COMPUTER STUDIES

Paper 0420/11

Paper 11

General comments

The standard of candidates' work was similar to that shown in June 2011. As with 2011, there are still areas where improvements could be made, but the overall standard proved again to be more than satisfactory. Two areas in particular where candidates continue to be weak are an understanding of how websites work and questions which involve understanding why some of the stages in systems analysis are carried out.

However, questions involving trace tables and logic circuits proved to be very successful indicating some very sound teaching into the basic principles required for these topics.

There is also a continued move towards more understanding and application of the syllabus topics rather than just rote learning definitions; this has manifested itself by questions just requiring definitions being less well answered again this year. This is a change in direction that should be welcomed and Centres should continue to build on this in future years.

Comments on specific questions

Section A

Question 1

Candidates answered this question well where they had to choose hardware devices for different communication methods.

Question 2

This was generally satisfactory; although ways to prevent phishing were not particularly well known. Also, many candidates just wrote *passwords* in the last part – this needed a little expansion to indicate where the passwords should be employed. A number of candidates wrongly believe that encryption prevents hacking.

Question 3

(a) A number of candidates wrote "surveys" or "speak to the users" – both of these answers are too vague since they are not specific enough (e.g. is the survey a questionnaire or an interview OR when speaking to users is this an interview or whilst watching them doing their work?)

(b) Not very well answered with many candidates just describing questionnaires or interviews and showed little idea of why these methods would be chosen. This continues to be a weak area.

Question 4

(a) The answers to this question were generally very satisfactory. However, there were some very vague answers such as "use slides" or "use information from a website"; the first answer needed some expansion such as use *slide transitions* and the second answer also needed some expansion such as *use (hyper)links to other websites built into the presentation.*

(b) Again this was generally satisfactory. But common answers such as "less expensive" needed some justification to gain any marks (e.g. no need to spend money on printing ink and paper or no need to pay to have newsletters distributed).

Question 5

There were a number of ways to do this question. The most elegant solution was to use REP ENDREPEAT, but this was not essential to gain all the marks. The most common errors were to use 45 (instead of LEFT 90) in the middle section when drawing the square and also in the final RIG statement; it was common to see RIGHT or LEFT 45 instead of RIGHT 135.

Question 6

(a) The full range of marks was seen here. Several candidates ignored the first box in the flowchart which initialised the variables C, L, N, S and T. It is essential that all values, including any initialisation, are shown in the trace table or full marks can not be awarded.

(b) Oddly enough, many candidates who got several columns in part **(a)** wrong somehow managed to give all the three correct output values. Usually, if a candidate scored highly in part **(a)** they gained full marks in this part as well.

Question 7

(a) There were many general answers such as "shows what a bedroom looks like" or "the map gives the location of the hotel"; the only part that was reasonably answered was the section on *room bookings online*. These questions about websites continue to be poorly answered by candidates. Very few referred to *hot spots* in the first two parts of the question which allow users to freely move around the hotel or, by hovering over one of these "hot spots" on the interactive map, it is possible to automatically see information about the area selected or be directed to another web page.

(b) This was slightly better answered; but again some very general answers such as "customer feedback on their stay" or "number of rooms in the hotel" just did not answer the question.

Question 8

(a) Many candidates gained full marks. However, there were some common errors:

- SUM (B2 * D2) + (C2 * E2) – which does not work since extra brackets are needed around the whole of the mathematical part of the formula
- for some reason, candidates continue to believe that use of the word SUM is needed in any formula that involves a + or a – sign
- again marks were lost for using "x" instead of "*" in the formulas

(b) This was generally well answered. It was fairly common to see SUM (B2 * 4) or MAX (B2 * 4) – whilst these are not very elegant ways of writing the required formula, they do work and full marks were awarded accordingly.

(c) This question was good for 1 mark in many instances; several candidates got the first part of the answer (e.g. (F2 – G2)) but did not indicate the result of applying their suggestion (e.g. if result is positive then limit exceeded).

(d) Candidates showed understanding of the advantages of using a macro in a spreadsheet.

Question 9

(a) Generally satisfactory; some of the suggested sensors would not work in this scenario (e.g. light sensor). Candidates should consider more carefully the application before deciding on which sensor to suggest.

(b) The only possible answers here were *time (of day)* and *date*. Many candidates obviously just looked at the graph and suggested time period and number of cars/vehicles. Each record would only contain time and date so that the graph could be produced as required from the collected data.

(c) Many candidates ignored the stem of the question which asked for "OTHER f automatic data capture" and gave types of sensor! Since these were already mentioned credit could not be given in this part. There were quite a few vague or incorrect answers g barcodes – used in supermarkets/shops/libraries (more information is needed e.g. used in control); MICR – used to read credit cards (obviously confused with bank cheques).

Question 10

(a) Candidates were able to give a benefits and drawbacks of Internet banking.

