GCE

Computing

Advanced GCE **A2 H447**

Advanced Subsidiary GCE **AS H047**

OCR Report to Centres

June 2013

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.

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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

Overview

The increased entry and the quality of the work from the candidates continue to be very pleasing to the examiners. The depth of knowledge is nowhere more evidenced than in the project work where the programmed solutions to real problems impresses and the understanding shown by candidates to complex concepts continues to improve.

There are still problems faced by examiners, not least the poor presentation skills demonstrated by some candidates. Examiners do their best to be able read/understand what a candidate is trying to convey, even sending scripts to other examiners to get their views on what is being said. However, the basic point remains that if an examiner cannot understand what is in front of them then they cannot mark it.

It is disappointing to, once again, report that candidates at this level are still confused by even the simplest of terms. A large proportion of candidates find difficulty in using the words ‘bit ‘ and ‘byte’ accurately, believing them to be synonymous. Equally confusing are the three words: file, record and field. It is simply not possible to give sensible responses to a number of the definition type of question without being able to use these terms properly, never mind all the questions which require descriptive answers which become meaningless if these words are wrongly used. Any subject has its basic lexicon and Computing is no different in this respect.

F451 Computer Fundamentals

General Comments:

The paper seemed to work well giving all candidates an opportunity to earn marks on some of the questions, while remaining challenging for all. Most of the questions elicited the full range of marks from zero to maximum from at least some in the cohort, although the distribution of the marks was different according to the difficulty of the subject matter. The 'easier' questions were spread out through the paper which meant that even the weaker candidates found material which they could attempt throughout the paper. In fact the proportion of questions which were not answered was very low with the majority of candidates able to provide an answer to all the questions on the paper.

While the use of past papers and their associated mark schemes is an obvious and valuable tool in the teaching of the material on the specification, the candidates should be discouraged from rote-learning of answers as, despite the fact that similar questions are bound to appear in future papers, the questions themselves will at least be subtly different and the appropriate mark points will be appreciably different.

The proportion of candidates who simply did not have the ability to have sensibly entered the examination continues to fall and while there will inevitably be candidates who are disappointed with their results we hope that the result, whatever it may be, is a true reflection of their efforts.

There was no evidence of any candidate having suffered from any time trouble.

Individual Questions:

1(a) Most candidates scored well. There are some items of hardware which are obviously going to be used in this scenario, and they appear on the mark scheme. However, there are many others for which an argument can be made and all of these were acceptable providing the candidate had managed to justify their choice successfully.

1(b) The difference between the two is simply that one collects data before processing any while the other processes the data as soon as it is input. There are a lot of other things that can be said about the two types of OS but whatever is said must give a difference. Popular was to say that a batch OS required no person to be in attendance, this may be correct, but then a real-time system does not necessarily need a person either. Candidates must be careful to answer the question rather than simply give a characteristic. The same is true of the two parts here that are specifically about areas from the scenario, the justifications need to be related to the scenario not simply to the generic characteristics of the type of OS.

1(c) Many candidates scored well here, although there are still too many who are unable to distinguish between an archive and a backup. The problem appears to be that both involve the need to use the file of data in some way but they are done for different reasons. Also a backup uses a copy of the file while an archive uses the file itself because the original is going to be deleted. The second part of the question is less about what a backup is and more about the procedure that would be adopted for taking backups in this scenario. It was important for candidates to relate their answer to the Sales file rather than any other file, for example the Customer file will change relatively rarely so backup may well be once per month, while sales will be made constantly meaning that the Sales file will be changing all the time so waiting for a week or a month would not be sensible. The examiners expected to see the ideas of mirroring or RAID methodologies, but these were very rare. More often

mentioned was the concept of making incremental backups on a very regular basis, but the keeping of a transaction file between backups was very rare.

1(d) The common response was to talk about passwords, encryption and virus-checkers. These responses were worth a mark for general security of the data but they play a very small part in the DPA. The other common answer was to state that data could not be 'changed without the owner's permission'; 'given to a third party'; or even 'Used in any way without asking the owner of the data first'. It does make one ask why anyone would bother to save data about another person. The DPA is shrouded in misconceptions. Centres should be aware of the fact that the DPA and other acts are different in their scope. For example the data misuse acts and copyright laws are different.

1(e) Most candidates scored very well here.

