COMPUTER STUDIES

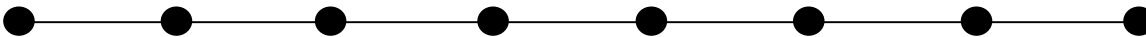| Paper 0420/11 |
| Written Paper |

General comments

The standard of candidates' work was better than in previous years. 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 appear more enabled to tackle new scenarios; successfully adapting their knowledge to suit the question being asked.

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In part **(a)**, most candidates selected either ring, star or bus network topology. Most of the drawings were adequate; although most difficulties were associated with drawings of bus networks:

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Candidates' responses to this question were quite variable. Better candidates referred to the need for real time to prevent double bookings. In the second part, a number of good answers were seen; but weaker candidates wrote "with GUI you do not have to type". They gave no reference to pointing devices, use of icons or windows environment.

Part **(b)** was a test of remembering facts. Candidates needed better understanding of this question as they confused this with expert systems and gave knowledge base, rules base, explanation system and inference engine as their answer.

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The full range of marks from 0 to 8 was seen here. Candidates needed to carefully read the instructions in the question as marks were lost by candidates ignoring the statement: *a **different** validation check needs to be given for each field.*

A number of candidates also did not give an example in the third column (as required) and gave only a description e.g. patient's height must be > 0

Question 4

Many candidates answered this question well. Some candidates needed to improve their knowledge of: *phishing and pharming, spam and cookies*.

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This question was very well answered by the majority of candidates. The mistakes made by some candidates included instructions such as FORWARD 20 instead of FORWARD 28 or confusion between RIGHT and LEFT.

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Most candidates referred to reduced cost to the customer (do not have to drive to the warehouse) and less wasted time (no need to go to the warehouse). A number also referred to the fact that they could order goods 24/7 and can have deliveries straight to their door.

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The final part was very well answered with many candidates showing experience and knowledge of the features of a good website.

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A large number of candidates gained full marks in part **(a)**. Candidates needed to draw clearer logic gates as it was often difficult to distinguish between an AND gate and an OR gate. A large number of candidates also wrote the name of the logic gate inside their drawing and this helped identify the gate. There are still too many candidates giving 1-input AND and 1-input OR gates – consequently losing a number of marks unnecessarily.

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This question was answered well. Candidates appear to be well-prepared for questions where a trace table is required. Logical thinking is required in these questions.

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Part **(a)** was answered well. In part **(b)**, the most common incorrect response was to include A1:A7 and D1:D7 in the group of cells. It was very common to see all the cells written out rather than just a range e.g. G1, G2, G3, G4, G5, G6, G7.

The main mistakes in parts **(c)** and **(d)** were the incorrect naming of functions e.g. AVGE instead of AVERAGE and MAXIMUM instead of MAX. A number of candidates also wrote AVERAGE (D2:D7)/6.

Question 10

The benefits and drawbacks of mobile phones usually centred on their portability and expensive monthly contracts. Very few candidates actually mentioned anything about the communications aspect.

Video conferencing benefits were usually, safety (risk of terrorist attacks) and cost savings (no need for travel). The drawbacks were usually loss of signal/Internet and the cost of setting up the video conferencing system.

In the third part, most candidates referred to the fact that emails can be opened whenever the recipient wishes (benefit) but also referred to security aspects as one of the drawbacks.

The majority of candidates made a reasonable attempt at answering this question with marks from 0 to 6 seen.

Question 11 (a)(b)(c)

In part **(a)** many candidates stated "broadband is faster" with no qualification. Such answers gain no marks since they require a more detailed explanation. To gain any marks it is necessary to indicate that the *data transfer rate* is much higher with broadband or that the upload/download speed is higher. Many answers stated that broadband uses WiFi which again is not enough for any marks.

There were some very good attempts at the two calculations. The majority of candidates read the instructions and showed how they arrived at their answers.

The last part was well answered. Answers such as "WiFi is slower", gained no marks. It is essential that candidates realise that answers such as "slower", "faster", "cheaper" etc. are never given credit without some explanation of their answer.

Question 12 (a)(b)(c)

The first two parts were very well answered with many candidates gaining the full marks in both parts. The majority of candidates seemed to understand the scenario given. Some of the answers in part **(c)** were a little weak e.g. "it would show an error" or the screen would go blank (not a very satisfactory way to show an error). Candidates needed to offer reasonable suggestions as to why the error occurred in the first place.

