COMPUTER STUDIES

Paper 7010/12
Written paper

General comments

The standard of candidates' work was an improvement on last year in many areas. There is a continued move to provide questions where candidates have to apply their knowledge rather than just show their ability to simply remember facts. There is strong evidence that this is producing candidates who are now exhibiting a far better understanding of many of the topics than in past examination papers.

Candidates and Centres are reminded that written papers are now scanned in and marked on computer screens by Examiners. Consequently, if a candidate writes the answer to a question on an additional page they must indicate very clearly to the Examiner where their revised answer is to be found. Also if answers have been crossed out, the new answers must be written very clearly so that Examiners can easily read the text and award candidates the appropriate mark.

Comments on specific questions

Question 1

Candidates needed to be better prepared for this question. There appeared to be some confusion with documentation and expert systems by many candidates. Those that identified the features of operating systems most commonly chose file management, error handling and interrupt handling.

Question 2

(a) Many candidates gained three marks by identifying unemployment, deskilling and training as possible impacts. Some candidates needed to expand on these answers to show why these changes had occurred in a number of employment areas.

(b) Many answers here were very imprecise: "it can lead to eye problems", "it can cause wrist problems" or "you can get a headache by staring at a computer". Candidates needed to provide more detailed responses to gain credit.

Question 3

This question was very well answered with the full range of marks (from 0 to 5) being seen. The most common errors were to confuse phishing and pharming, and to confuse hacking and viruses.

Question 4

In general, this was well answered with most candidates making some attempt. The most common errors were:

statement 1 – missing the fact that the count started at 1, so the loop will only operate 4 times and not 5
statement 4 – CDs and DVDs only have 1 spiral track; various answers were given here
statement 5 – since 2 Mbits/second = 0.25 Mbytes/second, a 75 Mbyte file will take 300 seconds to upload (in other words, 5 minutes); various answers were offered by candidates
statement 6 – many candidates read the word byte and assumed that the answer had to be 8 (instead of the correct answer of 10)

Question 5

(a) Candidates needed to improve their understanding of this question as they appeared to confuse the two words “False” and “True”.

(b) A large number of candidates correctly suggested that the sat nav maps might be out of date. However, a small number suggested, incorrectly, that the satellite was out of date. Some imprecise answers, such as “the information input was wrong” (instead of start point and/or end point incorrectly entered) were very common and not creditworthy.

Question 6

(a) Candidates needed to develop their understanding of this question. Candidates needed to indicate the line where an error had occurred and suggest how to correct it. Of the 5 errors in the algorithm, the error at line 50 was the least identified by candidates.

(b) A small number of the better candidates correctly realised that division by zero would cause an error to be generated. Very few, however, suggested a valid way of trapping the error, such as *IF number = 0 THEN k=0 ELSE k=x/number.* A significant number suggested that because k was a ratio then it would cause an error, clearly indicating that the word “ratio” was not well known.

Question 7

(a) Candidates needed to provide more detailed and relevant answers as they lost marks in part **(i)** by stating “the image would be good quality” or “the image would be clear”. This would be true of 20 megapixel resolution as well. A comparison was needed such as *better resolution* or *clearer image.*

In part **(ii)**, candidates needed to provide a more precise answer than “the image would use up a lot of SPACE”. Space is not an acceptable term when referring to memories and this has been highlighted in previous Examiner reports.

(b) Many candidates suggested ROM memories or EPROM in the first part of the answer. Better candidates correctly suggested that a solid state of flash memory should be used.

Part **(ii)** required a benefit of the type of memory given in part **(i)**. A large number of candidates suggested that the images were not lost when the camera was switched off, and so on. It was essential here to give a benefit of the memory identified earlier.

(c) For part **(i),** the candidate had to write *picture element* to gain the mark.

About a quarter of the candidates correctly gave the answers of 819 (or 800) or 1638 (or 1600). Either answer was accepted since the question did not indicate which resolution was being used.

(d) Candidates needed to include the word AUTO to gain the mark here.

Question 8

(a) Candidates needed to be better prepared for this question. Motion, sound, blood and movement sensors were the most common sensors mentioned. These responses were not creditworthy.

