

Mark Scheme with Examiners' Report GCE O Level Computing (7105)

June 2005

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Mark Scheme with Examiners' Report

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COMPUTING 7105, MARK SCHEME

Section A

1. (a) (i) stock code, supplier, item, price 1
(ii) any complete line of data from the table 1
(iii) key field / unique identifier only 1
- (b) (i) a particular item is sold (out) / no longer in stock or available for sale 1
(ii) name change / price change / mistake in entry etc. 1
(iii) a new stock item is available / returned goods back to stock 1
- (c) open database/table }
query/search the database } max. 4
with item field }
search criteria (**must** be surf board) }
list/report produced } 4

Total 10 marks

2. (a) (i) prices can change - would have to change bar code label 1
(ii) price would be in the computer file linked to item code / item code on bar code etc. 1
- (b) (i) eg shorter queues }
itemised bills }
accurate bills } any two
quicker data entry }
variety payment methods } 2
- (ii) eg less crime }
increases security }
automated stock order }
up-to-date sales information / buying patterns }
fewer staff } any two
fewer errors or more accurate/quicker with reason }
more profit with reason }
easier to change product details }
no need to price products } 2

Total 6 marks

3. (a) different word processing package / operating system
 nothing saved / corrupt files
 virus / mechanical damage to disk
 sees different fonts / clipart on college machine
 unable to open file
 no floppy drive on computer
- } any three
- 3
- (b) depends on answer in part (a) - must be linked
 clear link 1
 reasonable solution to their problem 1

Total 5 marks

4. Many acceptable answers:

- eg file handling
 memory allocation
 security / accessibility
 manage CPU / input / output
 running programmes
 provides user interface
 system messages
 multi-tasking / multi-user
- } function (1 mark) and description (1 mark) for any two
- 4

NOT GUI related answer

(must be full answer for four marks)

Total 4 marks

5. (a) Any acceptable sensors (there are many sensible ones):
- photo cell
 magnetic switch
 PIR
 sound sensor
 pressure pads etc.
- } any two
- 2
- (b) sensible answers only - triggered by pet breaking light beam etc. 2
- (c) answer must relate to part (b), eg using 2 sensors activated 2

Total 6 marks

6. (a) travel agents are connected to the computer system / Internet /
 World wide web / database etc. 1
 OR immediate connection to the booking system
- (b) (i) eg clients require immediate answer of availability 2
 (ii) real-time processing 1

- (c) title/logo/identifier 1
 exit/submit 1
- look for four data areas: room / client / payment / stay
 four areas shown 2
 (three areas shown = 1 mark)
- two features that help data entry eg drop down list / radio
 buttons / tick boxes 2

maximum 4 marks if not a screen form

Total 10 marks

7. (a) correct order is: Start
 Set counter to zero
 Enter password
 Search database
 Password correct
 Allow Access or Add 1 to counter
 Counter = 3?
 Display error message

- code might be: Start
 Set counter to zero
 Enter password
 Search database
 If password correct allow access
 Else add 1 to counter
 Loop until count = 3
 Display error message

Allocate marks as follows:

- Start first and display error message last
 - Counter zeroed before loop/enter password
 - Loop present
 - Add 1 to counter inside loop
 - Check counter =3 at end of loop
 - Allow access is an end condition
 - Display error message is an end condition
 - Enter password, Search DB, password correct (consecutive)
- } max. 6

- (b) (i) passwords can be guessed/seen/worked out etc. NOT hacking 1
- (ii) must use computer for any marks to be awarded
 biometric methods (1 mark) described (1 mark) eg iris /
 fingerprint scans 2
 OR smart / swipe cards + pin and description for 2 marks

Total 9 marks

TOTAL FOR SECTION A: 50 MARKS

Section B

8. (a) (i) unique identifier 1
 (ii) driver ID 1
 vehicle registration 1
 (b) (i) DRIVER 1
 (ii) max 1
 (iii) (max.) = 60 / (max.) 0 >59 / (max.) <61 1

Field name	Data type	Field length	Example
Start date	Date	8	23/10/05
Start time	Time	4/5	1200/12.00
Service ID	Number	3 to 5	123/12345
Driver ID	Text	8	Bloggs03
Vehicle registration	Text	7	x123abc
Destination code	Text	3 to 6	Ldn / Extr / Leeds

Start time: allow date/time (allow longer field length if example shows sensible format)

Driver ID: must be LLLLLLNN

Vehicle registration: must be LNNLLLL

Destination code: allow longer field length if example is reasonable

example must be plausible eg not all numbers

each row: data type and field length (1 mark) 5

sensible example **must match their data type/field length (1 mark)** 5

- (d) two checks:
 each sensible validation check (1 mark) using their example from table (1 mark)
 (NB only (1 mark) if check does not match example)
 possible checks include: length, presence, range, type format 4

Total 20 marks

9. (a) page identification / service number / service code }
 destination }
 intermediate stops } **max. 5**
 start time / arrival time(s) }
 7 Columns of seat vacancies }
 dates/ days as columns headings } 5

max. 3 marks if database used

indicating where a calculation may occur 1
must show total eg fares shown/seats remaining