Question 13

The full range of marks (0 to 4) was seen. The most common mistakes were to switch numbers.

Candidates needed to read the instructions in the question carefully. A number of candidates are still writing the statements in the flowchart boxes rather than the numbers 1 to 9. Given the small size of the boxes, it was sometimes difficult to read what the candidates had written.

Question 14 (a)(b)(c)(d)

The majority of candidates gave the correct values of 9 and 7. However, some gave 7 and 9, and in a few instances values such as 10, 63 and 70 were seen.

In part **(b)**, some candidates gave the output from both parts of the search statement. It was expected that the output from the whole statement would be given.

Part **(c)** was well answered this year. Candidates were very careful to match the key words in their search condition to the titles in the database section. There were very few instances this year of confusing the ">" and "<" signs.

Question 15

This final question was well answered by many candidates. Candidates who chose to use a flowchart produced some very good attempts, often worth 4 to 6 marks.

The candidates' ability to logically work through a problem is becoming increasingly impressive and the improvements over the last two or three years have been very marked.

COMPUTER STUDIES

| Paper 0420/12 |
| Written Paper |

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The standard of candidates' work was better than in previous years. 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.

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Comments on specific questions

Question 1

Most candidates scored two marks for correct ticks in columns 2 and 3. There was some confusion over 'trip' with some candidates interpreting it as a journey and many more interpreting it as a power loss. Many answers to "fire" were about what to do once the fire has started (i.e. use a fire extinguisher) rather than preventing the fire in the first place. The health risks were better answered than the safety risks with "taking breaks" the most popular solution.

Question 2 (a)

Candidates needed to improve their understanding for this question. Candidates wrote about how the flight would be paid for with a lot of statements about the use of credit cards. Updating the seat availability after booking was another popular, but incorrect response. Other incorrect statements referred to conversations between the customer and the agency or the customer booking a flight directly via the airline online presence.

Candidates needed to improve on their answers to part **(b)**. Candidates needed to develop their understanding of the differences between the two processing methods. Answers often included examples of the use of the two processing methods; these responses did not explain the differences.

Question 3 (a)(b)(c)(d)

In part **(a)**, some candidates gave correct examples of appropriate items of software. However, candidates did need to improve their understanding of the purposes of the software. There were many answers that gave an item of hardware rather than software. In part **(b)**, very few candidates chose the correct (third) option. Candidates were aware that microphones were input devices and consequently picked up one mark in part **(c)**; and a number were also aware of the function of a webcam (live streaming of video data) and gained the full marks for the question. The final part **(d)** was well answered; a few candidates still chose the "old" video conferencing answers such as: "prevents social contact", "cannot see body language" and "language problems if people come from different countries". Problems with time zones and the cost of setting up video conferencing were the most popular correct answers.

Question 4 (a)(b)(c)(d)

Many candidates referred (correctly) to several unrelated websites coming up as part of the search. In part **(b)**, some candidates were aware of methods used to narrow down the search e.g. adding the key word

"chemistry". References to objectionable websites and unwanted advertisements and pop-ups were the most popular answers to part **(c)**. Candidates needed to improve their answers to the last part. Many candidates stated that you can search at any time of the day – this, of course, is true of books as well. The real point here was the speed at which searching can be done using the Internet when compared to searching through several books looking for a topic.

Question 5

The two errors most spotted by candidates were the incorrect formula for average (should be sum/10) and x = largest (should be largest = x). Some of the better candidates also correctly noticed that the loop variable and input variable were the same (x in both cases) – the correction was to change one of the variables. All of the four errors were picked up by a significant number of candidates. Candidates who did not spot the error in lines 30 and 40 (i.e. use of variable x for both loop and input) copied this error in their answer to **Question 18**.

Question 6

This question was very well answered by all candidates. These are purely knowledge-based questions where there is no need to apply the knowledge. Consequently, this type of question is accessible to all candidates which is reflected in the marks.