2(a) Provided candidates read the question which asked for 'sign and magnitude' binary, and not for two's complement, they scored well here.

2(b) The arithmetic obviously depends on the success or otherwise of the manipulations in part (a). For this reason examiners used follow through marking in this part of the question. The explanation of the difficulty of using sign and magnitude representation proved to be too challenging for most candidates.

2(c) The concept of a character set is well understood by many candidates although a sizable proportion believe that it has to do with computer languages. Unicode was often described as 'universally understandable code'.

3(a) Most missed the fact that it was a copy of the data that was sent back, but still earned the three marks available. Of all the checking methods this is the most accessible.

3(b) However, this is not the most accessible method for checking data transfer as was demonstrated by this question. Very few candidates were able to identify the single bit that was transferred in error. Many candidates had a difficulty in that they were unable to distinguish between bit and byte, this becoming even more apparent in question 6a. Almost all candidates were able to earn credit in (ii) although few scored all three marks. Many were credited in (iii) with understanding that repeat errors could cancel each other out, but few, if any, realised that the value of a block is that the only way of cancelling out errors in transmission is to have four errors at the corners of a rectangle, the likelihood of which is so remote that it can be ignored.

4(a) Candidates seem to think that there must be some hidden value in the waterfall or spiral models when in reality all they are, are methods of working which allow the analyst to arrive at a solution to a problem.

4(b) There were two distinct areas asked about in the question, the design stage and the concept of producing a prototype. Each of these areas needed to be addressed for the response to be awarded a high mark. The examiners were expecting to see responses that were presented in two parts, one relating to the requirements of the design stage and the other to the steps needed to produce and use a prototype. Additionally it was expected that the candidate would have given some thought to what would be an appropriate method of communicating their ideas to the reader and it was hoped that numbered or bulleted points would be used, particularly with the prototyping for which the order in which the steps need to be carried out is important. The responses to this question were far weaker than had been expected by the examiners, particularly given that the candidates will need to put this theory into practice next year when producing their project work. The attention of the reader is directed to the published mark scheme for a comprehensive list of appropriate responses to the question.

5 This wasn't well answered, the most outstanding error by candidates being to ignore the fact that the memory holds the various pieces of data that are *currently in use*. The Implication that many candidates give is of confusion with the main storage of the system.

6(a) The concepts here tend not to cause problems, but it is necessary for candidates to be careful with the way that answers are phrased. As already mentioned, a common difficulty in distinguishing between bits and bytes leads to many answers not being what was originally intended. Many candidates tend to 'guild the lily' in questions like this. Typical is a response that 'Simplex is communicating data in one direction…' (enough, the mark is there!), '…at any one time'. The examiners think that a candidate who writes this knows what they mean, but unfortunately the answer is now wrong and no mark is given.

6(b) The majority of candidates scored close to full marks. There were a few who gave three items that they had learned as variations for another concept, for example one gave 'Normal, abnormal and extreme data' and described each well. The most common error here was to not describe the chosen media in any way.

7 This question was basically in two parts. The first part was expecting the generic definitions and the second part was expecting the candidates to apply their understanding of the two items to the given application. There was a degree of overlap between the parts of the question but the examiners took this into account and marked the evidence as it was given.

8 This was well answered with most candidates being able to score well on the last question on the paper. It is intentional to have accessible marks at the very end of the paper and candidates should not believe that just because it is at the end it is going to be 'hard'.

(i) In order to explain what compression software is it is necessary to use a word other than 'compress'. There was one mark for explaining the purpose in general terms and then two marks for explaining why it would be useful to the student in the question. These second two marks needed to be awarded when there was a sensible reference to how the student would use it. This pattern of marks was used for all three parts of the question.

(ii) It would have been nice to see a response that talked about the student making sure that he did not pass on a virus to his friends when sharing files with them but this was not given by any scripts seen by this examiner.

(iii) The intention was that this part of the response would be based around the project work but most were more interested in the stages that they had got to in various games.

F452 Programming Techniques and Logical Methods

General Comments:

This session saw a significant increase in the number of candidates taking the examination. This was partly due to a number of centres taking the qualification for the first time. There seems to be a resurgence of some of the issues that were common when the qualification was new, and it seems appropriate to point these out again. Candidates are required in this examination to demonstrate a knowledge and understanding of programming principles by applying them within the context of specific programs.