The only acceptable sensors in this scenario were infra-red, pressure or proximity.

(b) Candidates needed to provide answers that applied to the scenario. The best correct suggestions were to leave the door open or have additional sensors.

(c) The full range of marks was seen here. There were some really good answers, by candidates who clearly understood the connection between sensors, microprocessors and actuators/motors. Some candidates need to improve on their knowledge of sensors as it appears that they think that sensors "make the decisions" or that sensors only send readings when something happens. Candidates need to understand that sensors send data/signals constantly or that the microprocessor continually samples/polls the sensors to obtain a reading.

Question 9

Some candidates performed well on this question and others needed to be better prepared. The most common issues were linked to the REPEAT statement, with many candidates being unaware of the need for a corresponding END REPEAT statement. A good number of high-scoring candidates simply ignored the REPEAT function and lost the first mark because they wrote FORWARD 20 RIGHT 90 FORWARD 20 RIGHT 90. Other common errors related to LEFT/RIGHT confusion and, strangely common, using FORWARD 5, FORWARD 2 etc. in place of FORWARD 50, FORWARD 20 etc. These comments are almost identical to comments given for the previous examination suggesting that LOGO-type commands cause many candidates problems and candidates therefore need to practice more of these questions.

Question 10

(a) The full range of marks from 0 to 8 were seen. Many candidates got the top half of the algorithm perfectly correct and then did not score any further marks. There was evidence of candidates having read the question instruction clearly as they used the item number only.

(b) Candidates need to improve on their examination technique, especially reading the instruction carefully in the question and re-reading the question. Candidates need to give answers that match the question's requirements. For example, some candidates stated the answers: *keyboard* and *scanner* (another name for a barcode reader), consequently losing all four marks. Reading the question a second time, may have indicated that the answers given just repeated the stem of the question.

Question 11

(a)(b)(c) These part questions were answered well. The main error included the use of "x" instead of "*". Some candidates needed to be more accurate with their formula in the first part of the expression (e.g. D1>C6 instead of D1 < C6, possibly indicating confusion with the < and > signs).

(d) Most candidates got the first column in the spreadsheet right but then did not score any further marks. This question required candidates to dry run/test the spreadsheet formulas, a task they have probably done several times in practical sessions.

Question 12

(a)(b) The most common error here was to repeat the values for the central line in the letter "E"; consequently variable "a" was doubled up giving a doubly thick central line in the letter. This lost many candidates two marks. Only the better candidates spotted this situation and gained all four marks.

Some candidates performed better in part **(b)** than in part **(a)**. The letter "H" was the letter produced but almost every letter from the alphabet was seen across the scripts.

Question 13

(a) Very well answered with a large number of candidates gaining 3 or 4 marks here.

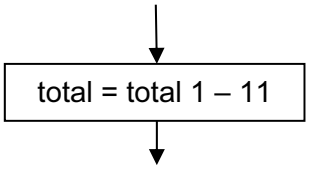
(b) Many candidates gained the full marks here. But there were four common errors to report which lost candidates all of the marks:

- incorrect symbols being used for NOR and NAND (usually circle to the right of the shape missing)
- inclusion of extra NOT gates after the NOR and NAND gates
- shapes which were impossible to decipher (some candidates wrote the name of the gate inside the shape which helped Examiners)
- names of gates inside the shape which were in conflict (e.g. the word NOR inside a NAND gate)

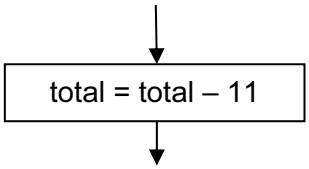
(c) Candidates needed to improve their understanding of this question. Many candidates wrote short essays in place of logic statements, suggesting that they had misunderstood what was required. However, there were many good examples of the use of Boolean algebra.

Question 14

This question was very well answered by many candidates. However, an error was spotted in the question after the paper had been sat. One of the flowchart boxes showed



instead of:



Consequently, the decision was made to remove this question from the paper and it was marked out of 95 instead of 100. This made sure none of the candidates were disadvantaged by this unfortunate error at the printing stage of the paper.

