonstrate a detailed understanding of the use and function of computer components and devices it is necessary for candidates to provide sufficient details of the components included in the systems they specify. For example, if they have not considered specifications such as RAM, CPU and HDD when selecting computer systems they are not demonstrating any understanding of these basic components.

Candidates from some centres selected and wrote about a wide range of different components, as listed in the specification, but appeared to be unaware that these alone would not provide them with a working computer system. Some added items such as casing, motherboard and/or fans but even these did not provide a complete working system. Where candidates selected existing complete systems after considering different aspects of their specifications with specific reference to the user needs they were more likely to meet the requirements of the higher mark bands. The most common element missing was any consideration of additional hardware to meet the needs of blind and partially sighted customers.

Marks were sometimes awarded over-generously in Learning Outcome1, where candidates had chosen a computer system and written about its advantages, but not explained why this was necessarily the best system. To be considered as fully justifying choices, it is expected that candidates will give clear and specific reference to user needs and explain why their chosen item is the best match to these needs, considering the specification of its components. This invariably requires some consideration and comparison of alternatives – not necessarily complete systems but the range of alternatives available for different specification components. Candidates from some centres appear to have been taught to select two alternatives for each item, then to choose between them. This is not the same as justifying choices of specification, especially where there was no obvious reason why the particular two had been chosen.

Where candidates' descriptions of components/specifications were generic and unrelated to the needs within the scenario of the assignment these were sometimes over-generously awarded high marks by centres, as the understanding of the use and function of the components and devices needs to be expressed through candidates' explanations of choices made to meet the needs of the client. Some candidates' explanations were non-technical and resembled advertising material rather than clear explanation of the relevance of each component and the appropriateness of its chosen specification.

Candidates from some centres submitted descriptions of different types of computer component, which would be appropriate teaching/learning activities, but they were not relevant to the assignment tasks and could not be considered within the moderation of this unit.

It is almost inevitable that candidates will choose systems from web-based retailers. When copying and pasting information about these systems it is essential that assessors and moderators can clearly differentiate between the information that has been found and that which has been written by the candidates, demonstrating their own understanding. JCQ Instructions clearly show candidates how they should acknowledge copied material and it is important that centres emphasise this fact.

Learning outcome 2 was often the strongest area of the portfolio, with many candidates demonstrating at least a sound understanding of network structures and components, although some centres appear to have focussed on the traditional bus, ring and star topologies, rather than those identified in the specification content and this resulted in some candidates trying to apply these traditional topologies to a wireless network, demonstrating a lack of understanding. It is important that preparation for this unit covers the topologies listed in the specification.

Whilst candidates generally provided some well-presented trouble-shooting guides, clearly demonstrating the transfer of skills from other units, these were often limited in coverage to non-technical solutions, listed in the specification as 'simple hardware and network problems' and did not cover any of the other areas of content that candidates should have been taught, therefore failing to meet higher-band requirements. The best trouble-shooting guides provided a range of strategies for identifying the source of problems from generic symptoms, rather than expecting the user to know what the problem was. Some candidates were awarded marks over-generously where guides concentrated on solutions to known problems ('the printer is out of paper', for example), hence generally providing a single solution for each problem, which is mark band 1 level.

Some candidates' trouble-shooting guides included photographs and screenshots showing them carrying out the activities described. These candidates, who had clearly been given the opportunity to study this unit in a practical way, often demonstrated the most understanding.

R010

There is currently one OCR model assignment for this unit – 'Monsieur La Glace'.