Question 7

The full range of marks from 0 to 6 was seen here. In many cases, this question was well answered with candidates understanding LOGO. A few candidates did display confusion between left and right. Some candidates needed to improve their knowledge of how to construct a program. Some candidates successfully thought through the repetition that was forced upon them at the beginning of the program:

Instead of FORWARD 50 many candidates assumed that the REPEAT function had to be used
throughout the algorithm and gave answers like: REPEAT
                                                                                                FORWARD 10
                                                                                                ENDREPEAT

Many candidates lost marks by forgetting to pair up the REPEAT statement with ENDREPEAT.

Question 8 (a)(b)(c)(d)(e)

This question was well answered. The most common mistakes were to confuse phishing and pharming or to mistake spyware for hacking. In part **(d)**, a number of candidates incorrectly referred to social media and also named "facebook". The front cover of the examination paper clearly states that no marks will be awarded for the use of brand names.

It should be pointed out that incorrect spellings such as "fishing" and "farming" gained no credit; the correct names of computer terms should be known by candidates.

Question 9

The full range of marks from 0 to 5 was seen here. The most common correct answers were *key frames*, *morphing* and *avars*.

Question 10

The main area where marks were lost was to omit the initialisation line. Also a number of candidates missed the last value "11" in the count column. The only other common mistake was to show the calculation in the last column, i.e. -9/3 and 24/4, rather than give the correct answer of -3 and 6.

Question 11

Candidates need to ensure that they read the question carefully as many gave direct implementation as one of the methods. This cost them half the marks for this question. Most correct answers chose parallel and then pilot or phased. Many candidates confused the operation of pilot and phased which lost them marks in the benefit and drawback part of the question. However, there were many candidates who scored 4 or more marks on this question.

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Question 12 (a)(b)

In part **(a)** there were many answers for devices that gained credit. However, camera rather than digital camera, mention of fax machines and printers, software rather than devices, were all weaknesses that occurred regularly. The reason statements often did not identify how the device helped with Camilo's work.

In part **(b),** it was rare to see "data transfer rate" and "increased risk of hacking" although answers often referred to speed and hacking. Many candidates wrote about Wi-Fi range and obstacles to signals – these answers were not acceptable considering the scenario of a hotel room.

Question 13

This question was answered well. The full range of marks from 0 to 4 was seen. The most common mistake was to confuse 1 (incorrect = incorrect + 1) and 7 (number = number + 1). Occasionally, 2 and 6 were switched and 8 and 9 were switched. Some candidates need to improve their understanding of flow chart symbols so that they can spot statements which are either input/output, processing or queries.

Question 14

Despite the formulae being simple, candidates often put in the actual number or wrote words or made elementary errors. Rather than just give the formula, some candidates were still writing C3 = B2 rather than = B2. If the formula does not work then the mark is not awarded.

Question 15 (a)(b)

On the whole, this question was well answered in both parts. Some candidates need to improve their understanding of expert systems. The most common mistake in part **(a)** was to give some of the functions of an operating system.

Question 16 (a)(b)(c)

Most candidates were able to carry out the denary to binary conversion successfully. Although the majority of those who gave a correct answer in part **(a)(i)** also gave a correct answer to **(a)(ii)**, there were some candidates who only shifted the binary pattern 5 places left, losing them one mark.

Part **(b)** was usually answered well with a large number showing how they arrived at their answer.

In part **(c)**, only a minority of answers gave 1111 as the largest encryption key. Candidates needed to improve their explanations in part **(c)(iii)**.

Question 17(a)(b)

Many candidates gained full marks in part **(a)**. In some cases, the drawings of logic gates needed to be clearer as it was often difficult to distinguish between an AND gate and an OR gate. Some candidates also wrote the name of the logic gate inside their drawing so this helped in identifying the gate. There are still too many candidates giving 1-input AND and 1-input OR gates – consequently losing marks.

There were some totally correct answers in part **(b)**. However, some candidates needed to improve their understanding of the question as they wrote a description rather than a logic expression and lost all the marks. Those who did attempt a logic expression often provided a mix of "styles": (A IS 1) OR (B=1) AND. Good responses included algebraic expressions such as:

$$\bar{a} + (a+b) \cdot c$$

Question 18

Candidates showed knowledge and understanding of how to construct an algorithm to solve the given problem. There were relatively few flowchart solutions. Initialisation was usually given, as was some attempt at a loop. The input of both name and choice was often overlooked. Selection often failed but the incrementing of totals was usually present. Calculating and outputting of percentages was not given credit where candidates gave a shorthand version that was not very clear.