Question 15

Candidates needed to be better prepared for this question. Candidates did not identify the locations within the document at which the various operations had taken place. Consequently, marks were lost if the candidate did not identify where the word processing operation had occurred, for example, use of *search and replace* to change the word “taxi” into the word “cab” throughout the document.

Question 16

The full range of marks was awarded for the algorithm question. Some candidates scored a mark or two; a small proportion gained all five marks, and a small minority satisfied all the marking criteria. The weakest answers were by candidates who used a flowchart rather than attempting to write pseudocode.

COMPUTER STUDIES

Paper 7010/13

Paper 13

General Comments

There was a wide range of performance with most candidates attempting all of the questions.

Most candidates used generic terms when necessary and avoided the use of brand names.

Comments on specific questions

Question 1

This question was straightforward for those candidates who read the question carefully and gave reasons which applied to safety issues. A common error was to give reasons related to either security or health topics.

Question 2

Most candidates were able to correctly identify the features that applied to RAM and those features which applied to ROM. Some candidates confused 'volatile memory' with 'non-volatile memory'.

Question 3

(a) Candidates need to understand that encryption does not prevent hacking and that backing up data does not remove the risk of a virus.

(b) (i) Some candidates correctly identified that drop-down boxes help to defeat spyware.

(ii) Candidates need to understand that this additional authentication check was required in order to ensure that it was indeed the account holder who logged on last time.

(iii) Candidates need to understand why using the browser arrows would log the account holder out of a banking website.

Question 4

(a) The answers to this question could have been further improved on as few candidates obtained the maximum 3 marks. A common error was to explain how an expert system could be created whereas the question asked about the use of an expert system.

(b) A few candidates were able to give correct reasons for the extra files being stored on a memory stick.

(c) This was a well answered question with many correct examples given.

Question 5

This question was well answered by most candidates. A common error was to associate the wrong value to the first and fourth statements.

Question 6

There were some excellent answers to this question. Most candidates correctly noticed that 'sum' needed initialising in line 10 and needed to be output in line 80. A few candidates realised that there was a problem with the loop and identified a correct solution.

Question 7

(a) The statement referring to wikis was often incorrectly associated with web-browsers.

(b) Many candidates correctly recognised the statement as describing social networking sites.

(c) The statement referring to podcasts was frequently incorrectly associated with data streaming.

(d) Most candidates correctly identified the statement as referring to tagging.

(e) Many candidates correctly recognised the statement as describing blogs.

Question 8

(a) This question was very well answered. Candidates were able to follow the flowchart and accurately encrypt the message.

(b) Most candidates produced the correct input message.

(c) Candidates need to further develop their understanding of the security features built into online shopping websites.

Question 9

(a), (b) The majority of candidates were able to identify appropriate input and output devices. There were many excellent descriptions, relevant to the scenario given in the question.

Question 10

(a) Most candidates were able to name at least one correct sensor. The most common incorrect answer was 'heat sensor'.

(b) This question was well answered with most candidates describing the correct two items of data that would be needed.

(c) Candidates needed greater knowledge of the role of the microprocessor in everyday-life devices such as the microwave oven mentioned in the question. A common misconception was that sensors receive signals.

Question 11

This question proved to be a good differentiator. The most common errors were to fail to realise that the highest temperature needed to be initialised at the very start of the flowchart and that the total needed to be initialised inside the yearly loop, but outside the daily loop.

Question 12

(a) Most candidates knew that the correct formula for part **(i)** should be B3/B2. Some candidates knew that the correct formula for part **(ii)** was (B5/C4) * 2.

(b) Candidates needed to develop their understanding of IF statements. The use of '>' within the IF statement was often confused with '<'.

(c) Whilst many candidates were able to list one or two cells that would be automatically updated, rarely were all three cells correctly identified.

Question 13

(a) The trace table was correctly completed by many candidates. The most common errors were the omission of the initial zeros in the first three columns and an incorrect output being given in the final column.

(b) Careful study of the flowchart enabled some candidates to correctly realise that numbers which have the same value are not catered for.

Question 14

(a) Many candidates provided the correct content for all registers.

(b) Most candidates provided the correct parity bit for each register.