- (b) get destination from customer
 get travel date / day from customer } any order
 get travel time from customer }
 open correct spreadsheet page
 check for vacancies
 if no vacancies, refer back to customer
 mark seat(s) as sold
 take payment
 print ticket(s) **NOT** postal
- Diagrams /
flowcharts
are fine
- max.
6

- (c) remove today's seating column
 add new column (to the left)
 date the new column
OR
 cut and paste/move columns to the right
 add new column (to the left)
 date the new column
- 3
- Total 15 marks**

10. (a) calculation performed 1
 involving position / GPS and time 1
 Head Office updates booth / processing done at booth 1

- (b) title
 company logo
 menu/icon system for selection
 sub-pages for each service
 back button or other means of return to main screen
 on-screen instructions / help system
 contact information
 physical buttons or similar controls
 facility for spoken instructions
- (1 mark)
each
- max.
6

- (c) any three of the following:
(1 mark) for item + (1 mark) for use for each
- Hardware:* (maximum two items)
- | | |
|--------------|-------------------------------------|
| card reader | to accept payment/read card details |
| printer | to print tickets |
| cash counter | to accept payment |
- NOT card or cash slots**
- Software:* (maximum two items)
- | | |
|-----------------|--------------------------------|
| sales routines | to check for/allocate seats |
| card validation | to accept payment / check card |
| drivers | for their hardware |
- 6

Total 15 marks

TOTAL FOR SECTION B: 50 MARKS

COMPUTING 7105, CHIEF EXAMINER'S REPORT

Paper 1

General Comments

The standard of answers provided by candidates was again of a high standard. Many centres had prepared their candidates well for the examination.

Examiners were pleased to see that the practice of fragmenting answers has almost stopped but some candidates are still not entering question numbers on the front of the examination paper. As reported last year, this puts an extra workload on examiners as time must be taken to complete this before marks can be aggregated to the front of the exam paper.

Section A

Question 1

- (a) Generally well answered by the majority of candidates. A minority of candidates confused fields with records and some candidates gave the contents of the field rather than the field name as requested.
- (b) Generally well answered.
- (c) Candidates lost marks here by not clearly indicating the field that needed to be searched - "we looked for a surfboard in the table".

Question 2

- (a) (i) Again generally well answered - some candidates believe the price of the product is encoded in a barcode; some even assumed barcodes can't hold numbers - this error tended to be centre specific.
- (ii) Many candidates were able to make the link between the coded information and the computer system.
- (b) (i) Generally well answered but there was too much evidence of 'quicker/faster' without qualification.
- (ii) Some candidates became confused here by giving advantages to the staff eg "easier for the staff" or "less tiring"; few made the link to stock control.

Question 3

- (a) Generally well answered with the majority of candidates gaining at least two out of the three marks available.
- (b) As in part (a), some good responses were offered. Most candidates solved the problem with anti-virus protection. Few referred to mechanical problems or damaged discs.

Question 4

Most candidates found this to be a difficult question and only gained one or two marks as they were unable to expand on any responses given. Too many relied on 'user friendly' and 'without it the computer wouldn't work'. These answers are not incorrect but are not **functions** of an operating system. The better candidates realised that security was a function of an operating system but failed to expand on this by giving specific examples.

Question 5

- (a) Many candidates gained full marks in this section. Some were a little too futuristic in the use of biometric detectors in a home environment, others were quite inventive with the types of sensors available.
- (b) There were some good examples of access problems given here, with many candidates aware of the problems caused by pets etc.
- (c) The weaker candidates had problems with this section by not appreciating the need for both sensors to be activated to give an alarm condition.

Question 6

- (a) This was answered well by the majority of candidates.
- (b) (i) Candidates demonstrated a very good understanding of an on-line booking system.
(ii) The correct answer was given here in nearly all cases.
- (c) Some good form designs were presented. Most candidates used tick boxes; few used drop-down lists or radio buttons. More use should have been made of control buttons for 'Submit' or 'Send' etc. Screen forms are difficult to use without these controls.

Question 7

- (a) There was good evidence of algorithms being taught but too few candidates used a 'loop' in the flowchart or when using structured pseudo-code. Some candidates were searching the password database before entering the password.
- (b) (i) Too many candidates referred to 'hacking' here. This was about the ease in which passwords could be seen or guessed etc.
(ii) Biometric methods were much in evidence but few candidates could expand on this to gain the full marks eg use a swipe card and then check the details in a database.

Section B

Question 8

- (a) Most candidates answered this correctly.
- (b) Again answered correctly by the majority of candidates.
- (c) This was a high-scoring question for many candidates. Some of the weaker candidates were offering incorrect field lengths. This should not have happened for some of the fields (driver ID and vehicle registration) since they were given in the Case Study.
- (d) Generally well answered but some candidates confused 'range' with 'length'.