In some cases, candidates carried the errors shown in **Question 5** into this question, losing them at least two marks.

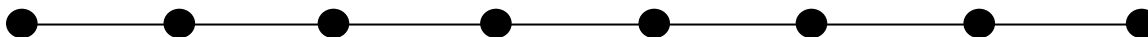# COMPUTER STUDIES

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COMPUTER STUDIES

Paper 0420/02
Project

General comments

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 relational database systems.

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 that Centres can make future improvements. It is hoped that Centres will act upon this feedback to improve the standard of any future coursework.

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 sample.

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. If 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.

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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.

Some Centres provided a framework/template for candidates to use. This can usually be considered as part of the normal teaching process, but candidates do need to complete each part of these frameworks/templates themselves. Marks can only be awarded for each candidate's own original work. Centres should also be aware that sometimes these templates can be restrictive and not allow the better candidates to provide the relevant detail often necessary for the higher marks.

Analysis

Section 1 **Description of the problem**

The problem definition section was usually 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 details of interviews and/or questionnaires. The better projects included sample documents with descriptions of their use in the present system.

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 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 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 for the method of solution.

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. Database relationships should be planned and tables, forms, queries and reports designed. Website plans should be drawn up and web pages, navigation bars, interactive features, etc. designed.

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 most 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. In order to achieve full marks, candidates have to code and annotate the complete solution themselves and this was rarely done.

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 successfully showed their test strategy in table format. A few candidates demonstrated no test strategy at all. Other candidates could not obtain full marks even with a comprehensive test strategy because this strategy was not linked to their objectives.

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

Most candidates provided evidence for the testing of normal and unacceptable data. Some candidates need to improve their understanding of the term 'extreme data'. Extreme data are chosen to be at the limits of the normal range, but are still acceptable data and therefore no error messages should occur. Aspects of functionality, such as data input and processes, should also be tested.

It is not necessary to include evidence for every single test especially where tests are similar. Careful selection of screenshot evidence to provide a reasonable variety of suitable examples for different types of testing is perfectly acceptable.

Documentation

Section 16 Technical documentation

The better candidates produced technical documentation which would enable maintenance or modification of the system by a competent technician. An index, together with suitable descriptions, annotated screenshots and printouts, were 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.

The inclusion of pages of software generated code is not suitable as technical documentation and should not be included in this section or elsewhere in the project.

Section 17 User guide

Many candidates provided excellent user guides which were both clear and complete. These often contained 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**

Many candidates mentioned some 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

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 web-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 Ferris wheel booking system described.
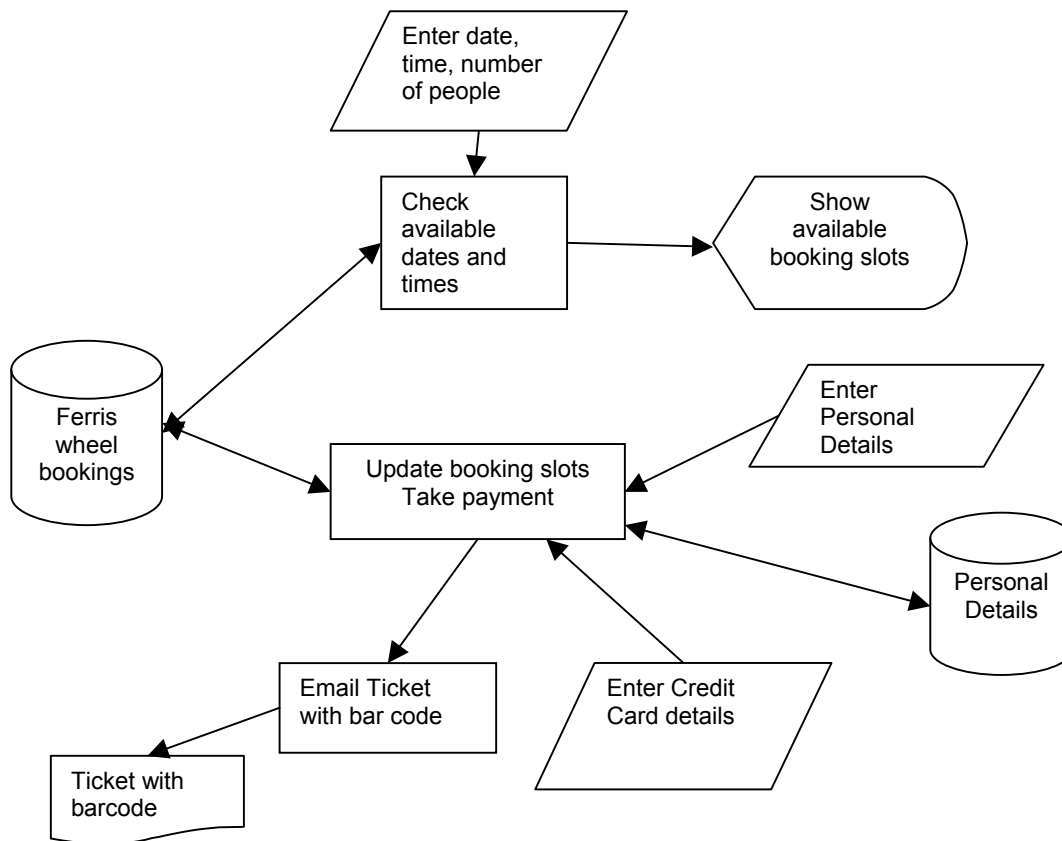
Candidates who did not use the information provided at the start of the paper about the computer-based Ferris wheel booking system could not obtain full marks for their answers.