Question 15

(a) The vast majority of candidates understood how to produce a truth table from the given logic circuit.

(b) Many candidates were able to correctly redraw the logic circuit using NAND gates and NOR gates only. A common error was the failure to remove the original NOT gates.

(c) Candidates needed better understanding of the notation used for logic statements.

Question 16

This question was answered well by many candidates. Most candidates realised that it was necessary to initialise the two totals to zero and the largest price difference to a negative number or zero. Common errors included incorrect loop termination, failure to deal with a negative price difference and not incrementing the totals.

COMPUTER STUDIES

Paper 7010/02

Project

General Comments

This is the final coursework moderation session for this syllabus.

The coursework projects consisted of a wide range of mostly appropriate topics with the vast majority of Centres basing the work mainly upon the construction and operation of a system involving a relational database.

Presentation of the A4 portfolios was often of a very high quality with many candidates routinely using common and advanced features regularly found in modern word-processing software. A helpful contents page was nearly always included.

Centres are reminded that each submitted project must be the unaided work of that candidate. The teacher is responsible for supervising the candidates throughout as outlined in the syllabus.

Centres will need to obtain the Centre-specific individual moderation report for details of both their candidates' performance and also the Centre's assessment of the projects. Moderators provide quality feedback in these reports in order to help Centres improve.

Administration

The coursework projects are internally assessed by each Centre and a sample of these projects is externally moderated. Centres must follow the process for submitting internally-assessed marks and selecting and submitting coursework samples for moderation as detailed in the *Cambridge Administrative Guide*. The sample should always include the coursework projects of the candidate with the highest mark and the candidate with the lowest mark.

The Individual Candidate Record Cards, the Summary Sheets and the MS1 mark sheet copy (or CIE Direct / CAMEO equivalent) should all be included with the coursework. These documents are required for moderation in order to ensure that results are issued on time.

The Individual Candidate Record Card should be fully completed for each candidate. It is important that the page numbers are entered correctly as this enables the Moderator to more easily locate the evidence in each candidate's coursework. The Summary Sheet should be accurately completed and the Centre is advised to keep a copy for future reference. The copy of the MS1 mark sheet (or equivalent) should be legible and list all candidates' marks. Centres should ensure that the marks have been correctly transcribed between the various documents.

The moderation process was able to proceed smoothly when Centres met the deadline, included the correct documentation and provided the correct project sample. The sample should cover the entire mark range and should include at least one project with the lowest mark and at least one project with the highest mark. All of the projects in the sample should be sent to the Moderator. Further details on coursework samples can be found in the Cambridge Administrative Guide.

Standardising marking within Centres

Centres are required to standardise assessments across teachers and teaching groups to ensure that all candidates in the Centre have been judged against the same standards. One teacher (who must be a teacher accredited by Cambridge) must take responsibility for this standardisation process. When marks for some teaching groups have been altered to ensure consistency for the whole Centre then this should be clearly indicated to the Moderator.

Choice of Task

There was a variety of well-chosen tasks which gave candidates the opportunity to score highly and achieve their potential. The quality of work was of a broadly similar standard to previous years and there was a very wide range of suitable topics presented.

The purpose of the project is to allow candidates to demonstrate their ability to undertake a complex piece of work, which is a computer-based solution to a significant problem, and to complete the solution and present their results. This project should enable the candidate to use a computer to solve a significant problem commensurate with the age and ability of the candidate, be fully documented and contain sample output for the proposed solution. Candidates had mostly been well advised to undertake tasks which were realistic rather than trying to create systems intended for large existing organisations.

Assessment

The assessment criteria are clearly stated in the syllabus. There are many Centres that understand and interpret these assessment criteria correctly and consequently award marks accurately for each section. Each section is progressive i.e. a candidate must evidence the 1 mark criterion before consideration is given to the 2 mark criterion.

The standard of assessment by Centres for each section was often accurate. On occasion, some Centres awarded a higher mark than that warranted by the work submitted. Centres should only award marks where there is clear, relevant evidence in the paper documentation. If there is no paper evidence then no marks can be awarded. Most candidates made good use of appropriate annotated screenshots and printouts to provide the necessary evidence. Candidates should not include any storage media with their work as only hard copy evidence is considered during the moderation process.