(b) This was rather badly answered; the reason is to simply stop hackers getting ALL of the PIN digits! Many candidates just described why PINs are used to protect the user account.

(c) **P**art **(i)** was answered well. The most common error in part **(ii)** was to suggest that the algorithm was a range check (presumably >9999 or <100000). But this clearly was not what the algorithm was checking for; the repeated division by 10 on line five was a check on the length of the number input.

Question 11

(a) This question part was answered well.

(b) There were some good answers in part **(i)** with several references to cross-checking previous weather data or to an expert system. Part **(ii)** was not as well answered. Many candidates referred to drawing charts or graphs rather than weather maps with isobars or animation effects (as on television weather reports).

Question 12

(a) This was reasonably well answered; but a common error was to suggest a logic gate which did not tie up with the truth table set out in part **(i)**.

(b) Very well answered with the full range of marks seen.

Question 13

(a) This question part was answered well.

(b) This question part was answered well.

(c) This question part was answered well.

(d) This question part was answered well.

Question 14

(a) A surprising number of candidates still gave 9 as the answer (which is the number of records and not the number of fields). Other numbers ranging from 6 to 63 also appeared.

(b) This was well answered. However, some candidates did not read the question properly "*using **Element Symbol only*** ….." and gave the answer as Mercury and Caesium.

(c) Again well answered. Some candidates did not follow the correct syntax and forgot to put quotes around the word "solid" (or 'solid').

(d) Generally well answered again. The most common errors were to confuse ascending and descending or to miss out one of the 9 elements.

Question 15

(a) Some candidates misunderstood the drinks selection table and tried to squeeze 20 into bo 23 into box 2. Apart from that, the question was well answered.

(b) This question part was answered well.

(c) This question part was answered well

(d) (i) This was answered reasonably well. The most common error was to give 42 or fizzy water as the answer – this was the example given at the beginning of the question.

(ii) This question part was answered well.

(iii) This was very poorly answered. Many candidates suggested that using two 3-bit registers was easier for the computer or that fewer mistakes would be made when making drink selections. In fact, all it does is increase the number of possible rows in the selection i.e. 0 to 77 rather than 0 to 63.

Question 16

This was very well answered with a full range of marks being seen. There were one or two variations possible, but these were all accepted as long as the logic was correct.

The flowchart was modelled on a real multi-storey car park in use and the majority of candidates fully understood the process that takes place.

The majority of candidates were able to make some attempt at a solution.

Question 17

Again a full range of marks was seen in this question. The candidates found this algorithm slightly less challenging than the one on paper 12; although both algorithms measured similar skills. Very few flowcharts were seen; the majority tried to write the answer in pseudocode.

COMPUTER STUDIES

Paper 0420/12

Paper 12

General comments

The standard of candidate's work was similar to that shown in June 2011. As with 2011, there are still areas where improvements could be made, but the overall standard proved again to be satisfactory. Two areas in particular where candidates continue to be weak are an understanding of how GPS technology works and questions which involve the monitoring and control of processes using sensors and microprocessor.

However, questions involving trace tables and logic circuits proved to be very successful indicating some very sound teaching into the basic principles required for these topics.

There is also a continued move towards more understanding and application of the syllabus topics rather than just rote learning definitions; this has manifested itself by questions just requiring definitions being less well answered again this year. This is a change in direction that should be welcomed and Centres should continue to build on this in future years.

Comments on specific questions

Section A

Question 1

This was generally satisfactory. The only common mistake was to write SYSTEMS analysis instead of the term "analysis". Systems Analysis is the over-arching term used to describe the **whole** system life cycle.

Question 2

This question was not generally well answered. There were many references to costs which were not really substantiated by the candidates, thus not gaining full marks. The most common error was to give an advantage in the first part of the question and then refer to the same point as a disadvantage by just giving the opposite argument in the second part. Since these are basically the same point (with one simply reversed) credit can only be given once.

Question 3

There were some good answers to this question; but equally there were some very poor answers. Many candidates homed in on hacking as a security risk (correctly) but then went on to give two or three reasons why hacking is a security risk – basically they were just making the same point two or three times and consequently did not gain more marks. Some candidates also gave methods of preventing or reducing the security risk (which was basically correct to do so), but did not indicate anywhere what issue was being guarded against e.g. *use a firewall* but made no mention of the security issue for which this was a solution.

Question 4

(a) This question was well answered; the only real error was to confuse ink jet printers with laser jet printers.

(b) Not well answered at all with many candidates just repeating what was already given to them in part **(a)**. Several candidates were confused by 3D printers and thought they produced a 3D image on paper. Many candidates correctly indicated that laser printers were very fast in operation but did not explain the implications of this – i.e. they were fast when VOLUME printing was required.

Question 5

(a) This was generally well answered. A whole range of answers were given.

(b) Many candidates ignored the word OUTPUT in the question and gave input devices such mouse, light pen, touch screen and keyboard. A surprising number confused CAD with virtua reality and named devices such as 3D goggles, helmets and data gloves.