Centres should note that when candidates appear to be inadequately prepared this generally manifests itself in two ways. They often do not have ready, for immediate recall, standard definitions to key terms that are clearly highlighted in the specification. Instead, even when they are familiar with the concept, they often struggle to give responses in their own words and give answers which are partially correct or worse. There is value in learning these definitions and giving them verbatim. Understanding is generally assessed separately. On the other hand, when it comes to assess understanding, candidates sometimes appear not to have had sufficient programming experience (but have rather studied the topics very theoretically) and so often confuse related concepts or find it difficult to apply their knowledge to the contexts given.

Individual Questions:

1(a) The responses were a little disappointing, especially given that, as a first question, it was intended that most candidates would be able to answer this correctly using no more than factual recall of knowledge from their preparation for this examination. Many candidates appeared not to know the term “stepwise refinement” and were guessing. Typically, they confused this with iterative development and referred to improvements in the program written.

1(b) Generally well answered with most candidates getting 5 or 6 marks out of 6. A significant proportion of the candidates, however, did not answer the question asked and drew a user interface or a flow chart. Some candidates drew a diagram that was a hybrid between a flow chart and a top-down design and were able to obtain partial marks for aspects of their diagram that were correct. Centres should ensure that candidates understand the hierarchical nature of a top-down design rather than assuming that the levels follow each other in sequence (e.g. that they need to put “clock in” and “clock out” under “log in” because when logging in, a person has the option of clocking in or clocking out).

1(c) This was also well answered. Where candidates did not get full marks, they often did not use all of the information in the question such as, checking the example data given for the minimum length of string fields. Many candidates also made the error of allocating 1 byte per character for the hourly wage, even after having correctly identified that this would be stored as a real number/currency. In **c(ii)** a significant number of candidates did not add an extra (usually 10%) for overheads.

(d,e) Answers confirmed that ‘types of file organisation’ and ‘file manipulation’ are topics in which candidates continue to perform relatively badly. Most candidates were able to give a reasonable definition for a serial file. However, a description of the deletion of an item from a serial file was generally poor for example, answers of the type: “search for the item and delete it” were common. Many candidates also confuse key terminology here for example by using the terms file and record as synonyms. Wherever possible, centres should

endeavour to give the candidate the opportunity to embed these concepts by writing programs to perform file manipulations, rather than attempt to teach it completely theoretically.

1(e) Able candidates were able to give a correct description of an indexed sequential file. Weaker candidates tended to suggest that the index can be used to locate each individual record directly, and hence confused index sequential files and random files. We have previously pointed out on a number of occasions that when assessing the quality of written communication, examiners assess how effectively the Computing material that is relevant to answering the question is expressed. While language skills may be an important component of this, how they organise their points, the correct use of technical terms and indeed the accuracy and relevance of their answer are also considered. It is pleasing to see that candidates are taking this advice on board and there were fewer "essays" where the points required were padded in verbiage such as an introduction and conclusion. However, it was disappointing that very few candidates chose to draw a diagram to explain an index sequential file. This is also written communication and if done well can express the points much more clearly than prose and this would be considered by the examiner as a positive aspect.

2 The whole question was accessible at different levels to all candidates, and worked well to differentiate candidates across all abilities. Most candidates got full marks in **a** demonstrating that they had correctly understood the requirements of the problem definition in the question. In **b**, some of the marks were for the solution to the problem, and some for the use of good internal documentation style when writing high level language code. In the latter case, most candidates used meaningful identifiers and indentation correctly, but very few candidates included comments to explain the stages of their algorithm. In solving the problem, candidates were asked to choose and use a named high level language. While it would be unreasonable to expect them, in an examination, to write syntactically correct code in their chosen language, candidates were expected to use the functions and operations of the language rather than vague pseudocode statements such as "if total is divisible by 3".

3(a) Responses were generally poor. Candidates took a much wider view of the question by including aspects that are not relevant to the specification. They were possibly misled by a context with which they are very familiar, compounded perhaps by the fact that installation is generally not well covered in centres as borne out by answers to questions on this topic in previous years. Centres should emphasise to candidates that installation in this context refers very specifically to the preparation and configuration of the files and resources needed to run the program on the target device. In the candidates' experience of installing software there are additional preparatory stages such as agreeing to the terms and conditions, purchasing and downloading the software, and hardware verification. Centres should point out clearly to candidates that these stages occur before the installation itself begins and are not part of the installation.