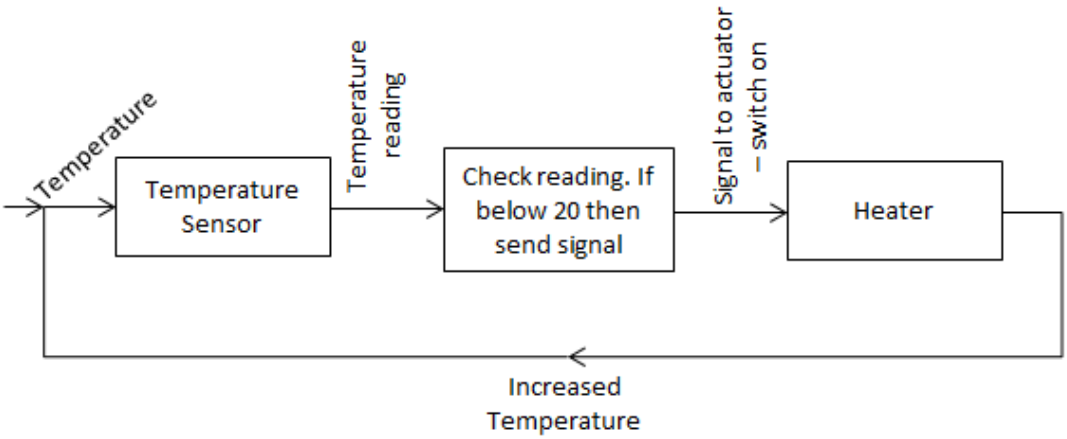
Although it is acceptable to produce evidence for this unit using virtual control software, and this may be necessary in a centre where there is insufficient equipment for all candidates to create their own model. Where candidates had been given the opportunity to learn about control systems through the use of physical equipment and a range of sensors they were often able to demonstrate more understanding, particularly about the way that different sensors worked and where they needed to be placed.

The scenario within this assignment creates a number of user requirements, relating to environment, security and lighting. Most candidates failed to consider all aspects of these requirements so they could not be considered as demonstrating a *thorough* understanding of requirements or as meeting *all* user requirements and some centre assessment was over-generous. Even where candidates did demonstrate some consideration of each of the above there remained some over-generosity in centre assessment where this was superficial, without consideration of the different needs at different times of day. For example, some systems would sound an alarm if a person entered the room, regardless of whether the exhibition was open or not.

Although candidates from some centres demonstrated good understanding in this unit this was not always the case and many candidates' designs and explanations evidenced confusion about input-process-output and about different sensors and their capabilities. Some candidates identified the need for sensors but were unaware of the type of sensor needed for the situation identified or its properties. For example, they might have identified the need for a sensor to detect the presence of people in the room but were unable to identify a particular type of sensor that would be appropriate, at best using vague names such as 'movement sensor', demonstrating no understanding of how the element (eg movement) would be detected and often failing to identify where the sensor needed to be sited.

Where candidates produced good designs, reasons for choices were generally not of the same quality, often limited to vague descriptions of what the component would do, rather than why it had been chosen. Where candidates considered alternative approaches they were generally better able to explain their reasons for their final choices but understanding of the properties of components was generally not evident.

Some confusion about block diagrams was apparent. Essentially a block diagram is a simple diagram that shows input devices, output devices, processes and the data flowing between them, including variables and feedback. At this level there is some flexibility about the precise nature of the diagram, but it should include all of the above components. One example, for a heating system, is shown below:



Learning outcome 2 was generally the most successful part of the portfolio and the most accurately assessed, with many candidates producing effective systems, usually through the use of a virtual control system. However, some over-generosity was found where candidates had created the software element of their design but had not created an appropriate model, either real or virtual, showing the different sensors and output devices to be used. Some candidates' solutions consisted of a number of virtually identical routines, to switch on an output device in response to a trigger from a sensor, but they were not put together into a coherent working system, with no distinction between two-state switches and sensors such as temperature. Candidates from some centres used physical devices with a very limited range of sensors and output devices, which necessitated them substituting alternatives within their models. Whilst this is acceptable and necessary, where they made inappropriate substitutions, for example using a two-state switch device as a substitute for a sensor that would monitor an analogue value such as temperature, this did not demonstrate understanding and resulted in a system that would not work were the appropriate sensor used.

Testing was sometimes over-generously assessed, where candidates often tested each part of their system once, without considering a range of possible situations. To be considered thorough, as required for the highest mark band, testing needs to consider all possibilities, to ensure the system will work in all situations. Where candidates demonstrated some understanding of the role of normal, abnormal and extreme data in testing their test plans were generally more likely to be comprehensive.

Implementation and testing of a system is, at its best, an iterative process, with testing revealing areas that need to be modified, these modifications made and a final system produced. Therefore it cannot always be expected that evidence for learning outcomes 2 and 3 will be completely separate. Modifications/ refinements appear in both of these learning outcomes and it is not expected that two different sets of modifications/ improvements will always be provided. Learning outcome 2 is concerned with the efficacy of the overall final solution whereas learning outcome 3 is concerned with the testing process and marks are awarded here on the strength of the justification of any modifications.