Analysis

Section 1

Description of the problem

The problem definition section was often well done with candidates adequately describing the background to the business or organisation as well as outlining the nature of the problem to be solved.

Section 2

Objectives

This is an extremely important part of the coursework as the objectives set the direction for the work as a whole. The qualitative business-related objectives and the quantitative computer-related objectives are best considered separately. The better candidates provided detail and justifications for each of their objectives and stated each objective in relation to their own specific proposed solutions.

The computer-related objectives set here, are those objectives which need to be shown to have been successfully achieved in ***Section* 12**, tested in ***Sections* 14** and **15** and referred to in the evaluation of ***Section* 18**. It is advisable to number the objectives as this allows each of the tests in the test strategy to be linked to the appropriate objective being tested and also allows the evaluation points to link to the objectives and the evidence, justifying assertions made, to be easily found.

Section 3

Description of the existing solution

Many candidates provided an appropriate description of the existing system by providing a complete description containing all the details necessary for full marks as listed in the specification. For maximum marks, candidates should provide evidence of exactly how the present solution works. Many candidates included summary transcripts of interviews or an example of a questionnaire response. The better projects also included some sample documents from the existing system with descriptions of their use.

Section 4

Evaluation of the existing solution

Most candidates provided an evaluation. The better evaluations made explicit reference to the existing solution and often provided explanations by means of specific examples.

For full marks candidates need to suggest at least one realistic improvement in addition to providing advantages and disadvantages directly related to the present solution.

Section 5

Description of other possible solutions

Candidates often provided reasonably detailed relevant descriptions of the proposed new solution and at least one other solution. Descriptions must be relevant to the specific problem being solved.

Design

Section 6

Action plan

Candidates often produced good Gantt charts. For the full marks to be awarded both a detailed formal action plan, including a time schedule and a Gantt chart, must be included.

A detailed action plan should consider more than the time to be spent on each of the areas characterised in the specification – analysis, design, implementation, testing, documentation, evaluation and further development. Each of these areas should be subdivided to create more detail. Contingency time could also be included.

Section 7

Systems flowchart

Many candidates achieved full marks by producing a relevant systems flowchart using the correct systems flowchart symbols. Some candidates gained full marks by using more than one systems flowchart. Acceptable systems flowchart symbols are listed on page 9 of the *Support Booklet Part **2*** on the *Cambridge Teacher Support Site* for Computer Studies.

Generic systems flowcharts should not be included. Program flowcharts and data flow diagrams are not creditworthy here, but could gain marks within the method of solution section.

Section 8

Description of the method of solution

Many candidates provided a full and detailed description of the proposed method of solution. For full marks this description must also include an explanation of at least one module of coding, such as a query or macro, to be used in a candidate's solution.

This section is about 'design'. It is in this section that candidates should be describing in detail what they are going to do. Screenshots illustrating the final solution should be placed in the Implementation section.

Section 9

Hardware

Many candidates failed to realise that all hardware listed must be relevant to the particular system being developed. In order to achieve full marks a detailed technical specification is required as well as reasons why such hardware is needed in the context of the proposed solution.

Section 10

Software

Candidates were usually able to list and describe the software to be used although many descriptions tended to be rather generic. Software descriptions should contain reference to the actual problem to be solved and explain why certain facilities are needed within the context of the proposed solution.

Implementation

Section 11

Method of solution

This section was often done very well with candidates usually providing comprehensive descriptions supplemented by suitably annotated screenshots and printouts.

Section 12

Accurate method solution

Many candidates provided evidence by listing each of the previously stated computer-related objectives together with a relevant annotated screenshot or printout. Other candidates, quite acceptably, referenced their objectives to evidence found elsewhere in their portfolios. Marks could only be awarded where evidence was provided to indicate that the objectives had been met.

Section 13

Programming code

Most candidates were able to gain one mark by using macros that they had created themselves. Many of these candidates then went on to gain two marks by including annotated coding for these macros. Candidates have to code and annotate the complete solution themselves in order to achieve full marks.