(c) This question was very poorly answered. The following is a list of common errors seen throughout the responses given by candidates:

- many candidates wrote "using a computer gives RSI" but NO mention of why (for example, repeated clicking of the mouse or continuous typing using a keyboard)
- it was very common to see "using a computer for a long time gives the user headaches or eye problems" – again no mention of why this happens e.g. glare from the screen, bad lighting cause screen reflections or staring at a monitor for a long time without taking breaks
- a surprising number of candidates (more than half) confused safety risks with security risks and mentioned hacking, viruses, phishing, and so on
- a significant number of candidates also thought safety risks were solutions to the health risks mentioned earlier on – consequently, answers such as *use an ergonomic keyboard, take regular breaks,* and so on were also very common "safety risks".

Question 6

(a) This was generally well answered; but many candidates ignored the first box in the flowchart which initialised variables M, T, S and C. This was unfortunate since this was an avoidable error. Candidates MUST write down all the values assigned to variables in the flowchart including any initialisation which takes place.

(b) Only a small number recognised that the flowchart converted binary (base 2) numbers into denary (base 10) numbers.

(c) Considering how badly part **(b)** was answered, a surprising number came up with the correct answer of 60. One can only assume that the majority who got this right simply did another trace table for the binary input of 111100.

Question 7

(a) Parts **(i)** and **(iii)** were well answered. There were some good answers in part **(ii)** with many references to the knowledge base and inference engine. Many of the better candidates also correctly indicate that the expert system would ask additional questions to pin point the problem.

(b) This question did not cause any real problems. However, several candidates ignored the stem of the question and gave user interface as one of the expert system parts.

(c) Many candidates just described what RAM and ROM were; which did not answer the question which asked for the USES of these two types of memory. Also a surprising number thought MP3 players used ROM memories since the songs were retained when the device was switched off. A small amount of confusion is indicated here. This is not the first paper where this misconception has appeared; it is only possible to guess that the confusion stems from the use of EEPROMs when describing solid state/flash memories.

Question 8

(a) Generally well answered. Common errors were: missing brackets around C2 * C2; writing $B2/C^2$ instead of B2/C^2. The use of "x" instead of "*" is not correct and candidates using "x" can not gain full marks.

(b) Part **(i)** was well answered. Part **(ii)** was generally well answered; common errors were: missing brackets in formulas, use of AVG instead of AVERAGE and use of the formula AVERAGE(D2:D7)/6. In part **(iii)**, marks were missed for not writing the "=" sign (candidates were asked to replicate the given formula), use of E8 instead of D8 and in the second bracket: D2 > 25.

(c) Well answered. It was still common to see the use of "x" instead of "*" (as in part **(a)** ... see 20(C2 * C2) – the multiplication sign between 20 and the brackets missing.

Question 9

(a) This was reasonably well answered; but applications of barcodes were often far too vague: *used in supermarkets, used in libraries* – to do what? There needed to be some mention of automatic stock control or how barcodes are used in the borrowing of books. RFID was very often described as a device for tuning in the channels on a radio.

(b) There were some good answers here but many candidates' responses were too vague. For example, length check – to see if number is correct length (very vague - some example should be given to illustrate the point); range check – see if number is < 100 (range checks need BOTH ends checking e.g. >0 and <100). Some candidates confused length checks and range checks.

Question 10

(a) There was the whole range of marks here; many candidates gained full marks.

(b) This was also generally well answered; but some candidates gave truth tables that did not match up with the named logic gate.

Question 11

(a) This question was good for two marks in the majority of cases. There are still too many candidates who think that it is the sensors that control the process. For example, *the pressure sensor detects a burglar and it sounds the alarm* – no mention of the pivotal role of the microprocessor.

(b) Generally well answered.

(c) Generally well answered.

(d) Some candidates suggested one way to stop false alarms would be to only switch the system on at night. It would be fair to say that such a response misses the point of the question. The best methods are to increase the set limits on the computer or have more than 1 sensor so the microprocessor needs at least 2 sensors to detect a burglar before any action is taken.

Question 12

(a) There were some very good attempts at the two calculations. However, several candidates rounded their (correct) answer in part **(i)** too early and gave 2.8 Mbytes (full answer: 2.8125 Mbytes). Consequently, their answer in part **(ii)** was incorrect due to the rounding error. This cost them only 1 mark but was a needless loss of marks. However, a number of candidates showed no working at all. If they got the correct answer this was not really a problem. But candidates who gave an incorrect answer gained no marks at all since no credit could be given for their attempt as there was no working out shown at all.

(b) This was generally badly answered. Only a handful of candidates gained 2 or 3 marks. Many said this was an example of multi-tasking and totally missed the point of the question. Several candidates suggested that a video/DVD recorder was plugged into the television so that the programme could be recorded at the same time as another programme was being watched.