3(b) This was generally well answered. Candidates were able to give stock definitions for alpha testing and acceptance testing, and the stronger candidates also showed an understanding of how these definitions would apply in this case. A few candidates made assumptions about how the software operates (which is only revealed further on in the question). These candidates were not disadvantaged if their assumptions turned out to be incorrect and marks were awarded for testing any valid programs based on the information given to this point.

3(c) This question did not work as well as intended because most candidates gave the reason for test as valid, invalid, borderline etc. When designing test data for a black box test, candidates are expected to demonstrate what distinguishes the test cases from each other. The fact that candidates did not do this was perhaps influenced by the use of the

term “type of test” in the question, but also the fact that in a previous session they were asked to give one valid and one invalid test case etc. Candidates should read each question carefully and avoid being influenced by past questions. This question gave the freedom to give two or three valid test cases as long as each was distinguished from the others.

3(d) The most common error, made by about half of the candidates, was to say that the algorithm should output North if “Direction > 270 and Direction < 90”. This reveals an inability to abstract from the problem (where the direction is between 270 and 90 on a compass scale) to its representation as data (where Direction is a number returned by the sensor, and no number could be greater than 270 and also less than 90). This is a key computational thinking skill that candidates will develop better the more practical experience of programming and problem solving they encounter on their course.

4(a) This was generally well answered, although it was interesting to note that candidates performed better in a(ii) – defining and identifying selection- than in a(i) – defining and identifying iteration. There were still a minority of candidates who appeared not to have learned some of these basic terms, all of which are listed in the specification. Guesses based on the everyday meanings of the terms are unlikely to be acceptable in their Computing definitions.

4(b) **(i)** was well answered by most candidates, but (ii) and (iii) discriminated in favour of the more able. Most candidates were not able to give a reasonably structured SELECT/switch statement although most candidates did get partial marks. Most languages provide such a facility and candidates should be introduced to it. If a centre is using a language that doesn’t offer this facility, the centre should ensure that the candidates are familiar with the construction of these statements in pseudocode. In (iii) a common error was to not realise that the select statement simply gives a more human friendly format for writing multiple(nested) IF statements, and stating that after translation, the compiled versions will necessarily be more efficient.

4(c) Middle and high ability candidates were able to demonstrate a good understanding of variables and variable scope to gain most of the marks. Some of the weaker candidates struggled with some of these concepts, although these are terms that are clearly highlighted in the specification. Centres can help prepare their weaker candidates better by ensuring that they learn standard definitions for these terms. They would then be in a better position to articulate their understanding in the context of the questions set.

4(d) Most candidates gave a reasonable definition of a function and gained at least two marks. More able candidates gave a fuller answer focusing on distinguishing features of a function (as opposed to subroutines in general) for full marks. In previous sessions, candidates have often confused the concepts of outputting from a program and returning a value. As a result, only the best candidates were able to distinguish between these clearly in (ii).

4(e) A variety of answers was offered by candidates. The proportion of good answers worth 6,7 and 8 marks was lower than expected. In many cases where candidates did not perform well, they could have done better by reading the information provided carefully. For example, in the question, the function LetterToDigit() has no parameters and its use is clearly demonstrated in the code extract given. However, some candidates ignored that and based their solution on a different LetterToDigit function.

F453 Advanced Computing Theory

General Comments:

The paper was well answered but there did seem to be a few gaps in some candidates' knowledge. The question on declarative language was well answered when it was at a superficial level but proved to be a problem for most candidates when it required a greater depth of understanding. This was repeated with the data dictionary which should be a fairly basic requirement when teaching about databases. It was good to see that the question on OOP was very well answered and most candidates had a good grasp of the way that it works. Some centres could do with tightening up on what they teach about interrupts but overall the answers were satisfactory. A recurring theme from previous papers seems to be candidates' inability to read a question correctly. I would like to urge centres to give their candidates plenty of practice in answering questions as they can potentially lose a lot of marks if they do not answer the question asked.

Individual Questions:

1(a) Generally well answered with the first two bullet points on the mark scheme being the most common answers, almost everybody got the first mark.

1(b) There was a huge variation in answers for this and it is advised that centres take note that 'Hardware' without any sort of explanation or example is considered too vague an answer and that 'Timer' should not be confused with clock.