Question 9

- (a) Good answers were given by many candidates and several gained full marks here.
- (b) Again some good responses given. Some candidates lost marks by not referring to a specific spreadsheet page having to be opened.
- (c) Poorly answered by most candidates. Candidates appreciated the need to create extra columns but few could give a complete picture of how to remove the old one and where to place the new one.

Question 10

- (a) Candidates demonstrated that they were aware of GPS, but few realised that entering the time was a requirement for this system.
- (b) Weak answers were given by the majority of candidates. Few made use of screen designs to maximise marks.
- (c) Most candidates described the need for a printer to produce tickets. Few could suggest suitable software - a printer driver, for example.

Paper 2 (Project)

A large majority of candidates was able to identify a suitable problem and develop it into a project. Many of the contexts were however somewhat unrealistic eg computerising a large hotel or a chain of supermarkets. This is allowable but can lead to unrealistic objectives and success criteria, which in turn makes the project more difficult in its subsequent stages.

There continues to be a problem with a lack of contents pages and/or page numbers. Centres should give firm guidance on this, especially where candidates do not write their projects up in the same order as in the specification. The page numbering should apply to all sections of the project including appendices, separate manuals and any other material which is in addition to the main write-up. Page numbers should not be restarted for each section of the write-up. Ideally, the project should be presented in the same order as is set out in the specification and coursework guide.

A number of centres are obviously providing their candidates with templates to follow. This is not necessarily a bad thing, since the coursework guide could itself be regarded as being a template. However, centres should make sure that any template they use is appropriate to the task and that it enables the candidates to cover the coursework requirements adequately. It was noticeable that some templates were causing candidates to lose considerable numbers of marks. Poor templates fell into two categories: over detailed and incomplete.

Over detailed templates are ones that include not only the main five sections plus some paragraph headings, but also sub-paragraphs, and in some cases bullet points and content. Centres are reminded that templates should only cover such things as order of work, headings, sub-headings and general guidance about style and presentation. **Templates should not contain suggested text, blank flow charts, sample screens or any other 'stock' material.** A number of candidates lost marks by including such material in their projects.

Incomplete templates are those which do not allow candidates to show their full ability. In too many cases, whole centres of candidates had worked to a prescriptive template and, as a result, had all missed out the same sections.

If supervisors wish to use templates, they are urged to do two things. One, to read the coursework guide carefully; and two, to ensure that the template both addresses all the marking points and also makes candidates think for themselves.

Each year it seems that an increasing number of candidates opt to do a project based on customising a software package. Access is a particular favourite but other packages were also used. In the great majority of such cases, the candidates had obviously produced their final submission by working directly with the package and then had produced their design from the final version. Frequently the designs were screen shots from the package and very often they included some of the data. Since the data should not have been entered until the Implementation stage, it made it difficult to award marks under Design in such cases. To compound the problem, candidates who produced this type of project tended to produce a test plan based on their already tested and working system, thus not showing any 'test and modify' procedures.

Prototyping an application in this way is a valid way of producing a project and can be given full credit under the present mark scheme, but candidates who use this method must ensure that they produce sufficient evidence of the process. There is an example of a prototyped project on the Edexcel website: www.edexcel-international.org. This gives detailed advice on how such a project should be written up so that candidates may get maximum credit for their work.

There remains a problem of too much reverse engineering. Centres must encourage candidates to draw up designs for all aspects of their work before they actually go and make it. Screen shots of completed projects cannot be counted as Design, especially if they contain data and are obviously part of a working system. Test plans should be included in the Design section rather than being left until the project is completed.

As in previous years, candidates did not provide enough evidence of their work. This causes problems in Design, Implement, and Evaluate. Candidates should be left in no doubt that marks can only be awarded for items that are included in the write-up. Markers do not know the candidates and have not seen undocumented work or running software. If a candidate claims to have done something, it is up to them to prove it.

Testing continues to cost candidates dearly. In far too many cases, candidates only submitted evidence of simple validations, with no attempt made to demonstrate that the application met the original objectives or success criteria. When actual testing was considered and a test plan had been produced in the Design stage, this section was usually done well; problems arose when the test plan was only considered after the project had been produced. In such cases, candidates usually only tested correct functioning. Candidates should be reminded that systems are rarely correct at the first attempt and that the process of testing and correcting should be described. Indeed, the correction process **must** be described in order to reach the higher mark bands.

Where tests had been done and evidence provided, there was frequently a lack of linkage between the tests and the evidence. Correct referencing is essential to gain full marks. Where both component and system / user testing is done, it should be clearly indicated. Many candidates simply combined such testing into one section and made little or no attempt to indicate which test applied to what. Evaluation was probably the weakest section. Very few candidates tried to relate their work to the specified outcomes and, where they did, it was even rarer for them to produce any evidence to back up their conclusions. In many cases this was a consequence of generalised objectives in the Analysis stage. There must be clear evidence that the objectives given in Analyse have been met in order to gain marks in the higher bands.

COMPUTING 7105, GRADE BOUNDARIES

Grade	A	B	C	D	E
Lowest mark for award of grade	63	52	41	36	28

Note: Grade boundaries may vary from year to year and from subject to subject, depending on the demands of the question paper.

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