Very few mentioned the use of a hard disk pack with separate read and write heads and even fewer referred to DVD-RAM which has concentric tracks allowing simultaneous read and write operations to take place.

Question 13

(a) This question part was answered well.

(b) This question part was answered well.

(c) This question part was answered well.

(d) This question part was answered well.

Question 14

(a) Too many candidates wrongly think that the GPS (sat nav) in the ship SENDS signals TO the satellites and the satellites then send signals back to the device telling them its location. That said, answers to this type of question are slowly improving with some candidates even gaining full marks.

(b) This was not well answered at all. Many candidates thought that the GPS system warns of storms ahead or other ships in its path. The GPS system can only warn of pre-stored hazards such as rocks or known dangerous areas.

(c) The final part of the question was reasonably well answered.

Question 15

Candidates found the algorithm on this paper quite challenging and very few (except the better candidates) recognised the need for nested loops (either by for ... to loop or repeat … until or while ... endwhile). However, a full range of marks were seen.

Attempts at using flowcharts to solve the problem were generally very poor.

COMPUTER STUDIES

Paper 0420/13

Paper 13

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Candidates answered this question well where they had to choose hardware devices for different communication methods.

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This was generally satisfactory; although ways to prevent phishing were not particularly well known. Also, many candidates just wrote *passwords* in the last part – this needed a little expansion to indicate where the passwords should be employed. A number of candidates wrongly believe that encryption prevents hacking.

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COMPUTER STUDIES

Paper 0420/02

Project

General comments

The coursework projects consisted of a wide variety of suitable topics with most Centres basing the work around the construction of a database.

Centres will need to obtain the centre-specific individual moderation report for details of their candidates' performance and the Centre's assessment of the projects. Moderators try to provide quality feedback on these reports in order that Centres can make future improvements. Many Centres acted upon last year's feedback to improve the standard of the candidates' work, but other Centres seemed to ignore it.

Centres should avoid submitting coursework of excessive quantity. The coursework can easily be produced in fewer than 100 pages and it is strongly recommended that reports should not consist of more than 250 pages. Most Centres find that each candidate's coursework can be secured by the use of a treasury tag and there is certainly no need to use expensively bound embossed folders.

Teachers should encourage candidates to choose the content of each project carefully. Candidates should aim for quality over quantity. Only the evidence necessary to demonstrate that each assessment criterion has been met should be included.

Whilst candidates may well benefit from performing various exercises such as producing a feasibility study, there is no need to include it in the final project as no marks are allocated for it. Similarly it is pointless including any software generated code (such as that produced by Microsoft Access Database Documenter) since no marks can be awarded for this. The evidence presented should aim to illustrate how the criteria have been achieved.

Administration

The vast majority of the coursework was received by the due date. It causes some considerable problems in the moderation process where Centres do not meet this deadline or do not include the correct paperwork. The Individual Candidate Record Card, the Summary Sheet and the MS1 mark sheet should all be included with the coursework. Without these documents it is possible that delays in issuing results may occur.

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 locate more easily the evidence in each candidate's work. The Summary Sheet should be accurately completed and the Centre is advised to keep a copy for future reference. A copy of the MS1 mark sheet should clearly list each candidate's marks. Centres should ensure that the marks have been correctly transcribed between the various documents.

Most Centres followed the instructions for providing a moderation sample. The only occasion when the entire entry's coursework should be submitted to the Moderator is when there are 10 or fewer candidates entered in total. Otherwise Centres should submit a sample of the candidates' coursework. It is essential that Centres follow the instructions for the selection of this sample in order to ensure that candidates are not unfairly penalised. The sample should include the full range of marks that have been awarded by the Centre and therefore the coursework of the candidates with the highest and lowest marks should always be selected.

Electronic data media (such as CDs, DVDs and flash drives) should not be submitted to the Moderator. All evidence should be paper-based.

Although the syllabus states that disks should not be sent with the projects, it is advisable for Centres to make back-up copies of the documentation and retain such copies until after the results query deadlines. Centres should note that on occasions coursework may be retained for archival purposes.

Training

CIE offer training to Centres in a variety of forms. There are distance-learning packs where teache given examples of good practice, and then required to complete a coursework marking exercise tha submitted for assessment. There are online training courses, where teachers take part in online exercises and have the opportunity to discuss issues with the trainer directly online. Finally there are in-country, face-to-face training courses offered. Please contact Cambridge International Examinations for details on all training offered.

Internal Moderation

If more than one teacher in each Centre is involved in assessment then arrangements for internal moderation should be made to ensure that all teachers are marking to the same standard. The teaching groups should be clearly listed on the Summary Sheet.

Assessment

There were many examples where the standard of assessment by Centres was reasonably accurate and those Centres are to be commended.