Testing

Section 14

Test strategy

Some candidates achieved very good marks on this section with test strategies clearly covering all of the previously stated computer-related objectives. Most candidates used a table format to successfully demonstrate their test strategy.

The test strategy must include the data to be tested together with the expected results. For full marks the strategy must be complete and also be linked to the computer-related objectives previously set.

Section 15

Test results

Evidence for the testing of normal and abnormal data was usually provided, but not always extreme data. Aspects of functionality, such as data input and processes, were often tested.

Careful selection of screenshot evidence to provide a reasonable variety of suitable examples for different types of testing proved acceptable.

Documentation

Section 16

Technical documentation

The better candidates produced technical information about the solution which would explain and justify its design and which would be sufficient to enable maintenance or modification of the system by a competent technician. An index, together with suitable descriptions, annotated screenshots and printouts, was usually provided by these candidates.

Technical documentation should be contained as a separate section within the project report. This documentation can include clear and specific referencing to relevant work contained elsewhere in the project report, but explanations and descriptions are still likely to be necessary.

Section 17

User guide

Clear and complete user guides containing general information which would enable a user to make effective use of the solution were often supplied. These usually included full descriptions (including start-up instructions) with appropriate annotated screenshots.

System evaluation and development

Section 18

Evaluation

Most candidates were able to supply a reasonable evaluation. The better candidates provided a good evaluation which clearly linked their comments to the previously stated objectives and to their tests.

Section 19

Developments

Candidates often mentioned minor, but relevant possible improvements. Full marks were obtained by those candidates who listed realistic and meaningful possible developments which were subsequently justified and explained.

COMPUTER STUDIES

Paper 7010/32
Written Paper

General comments

This paper provided an alternative to submitting coursework. The candidates were advised to spend at least 20 minutes reading the information about the existing system and the proposed computer-based system. It is really important that the candidates carefully studied the information provided at the start of the paper, since answers to all parts of the single compulsory question on this paper required reference to the computer-based semi-automatic sports day recording system described.

Candidates who did not use the information provided at the start about the computer-based sports day recording system could not obtain full marks for their answers.

Comments on Specific Questions

Question 1

(a) Most candidates could identify several tools; better candidates gave the descriptions asked for in the question.

(b) Most candidates identified appropriate methods of fact finding from the people who record the results of the races, with better candidates explaining why the analyst would have chosen this method. The best candidates applied their knowledge to the scenario described at the start of the paper.