If candidates do not require any refinements to their system, marks can be awarded in the second part of learning outcome 3 on the strength of their justification for this decision, together with an assessment of the accuracy of the decision. In most cases candidates should be able to consider some refinements that could be made to their systems, which do not have to be limited to the correction of errors. If there are obvious refinements needed and the candidate does not identify these, they should not be awarded marks over-generously in this section.

R011

There is no model assignment for this unit, as the nature of the unit makes any set user requirements or tasks inappropriate. Regrettably this was not always appreciated by centres, some of whom inappropriately supplied their candidates with assignments/tasks to carry out.

As in previous sessions, most centres that entered candidates for this unit had misinterpreted the focus of the unit, with many providing candidates with a restricted assignment brief, rather than allowing them to come up with their own ideas. Others asked candidates to simply repeat work carried out in another unit, such as R004, simply choosing a different user for themselves, so again they did not have to determine for themselves the stages required in the project, as they merely repeated what they had done before. This was not appropriate and severely limited achievement in this unit, where most of the marks are available for the project approach, rather than for the final outcome. Marking was often found to be over-generous in all learning outcomes, with centre assessment focussing on the product to be created rather than on the project approach.

This unit is designed to allow learners to develop their planning, research, presentation and analytical skills by undertaking a learner-initiated individual project with an ICT-related theme. The nature of this unit means that each learner should agree an individual project title with the teacher in order to produce evidence that meets the marking criteria. Candidates should be provided with the unit content and assessment criteria only – a detailed assignment and task instructions must not be provided. Some examples of the range of project types that could be chosen by individual candidates can be found in the unit specification. It is not expected that all candidates will choose the same type of project. Where they choose to focus their project on the area of one of the other units, this must extend the learning already achieved and not merely repeat what has already been done, which has no educational value and no relevance to this unit.

Learning outcome 1 assesses candidates' ability to initiate projects, considering the different forms the project output could take, choosing a project topic, setting objectives, identifying success criteria and dividing a project into manageable stages, using planning tools to create plans. Where centres had provided them with a limited range of project ideas from which to choose, this represented considerable assistance.

Project objectives might include:

- required outcomes
- completion date
- specific qualitative criteria that must be met.

In some cases candidates had identified in vague terms a topic they wanted to research but had not considered at any length what they wanted to achieve, ie what the project outcome would be. This not only limited their marks in this first learning outcome but it also limited the extent to which they could demonstrate achievement throughout the rest of the unit as they were unclear about their purpose, other than vaguely to 'find out' something.

The project plan should consider the project objectives and divide the task into smaller, more manageable and measurable stages, which should then be considered in the context of the time available and allocated timescales. Where candidates had access to project management software this was a benefit to them. Some candidates created simple Gantt charts using spreadsheet software.

Where candidates carried out research using a range of sources, including both primary and secondary, this was generally well done and assessed accurately. However, some centres appeared to misinterpret the requirement for a range of sources as a range of websites. The specification lists the range of sources that might be considered; the World Wide Web is considered one source. To be considered a wide-range, both primary and secondary sources should be evidenced. Simply using physical books and magazines to find information which is more readily available on the internet is not appropriate. Where candidates' projects did not require any depth of research, for example where they were simply repeating what they already knew and could do, they did not have the opportunity to demonstrate a high level of achievement here.

Justification for choices of resources and reliability checks were often quite basic, often reflecting a lack of clarity regarding exactly what information was needed. Justification of choice of resources is more than just stating the content found. Candidates should consider why that resource, rather than alternatives, was the best for the purpose, comparing different types of source as well as looking at what that particular source offers.

Although mark band 3 of learning outcome 2 requires candidates to complete their project, meeting their defined project outcomes, the main focus of this learning outcome is on the processes carried out in order to complete the work, that is the project record, showing how they have followed their plan, recorded their progress and reviewed/modified their plan as work progressed. This was generally a weak point in the work of candidates seen this session, as in previous sessions. Candidates from a number of centres did not complete a project record, so failing to meet even MB1 criteria, whilst those who did tended simply to create a diary documenting what they did each lesson, without relating it to their plan and showing how this plan was amended where necessary.

Where candidates had a methodical approach to review, considering each of their objectives in turn, and focused on their approach rather than their outcome, evaluations were more successful. However, in many cases centres awarded marks over-generously where candidates had focused solely on their product/outcome rather than the process of carrying out the project. Where candidates' outcome was vaguely to find something out they tended to use their evaluation to document what they had found, rather than evaluating the processes they had gone through and what they had learned about the completion of a project.

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