Some Centres awarded marks where there was no relevant evidence in the documentation. There were also occasions where a higher mark had been awarded than that warranted by the work submitted. It should be noted that the marks for each section are progressive i.e. candidates can only gain a higher mark once the lower mark is obtained. If the evidence is not present for the lower marks then higher marks cannot be awarded. A few Centres seemed to demonstrate little awareness of the actual standard required.

It is important to realise that the 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 from their proposed solution.

It is recommended that candidates make use of appropriate annotated screenshots as evidence and include these in their documentation. Screenshots without explanation serve little purpose and should not be included.

The standard of presentation and the structure of the documentation were usually of a very high standard. The better projects structured their documentation around the broad headings of the assessment scheme and included a contents page.

Some Schools obviously provide a framework/template for candidates to use for some areas of their documentation. This can usually be considered part of the normal teaching process, but the candidates do need to complete each of the sections in their own words. 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 detail often necessary for the higher marks.

Unfortunately there were still some instances of suspected malpractice. The submitted projects must be the unaided work of each and every candidate.

Choice of Task

There was a great variety of well-chosen projects 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 this 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. Candidates should therefore really undertake tasks which are realistic rather than trying to create systems intended for large corporations.

Centre assessment

The assessment criteria are clearly stated in the syllabus. There are many Centres that underst interpret these assessment criteria correctly and consequently award marks accurately for each of sections. Each section is progressive i.e. a candidate must evidence the 1 mark criterion bef consideration is given to the 2 mark criterion. If there is no paper evidence for this criterion then no marks can be awarded.

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 of the work as a whole. The business-related objectives and the computer-related objectives are best considered separately.

The better candidates provided detail and justifications for each of their objectives and stated their objectives in relation to their own specific proposed solutions. Generic objectives which could apply to any solution gained no credit.

It is advisable to number the objectives. 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 these objectives. Evidence justifying any assertions made can then easily be found.

The computer-related objectives set here are those objectives which are to be tested in ***sections 14*** and ***15***.

Section 3 Description of the existing solution

Most candidates managed to provide an appropriate description although it was rare to see a full and complete description containing all the details necessary for full marks as listed in the specification. For maximum marks candidates should really provide evidence of exactly how the present solution works. The inclusion of sample documents used in the present system, with adequate explanations, would go some way to satisfying this requirement.

Section 4 Evaluation of the existing solution

Most candidates managed to provide an evaluation although this was often incomplete.

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. As this is an evaluation of the existing solution it is important that explicit reference is made to this system – generic comments are not creditworthy.

Section 5 Description of other possible solutions

The few candidates who failed to describe the proposed solution gained no marks. Most candidates provided reasonably detailed descriptions which were relevant.

Design

Section 6 Action plan

Candidates often produced some good Gantt charts to supplement their detailed formal action plans. Some Centres mistakenly awarded full marks for the production of a Gantt chart alone. For the full 3 marks to be awarded it is still necessary to provide the detailed (formal) action plan, including time schedule, required for 2 marks as well as a Gantt chart.

A detailed action plan should consider more than the time to be spent on each of the areas ch the specification – analysis, design, implementation, testing, documentation, evaluation a development. Each of these areas should be subdivided to create more detail.

Section 7 Systems flowchart

A considerable number of candidates failed to achieve any marks in this section because they did not produce the necessary systems flowchart using the correct symbols as defined by the British Computer Society.

Data flowcharts, program flowcharts, document flowcharts, dataflow diagrams and structure charts are not creditworthy in this section as they are not systems flowcharts.

Section 8 Description of the method of solution

Some candidates did not appreciate that this section is part of 'design' and mistakenly included sceenshots of their final completed solution. It is in this section that candidates should be describing in detail what they are going to do.

Section 9 Hardware

Candidates often produced generic lists of hardware with no explanations and, apparently, no thought as to why each specific item is required in their solutions. The choice of hardware should be justified in the context of the system being developed.

Section 10 Software

As for Hardware above, candidates rarely provided any relevant justifications for their choice of software.

Implementation

Section 11 Method of solution

This is where candidates put into practice what they have said they are going to do in ***section 8***. This section was often done well with candidates usually providing full descriptions supplemented by suitably annotated screenshots.

Section 12 Accurate method solution

Many candidates provided full evidence by listing each of the previously stated computer-related objectives with associated annotated screenshot(s). Other candidates, quite acceptably, referenced their objectives to evidence found elsewhere in their reports.

Where there was no evidence to indicate that any objectives had been met then no marks could be awarded.

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.

Rarely were three marks available as candidates have to code and annotate the complete solution themselves in order to gain these marks. The inclusion of computer-generated coding gains no credit in this section, even if it is annotated.

Testing

Section 14 Test strategy

Some candidates achieved very good marks on this section. These candidates tended to provide one more tables with columns which included:

- An outline of the type of test
- The data to be input
- The type of data
- The expected outcome
- The objective covered
- A reference to the location of the evidence

For maximum marks the test strategy should cover all of the computer-related objectives previously set in ***section 2*** and the tests need to be clearly linked to these objectives.