Comments on Specific Questions

Question 1

(a)   Better candidates identified an appropriate type of software and supplied at least one correct reason for choosing it.

(b) (i)   Most candidates identified questionnaires as an appropriate method of fact finding from the people who had booked tickets, 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, 'Observation was not a suitable choice because many people used the telephone from their own home to book tickets so it would be both difficult and time consuming to arrange these observations in different locations.', would have been a suitable answer.

(c)   Many good screen designs were seen for online bookings using a smart phone.

(d)   Better candidates provide screen designs that showed an understanding of the description of the proposed system by just offering the next available time.

(e)   Most candidates provided a correct list of details.

(f) (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 system described at the start of this examination paper.

There were many ways of drawing a systems flowchart for the computer-based Ferris wheel booking system; the example below would have gained full marks.

(ii)   Most candidates could correctly identify three or four flowchart symbols that they had used in their system flowchart.

(g)   Many candidates were able to identify some steps the analyst had to take in order to secure the payments taken over the Internet.

(h) (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 Ferris wheel booking system.

(ii)   Most candidates gave at least one drawback to making this choice.

(i)   Some excellent responses were seen containing specific examples of test data that could have been used for the number of people in a single Ferris wheel pod booking, giving detailed reasons for choosing that data. Other candidates needed to be more specific in their answers as the question asked for examples of data that could be used to test the number of people, so examples of other test data were not creditworthy.

(j)   Most candidates attempted to write an algorithm to check the number of people in a booking. Both flowcharts and pseudocode were seen.

(k) (i)   Most candidates gave an advantage to people booking a Ferris wheel ride; the most popular correct advantage was the improved availability of the computer-based Ferris wheel booking system.

(ii)   Most candidates gave an advantage to the Ferris wheel Company; better candidates also gave a good description for full marks.

l) Few candidates' evaluation descriptions were applied to the needs of the computer-based Ferris wheel booking system. An example of an answer that would obtain full marks is 'The company could compare the number of Ferris wheel bookings using the old system and the new system over a given period of time to see if there has been a measurable increase. The company could also use a questionnaire to ask people who have used the computer-based booking system about its ease of use.'

CAMBRIDGE
International Examinations

COMPUTER STUDIES

Paper 0420/32
Alternative to Coursework

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 Internet-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 Internet-based booking system for tours of a famous author's house as described at the start of the paper.

Candidates who did not use the information provided at the start of the paper about the Internet-based booking system for tours of a famous author's house could not obtain full marks for their answers.

Comments on Specific Questions

Question 1

(a)   Most candidates correctly identified one or more reasons for using project management software to produce a Gantt chart to check the progress of the system development.

(b) (i)   Better candidates gave good reasons to explain why the systems analyst chose observation as a method of fact finding for staff taking telephone bookings. Weaker candidates incorrectly gave a description of the method rather than explaining why the analyst would have chosen this method.