1(c) Candidates had difficulty answering this question fully and a large percentage put down an example as the second mark. Most popular answers were the 2nd and 3rd points on the mark scheme but these were very rarely seen together.

1(d) **(i)** Generally well answered with candidates able to state that segments did not have a fixed size and had logical divisions as the most common answers.

(ii) A number of candidates misread this question and said what virtual memory was and ignored 'the purpose'. Those who read it correctly answered well.

(iii) There were quite a number of very confused answers to this question and a number of "shotgun" type answers that just said a bit of everything in them. Most of those that did not do so well did not realise that "pages" was expected in the answer.

(iv) Candidates answered this well, most understood what the error was.

2(a) **(i)** Well answered by most candidates although there was a broad range of answers allowed and future questions on this topic may be a bit more restricted. The ideal answer was "Convert from source code… ….to object code".

(ii) Compiler and Interpreter were the most popular answers for this question and missed opportunities for marks were generally caused by not stating that a compiler translates the whole program as a unit (or as an executable file) what they did say was that it translates it and then executes it.

2(b) A very mixed reception to this question with answers across the full spectrum. Some candidates had very little idea what code generation was while others gave fair and accurate answers.

3(a) This question was aimed at the higher mark candidates. Those that knew what they were talking about gave some very good answers to this and most other students could pick up at least half of the marks.

3(b) The majority of candidates for this paper missed an easy opportunity to gain full marks with this question as they never mentioned similarities between the two processor types. In a comparison question it is expected that candidates would be taught both similarities and differences but this was not apparent in the answers given.

4(a) Those that understood the maths involved answered this very well, a small but significant number of candidates had no idea about two's complement binary.

4(b) **(i)** Most candidates answered this question well.

(ii) Those candidates who were competent in the mathematics of this question answered well. Some lost marks for putting the decimal point in the wrong place therefore making both mantissa and exponent wrong.

(iii) Most candidates were able to translate the minus number into its binary equivalent with no trouble, the problems came when they also put the exponent as a minus number. About half of all candidates were able to answer this correctly.

5(a) **(i)** A simple question but a relatively high proportion of candidates lost the opportunity to gain a mark for not using the example in the question which they were specifically asked to do.

(ii) Generally well answered for most candidates, although some missed a mark for not saying that a binary search halves the list "each time". Without the final bit it is an incorrect answer.

5(b) **(i)** The principal examiner continues to be astounded that, with all the past question papers available to use, candidates do not understand that a sorted list should only contain one of each item. About half of the answers to this simple question were wrong.

(ii) A wide range of answers to this question were given, those that were the best were not always the most technically presented. There were some very well written algorithms that were not too technical and stated in plain language what happened at each stage. An algorithm is not always required to be coded.

6(a) Some excellent answers showing a clear understanding by most candidates. This is an improvement over previous years.

6(b) **(i)** Most candidates knew what type of language this was.

(ii) About two thirds of candidates were able to correctly identify the correct answer.

(iii) This was the problematic part of the declarative language in this paper. Very few candidates had any idea what the answer was even supposed to look like and most tried writing algorithms or pseudo-code to try and get an answer.

(iv) This was answered well.

(v) Almost every candidate was able to answer this question.

7(a) **(i)** Almost every candidate was able to answer this question.

(ii) Most candidates could trace their way around the tree to gain a correct mark.

7(b) **(i)** This was answered well.

(ii) Some really good answers for this, showing stacks working. There were also some candidates who worked it out mathematically. Unfortunately for some using this way of working they got their orders of precedence wrong and gained no marks.

7(c) **(i)** Most candidates managed to get at least one of these correct and a significant proportion managed to get both answers correct. Those that failed to gain full marks tended to write the same answer twice.

(ii) Fairly well answered. Of those candidates that answered correctly, most candidates stated that no brackets were needed.

8(a) A surprising number of candidates had difficulty with this question and did not seem to fully comprehend what registers are used for. There were numerous answers that said what they contained or what they were called but at least a third of all answers did not say why they were there.

8(b) **(i)** Again, the answers to this were quite disappointing as there are still a large amount of candidates who state that the accumulator does calculations, at this level they should be able to discriminate between holding a value and acting on that value. At the other end of the scale it was gratifying to get answers that could identify the accumulator as also dealing with input/output.