Section 15 Test results

Most candidates managed to provide evidence for the testing of normal and unacceptable data. A few candidates provided no evidence at all and therefore could not be awarded any marks.

Many candidates did not provide evidence of testing for boundary (extreme) data because they often appeared to misunderstand what constitutes boundary data and therefore could not access more than 3 marks. Boundary data are chosen to be at the limits of the normal range, but are still acceptable data and therefore no error message should occur.

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 often provided by these candidates.

The inclusion of computer-generated coding is unnecessary and gains no credit in this section.

Section 17 User guide

Many candidates provided excellent user guides which were both clear and complete. These often contained full descriptions and appropriate screenshots.

System Evaluation and development

Section 18 Evaluation

Most candidates managed to provide a reasonable evaluation, but often did not link their evaluation to their previously stated objectives and also to their testing.

Section 19 Developments

Most candidates mentioned some possible minor improvements. Some candidates listed realistic and meaningful possible developments, but these were rarely justified or explained.

COMPUTER STUDIES

Paper 0420/31

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 computer-based system. It is really important that the candidates carefully study 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 Holiday Park Activity Booking system described.

Candidates who did not use the information provided at the start of the paper about the Holiday Park Activity Booking system could not obtain full marks for their answers.

Comments on Specific Questions

Question 1

(a) Many candidates correctly identified a Gantt chart, a PERT chart and either Project Management software or spreadsheet software as tools that could help the analyst monitor and track project progress.

(b) (i) and (ii) these parts of the question identified two methods of fact finding and who the methods would be used for. The best answers explained why each method was chosen for that group of people. Weaker answers only explained how the method was used. Candidates needed to explain why; for example 'Questionnaires were chosen to ensure that all the guests were asked the same questions so that the responses from many guests could be analysed to give meaningful results.' would be a suitable response.

(iii) Generally well answered.

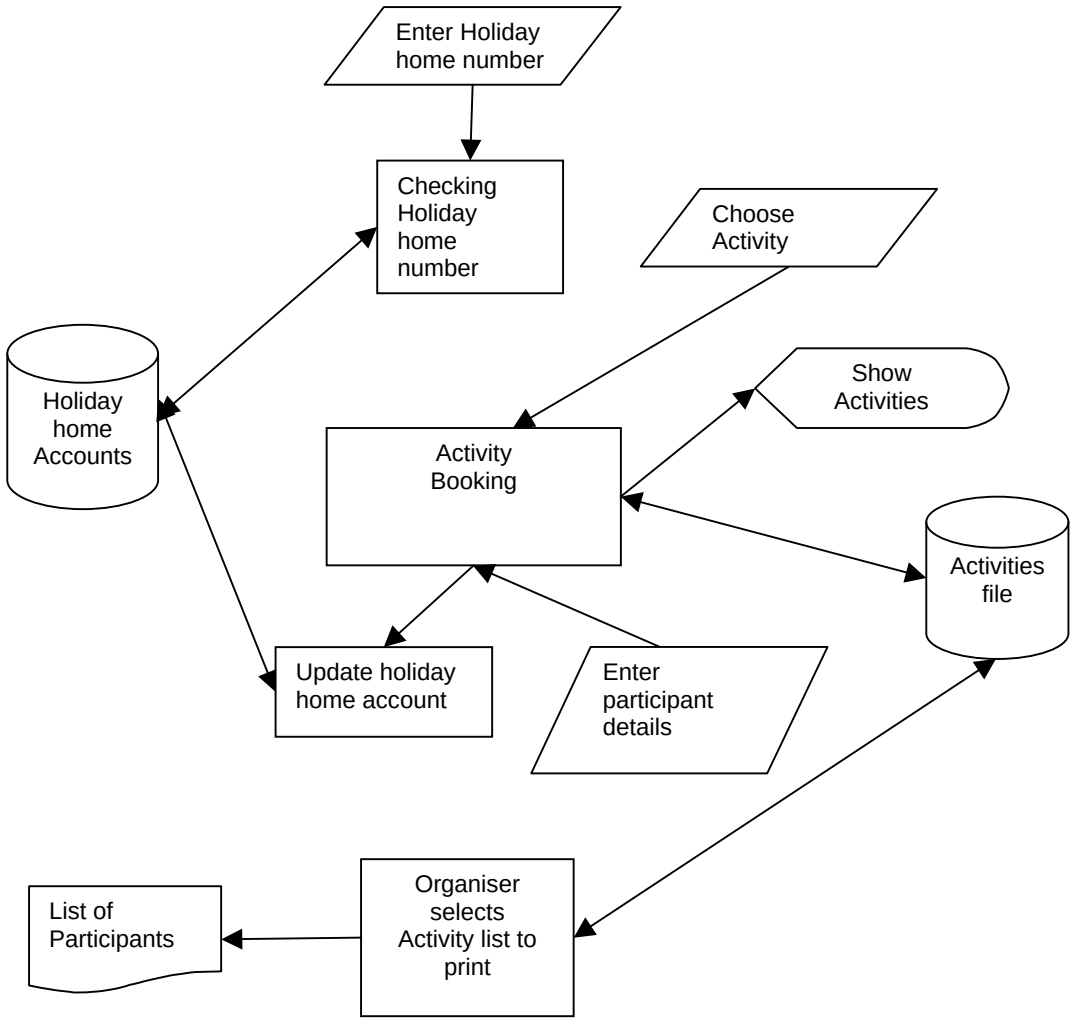
(c) The best candidates correctly identified two items of hardware that would be needed to connect computers to the wireless LAN. Weaker candidates incorrectly wrote about access to the Internet. Candidates need to answer the question set; those who had prepared an answer for a different question rather than the one on the paper could gain little credit.