   (ii)   Most candidates could give at least one correct reason to explain why the systems analyst chose the use of a questionnaire as a method of fact finding for people who made telephone bookings.

(c)   Many good screen designs were seen for online bookings using a smart phone.

(d)   Better candidates identified that an email address was required and could explain why it was needed.

(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 system described at the start of this examination paper.

   There were many ways of drawing a systems flowchart for the Internet-based booking system for tours of a famous author's house; the example below would have gained full marks.
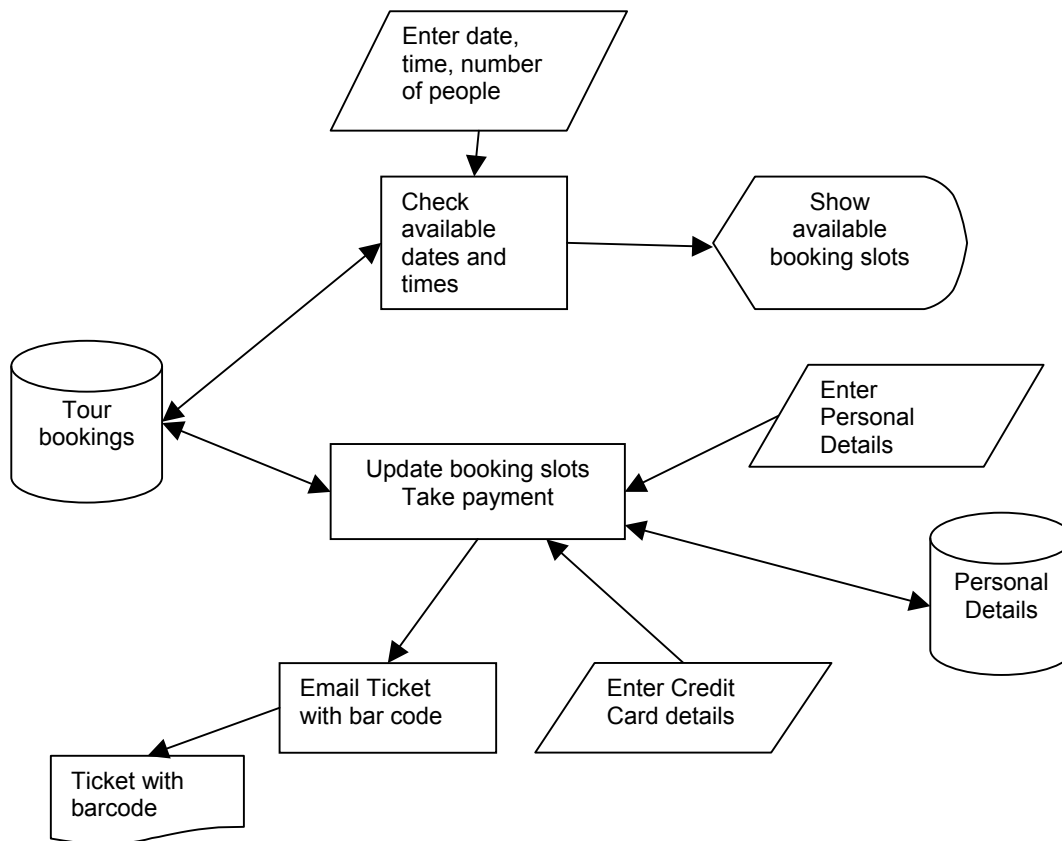
(ii)   Most candidates could correctly identify three or four flowchart symbols that they had used in their system flowchart.

(f)   Many candidates were able to identify some steps the systems analyst had to take in order to secure the payments taken over the Internet.

(g) (i)   Most candidates provided a good explanation of why the systems analyst would choose to buy "off-the-shelf" software for the Internet-based booking system for tours of a famous author's house.

(ii)   The majority of candidates gave at least one drawback to making this choice.

(h)   Some excellent responses were seen containing specific examples of test data that could have been used for the number of people in a tour group, giving detailed reasons for choosing that data. Other candidates needed to be more specific in their answers as the question asked for examples of data that could be used to test the number of people, so examples of other test data were not creditworthy.