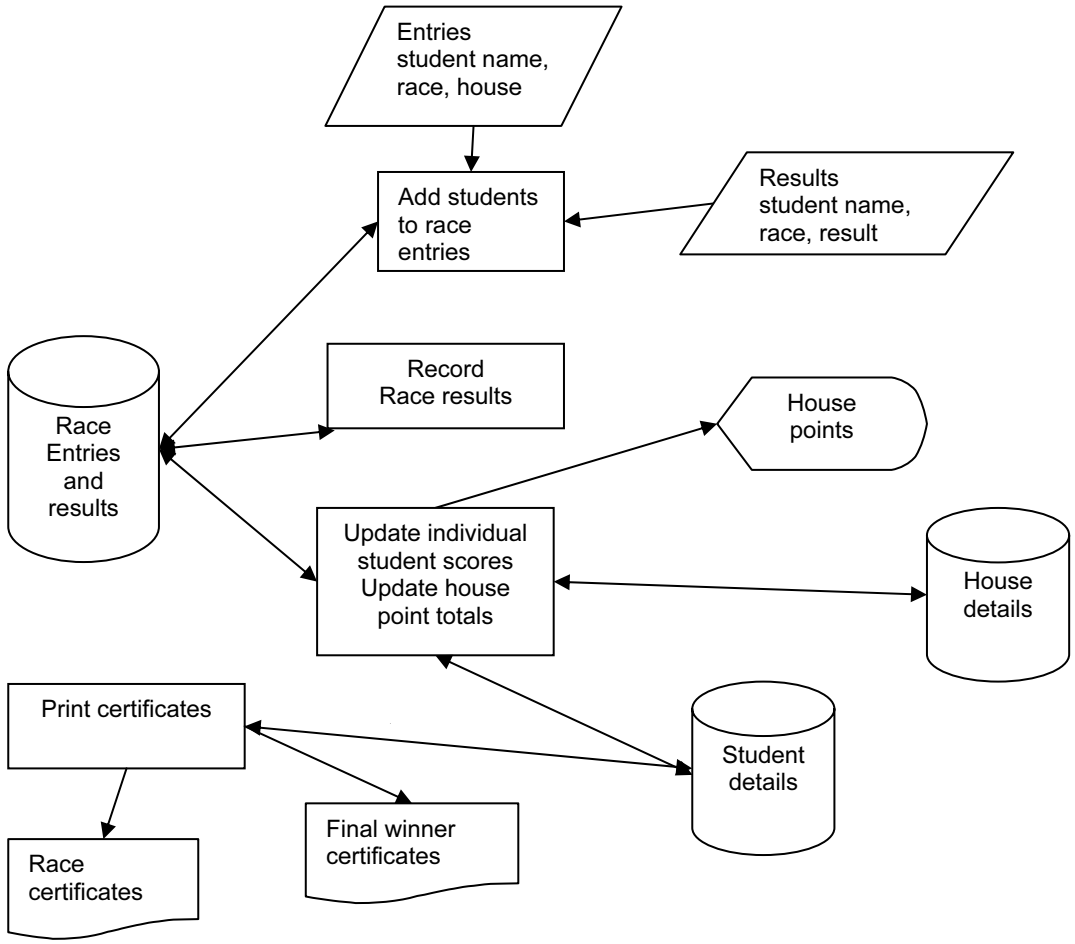
(c) (i) Better candidates designed a suitable certificate to be printed. Candidates needed to ensure that their design was for the printout stated in the question, not a screen design.

(ii) Better candidates gave good sensible suggestions for the changes needed if the certificate was to be awarded to the winner of a single race. Changes to the style of the certificate rather than the content were not creditworthy.

(d) Most candidates identified an item of hardware; better candidates gave a brief explanation of why it was needed. The best candidates provided a well-reasoned explanation that clearly applied to the scenario. For example, 'A large screen to display the results outdoors so that all the spectators can easily see them.' would have gained full marks.

(e) (i) Better candidates provided good responses for this part of the question that showed a clear understanding of how the proposed system could work. Candidates need to take care to include only processes, data stores, inputs and outputs that relate to the computer-based sports day recording system described at the start of this examination paper. Few marks could be obtained if the existing manual system was used.

There were many ways of drawing a systems flowchart for the sports day recording system; the example below would have gained full marks.



(ii) Most candidates could identify and describe the purpose of at least two of the system flowchart symbols they had used.

(f) (i) Better candidates provided a good explanation of the steps required to allow barcodes to be used to identify candidates entering the races on sports day.

(ii) Some benefits were identified by candidates, in order to be creditworthy these needed to be clearly related to the new system.

(g) Few candidates answered the question on the examination paper; those who did usually scored good marks.

(h) Most candidates attempted to write an algorithm, but few candidates used the description from the question and could not gain many marks. Both flowcharts and pseudocode were seen.

(i) Better candidates described a test strategy that included types of testing and types of test data.

(j) Parallel running was described; better candidates gave some valid reasons for choosing this method of implementation, the best candidates clearly applied their reasoning to the sports day recording system to gain good marks.

(k) The best candidates' evaluation descriptions were clearly applied to the needs of the computer-based sports day recording system.

COMPUTER STUDIES

Paper 7010/33
Written Paper

General comments

This paper provided an alternative to submitting coursework. The candidates were advised to spend at least 20 minutes reading the information about the existing system and the proposed computer-based system. It is really important that the candidates carefully studied the information provided at the start of the paper, since answers to all parts of the single compulsory question on this paper required reference to the computer-based charity donation recording system described.

Candidates who did not use the information provided at the start of the paper about the computer-based charity donation system could not obtain full marks for their answers.

Comments on Specific Questions

Question 1

(a) Most candidates could identify at least two tools.

(b) (i) Most candidates identified questionnaires as an appropriate method of fact finding from the students, with better candidates explaining why the analyst would have chosen this method.