(d) (i) and (ii) Most candidates drew redesigned screens; many improvements were seen that made the new designs user-friendly. Better candidates explained what each change was and why it was an improvement. Weaker candidates only identified the change made. Some candidates needed to focus more on making the existing screen user-friendly rather than changing it to perform another task.

(e) Most candidates could draw three of the four flowchart symbols asked for. The sort symbol was the least well known.

(f) Better candidates provided excellent responses for this part of the question that showed a clear understanding of how the proposed system could work. Candidates need to take care not to include processes, data stores, inputs and outputs that relate to previous or specimen examination papers.

There were many ways of drawing a systems flowchart for the Holiday Park Activity Booking system; the example below would have gained full marks.



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(h) The best candidates provided a good explanation of why the systems analyst would choose to employ a programmer to write bespoke software for the new computer-based Holiday Park Activity Booking system. Weaker answers were not written in the context of the Holiday Park Activity Booking system.

(i) Some excellent responses contained specific examples of test data that could have been used, for the number of participants, and gave 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 participants, so other examples of normal data or abnormal data or extreme data were not creditworthy.

(j) There were some excellent responses to this question that showed a clear understanding of what should be included in a User Guide and why it should be included. Other candidates could identify items to be included and describe them but omitted to give a clear reason that explained why the item was included.

(k) Most candidates could identify three advantages of a new computer based system. Some candidates needed to focus their answers on how these would be advantageous for the Holiday Park Activity Booking system.

(l) The best answers described two ways in which the new system could be evaluated. Some candidates need to describe the way the evaluation process can be achieved rather than the evaluation process itself.

COMPUTER STUDIES

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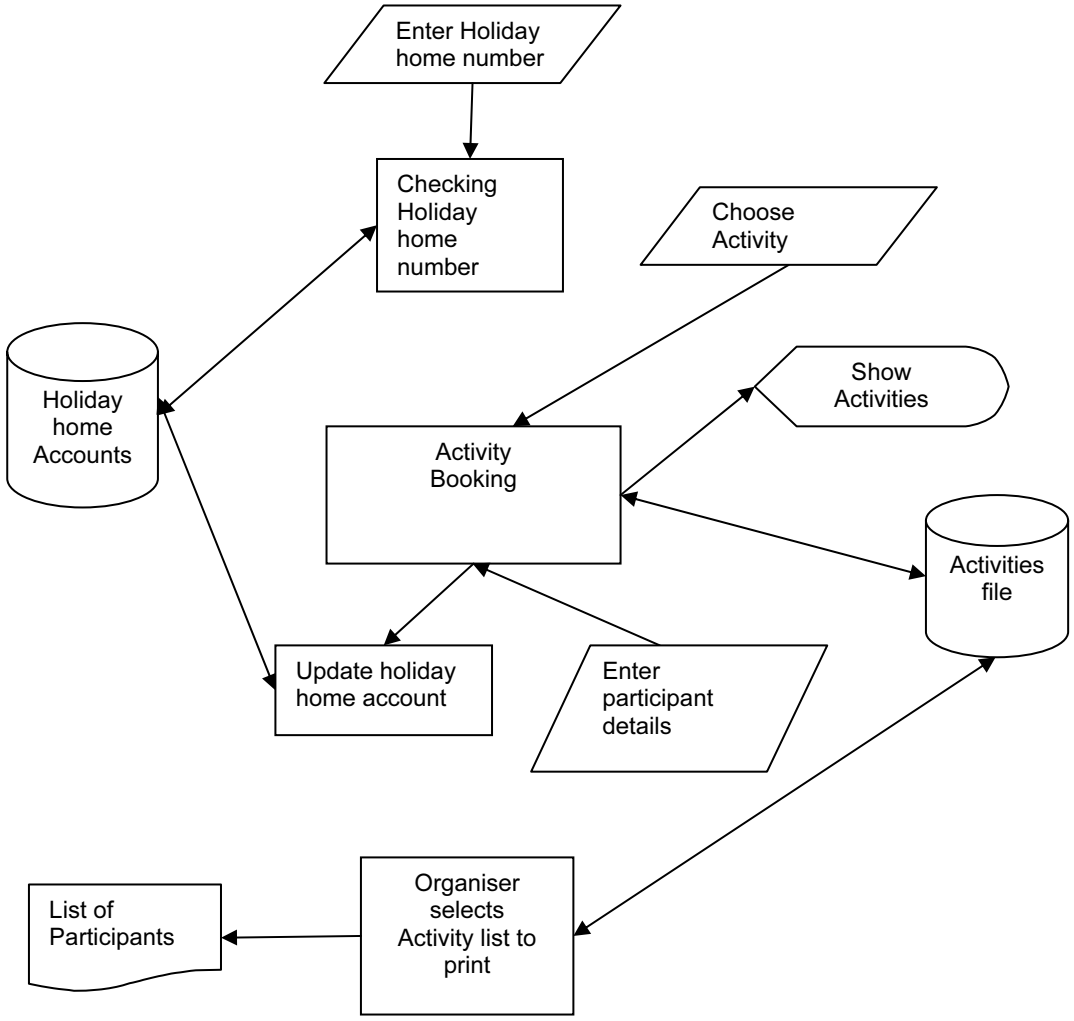