(ii) This question seems to pose the same problem for candidates as 5 a (i) in that they were asked to state the **three** values held in the PC. Generally this question was only scoring two or three marks, there were some good answers but there were also answers that did not reference the example given at all. Candidates should be aware that if an example is given and asked for in the question then it must be used.

9(a) **(i)** Very well answered.

(ii) Generally well answered with a fair range of marks, mostly good. A few tended to get the foreign key in the wrong table and centres are asked to make candidates aware that it does matter which way round the foreign key goes.

9(b) Most candidates did very well on this with the most common omission being that it reduces data inconsistencies. It was good to see that the ones that did include this said that it reduced data errors rather than eliminated them.

9(c) Overall, it seemed that there was some confusion amongst the candidates about which bit of the DBMS did what and a fair number were repeating themselves in each part. That said, there were also some who had a good grasp of the basics.

(i) Few candidates were able to score full marks for this question but it was aimed at higher grade candidates and this showed in the answers given.

(ii) Most candidates were able to pick up at least two marks in this section.

9(d) Candidates were very much relying on examples in the first part of the question rather than explaining what the data dictionary was. The question was not very well answered and the answers given tended to be vague and said what it had in it rather than what it is. Some examples that were given were for an actual database field which is not the answer looked for at this level.

F454 Computing Project

The standard of work seen during this session was typically good with some excellent and innovative projects. It is a feature of the approach to this unit that candidates are able to follow a wide range of project ideas successfully because they are not confined to a formulaic approach. We are seeing very few old-style database projects and many more original ideas now extending beyond the popular games programming choices. Candidates are able to consider ideas that match their own interests more closely. Visual basic is no longer the most popular choice of programming language used with far more candidates using Java, C++ and Python to produce their solutions. The least successful approach was, for a very limited number of candidates, using ACCESS with some additional coding. This is a programming project and such an approach is not able to meet several of the requirements making it a very poor choice.

The investigation section remains the weakest element in many projects and, without careful and detailed preparation and research many projects fail to achieve their true potential. It is important to look at the whole area surrounding the project, looking at what the end user needs and also at existing solutions to similar problems to inform the design.

Designs were generally good though the weakest solutions failed to describe clearly what the solution did. A good design should enable a suitably skilled programmer to complete the task and achieve similar results. The accompanying algorithms were important and mostly excellent descriptions of the proposed solution. The weakest algorithms were superficial overviews of the solution or reverse engineered code, this is not an acceptable algorithm.

Test strategies continue to confuse some but it is simply a consideration of how the solution will be tested during, after and post development. Many still produce large post development test plans or a large test plan plus some generic comments on what is meant by alpha and beta testing. The best identify what test data will be used, when and why.

Evidence for development is quite variable; we are still seeing a large batch of completed code as the evidence for development from some students and centres. Development should provide a narrative of the process using the data identified in the test strategy to demonstrate how the product was developed stage by stage with evidence that it has been tested at each stage.

The documentation section requires good on-screen support, this needs to be evidenced and must be more than just a few helpful error messages. Good on screen support should minimise the need for large user guides and we do not require the technical documentation that some centres included. There are a number of centres who appear to be using guidance related to the previous version of the specification including not only technical guides but also file sizing calculations and benefits and limitations sections.

The vast majority of centres submitted work in a well-organised and timely manner. The vast majority of centres provided detailed teacher notes on the assessment to explain how marks had been allocated. This is very helpful to the moderator. We do not supply a standard pro-forma for this since many centres have created their own forms or add annotations as post-it notes or margin comments or simply supply printed or written comments on A4 paper. All of these approaches are acceptable, but lack of any notes can present difficulties for the moderator trying to appreciate how the marks were allocated.

We now accept work electronically, either through the repository or on suitable media via the postal system. It was a little disappointing how few opted to submit work in electronic form instead choosing to print and post many large documents. There is a significant cost and time saving available if work is submitted electronically rather than as hard copy.

OCR (Oxford Cambridge and RSA Examinations)
1 Hills Road
Cambridge
CB1 2EU

OCR Customer Contact Centre

Education and Learning
Telephone: 01223 553998
Facsimile: 01223 552627
Email: general.qualifications@ocr.org.uk

www.ocr.org.uk

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OCR (Oxford Cambridge and RSA Examinations)
Head office
Telephone: 01223 552552
Facsimile: 01223 552553