(ii) Most candidates correctly identified a method that would have been inappropriate for this group of people. The best answers explained why the method was inappropriate in this case. For example, 'Interview was not a suitable choice because there were too many students to interview so it would be time consuming.' would have been a suitable answer.

(c) (i) Many good screen designs were seen for the intranet page to display a weekly class total.

(ii) Better candidates gave good explanations of why their page was informative and interesting.

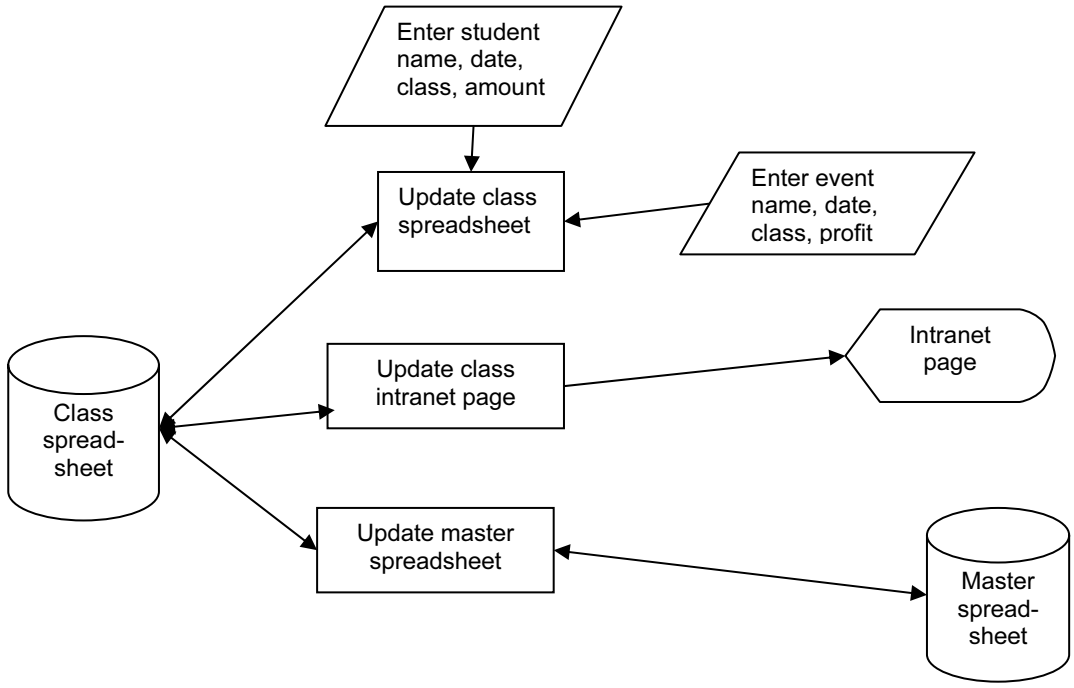
(d) (i) Most candidates identified at least one suitable reason for one of the devices given, for example, portability.

(ii) Generally well answered.

(e) Most candidates could identify at least half the flowchart symbols.

(f) Better candidates provided good responses for this part of the question that showed a clear understanding of how the proposed system could work. Candidates need to take care to include only processes, data stores, inputs and outputs that relate to the computer-based charity donation system described at the start of this examination paper. Few marks could be obtained if the existing manual system was used.

There were many ways of drawing a systems flowchart for the charity donation system; the example below would have gained full marks.



(g) (i) The best candidates provided a good explanation of why the systems analyst would choose to employ a programmer to write bespoke software for the computer-based charity donation system.

(ii) Few possible drawbacks to making this choice were identified by candidates.

(h) Some excellent responses were seen containing specific examples of test data that could have been used for the value of the donation, with detailed reasons for choosing that data.

(i) Most candidates attempted to write an algorithm to check the amount of the donation. Both flowcharts and pseudocode were seen.

(j) Better candidates described advantages to the School of using the computer-based charity donation system. Candidates needed to ensure that the advantages described explicitly applied to the computer-based charity donation system.

(k) Better candidates' evaluation descriptions were applied to the needs of the computer-based charity donation system.