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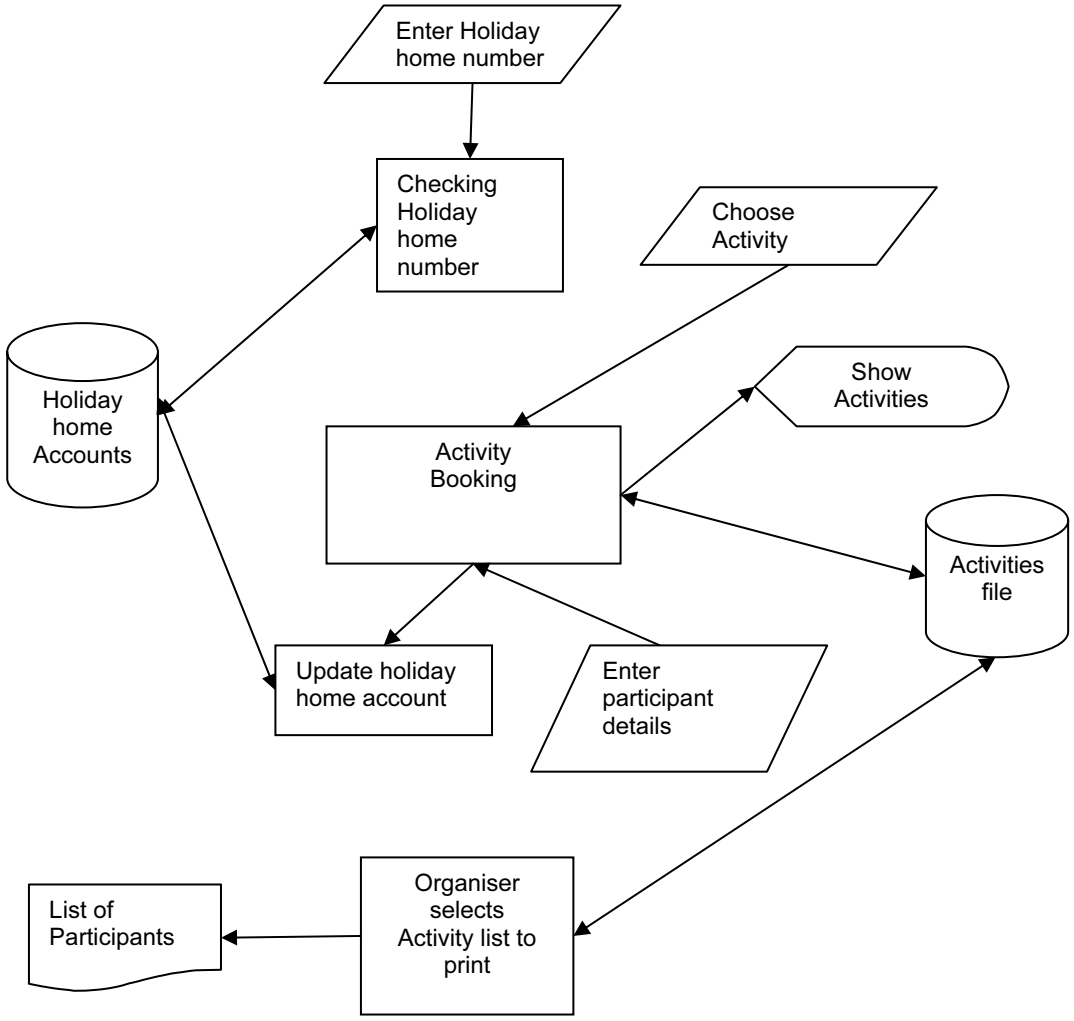

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