(i)   Most candidates attempted to write an algorithm to check whether there were sufficient places left on a tour for the booking to be made. Both flowcharts and pseudocode were seen.

(j)   Most candidates could identify more than one type of testing. Better candidates gave a description that showed their understanding of the type of testing chosen.

(k)   Some candidates matched their choice of implementation to the Internet-based booking system for tours of a famous author's house and realised that some methods of implementation, for example, parallel running were not appropriate in this case. Few candidates gave reasons for choice that clearly related to the Internet-based booking system for tours of a famous author's house. An example of a creditworthy reason is 'The company chose direct implementation because the bookings needed to be immediately transferred to the new Internet-based system rather than asking people to use both the telephone and the Internet to make a single booking.'

COMPUTER STUDIES

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 web-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 Ferris wheel booking system described.
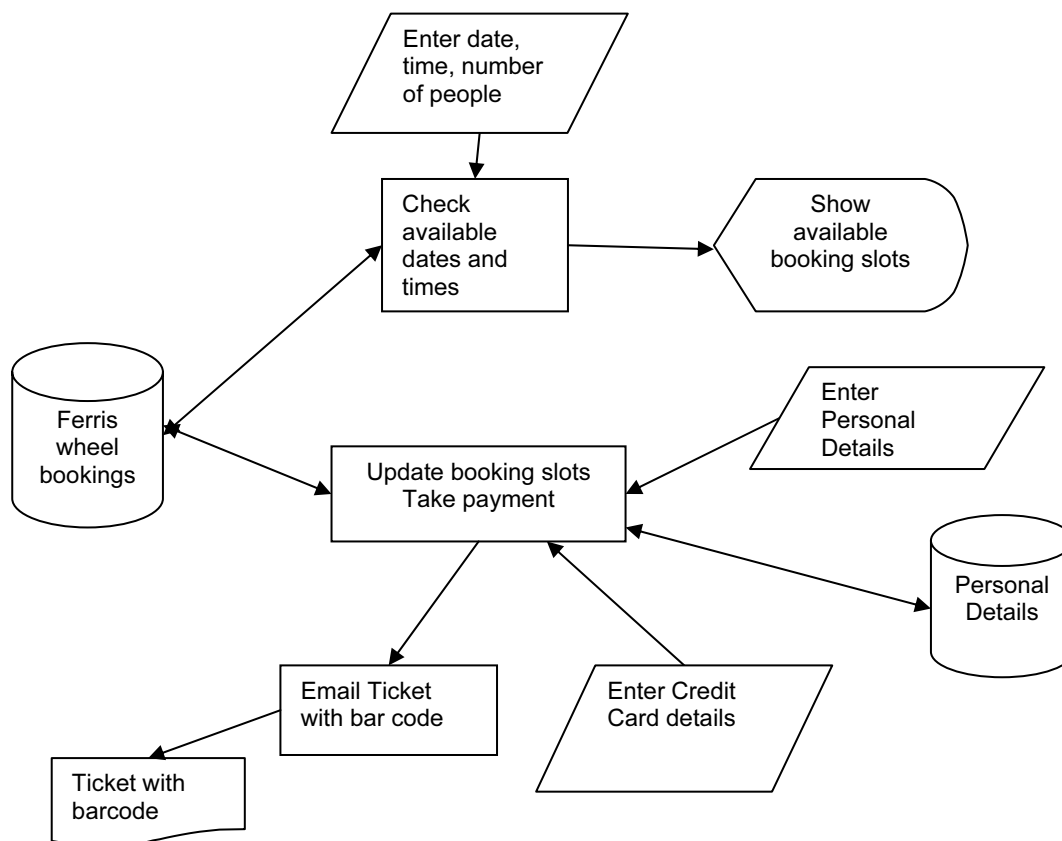
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Comments on Specific Questions

Question 1

(a)   Better candidates identified an appropriate type of software and supplied at least one correct reason for choosing it.

(b)(i)   Most candidates identified questionnaires as an appropriate method of fact finding from the people who had booked tickets, 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, 'Observation was not a suitable choice because many people used the telephone from their own home to book tickets so it would be both difficult and time consuming to arrange these observations in different locations.', would have been a suitable answer.

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use a questionnaire to ask people who have used the computer-based booking system about its ease of use.'