

MARK SCHEME for the May/June 2014 series

0420 COMPUTER STUDIES

0420/32

Paper 3, maximum raw mark 60

This mark scheme is published as an aid to teachers and candidates, to indicate the requirements of the examination. It shows the basis on which Examiners were instructed to award marks. It does not indicate the details of the discussions that took place at an Examiners' meeting before marking began, which would have considered the acceptability of alternative answers.

Mark schemes should be read in conjunction with the question paper and the Principal Examiner Report for Teachers.

Cambridge will not enter into discussions about these mark schemes.

Cambridge is publishing the mark schemes for the May/June 2014 series for most IGCSE, GCE Advanced Level and Advanced Subsidiary Level components and some Ordinary Level components.

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1 (a) One mark per reason, any **three** of the following max **3** marks:

- show all stages/tasks to be done
- show the critical path/links between tasks
- show key project milestones
- show number of days to complete a task
- show estimated time to complete project
- track the actual progress made...
- ...compare it to the original estimate
- project management software allows for easy production / updating of Gantt chart
- easier to use/understand (than a PERT chart)
- allows sharing of information
- ensure project kept to an agreed timescale
- ensure project is kept to an agreed budget

[3]

(b) (i) One mark per reason, any **three** of the following max **3** marks:

- gives first-hand knowledge of how system works
- as analyst sees exactly what is done
- ...and so obtains reliable information
- reduced disruption to work in progress/staff
- little planning required etc.

[3]

(ii) One mark per reason, any **three** of the following max **3** marks:

- can ask standard questions
- ...so results can be easily/efficiently/quickly analysed
- respondents can remain anonymous
- can respond at a convenient time
- no need for analyst to be present
- more efficient/less expensive for large groups
- more efficient/less expensive geographically dispersed groups
- incentives can be provided to return questionnaire etc.

[3]

(c) **Content** – One mark for any **one** of these to a maximum of 6 marks

- appropriate title e.g. Author's House Tours
- calendar for selection of tour day
- list of times for selection of tour time
- (dropdown menu) for number of people in tour
- entry of name
- entry of address
- entry of telephone number
- entry of email address
- option to confirm
- secure payment/option to proceed to payment
- submit
- contact us option

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Layout

- screen is well laid out e.g. heading, use of company logo etc.
- screen not too cluttered or too empty
- order of boxes etc. is logical
- clearly a computer-based form

One mark for any one of these to a maximum of 3 marks

Maximum total marks 8

[8]

(d) Information – email address / smart phone number

Why required – any **two** points

- to send confirmation of the tour
- ...and details of the tour
- contact customer if there is a problem
- send tickets/barcode for printing

[3]

(e) (i) One mark for per process, max 2

- display/check available booking slots/date and time
- update booking slots/date and time
- taking payment
- emailing/sending to smart phone the barcode/ticket

One mark per input, max 2

- date, time of booking, number of people
- personal details, name, address, phone no, email
- credit card details

One mark per data store, max 2





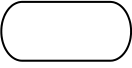




- (author house) tour bookings
- personal details
- database (only if none of the above are given)

One mark for output

- available booking slots/date and time (on screen)
- ticket with barcode

[5]

(ii) One mark per symbol **and** description must be used in systems flowchart

 Hard disk (file)	 Connector (a link to or from another part of diagram)	 Input/Output operation
 Visual Display Unit (Monitor)	 Terminator (Start and end of the flow diagram)	 Data processing operation
 Document output (printed hard copy)	 Manual input (e.g. keyboard)	 Communication line (e.g. telephone line)

[4]

(f) One mark per point

- encrypt the data
- use SSL (secure socket layer)
- use HTTPS:
- use secure cookies
- make use of passwords (and user names)
- make use of firewalls
- anti-malware allow example e.g. anti-virus
- CAPTCHA – test to check whether user is human

[3]

(g) (i) Up to **three** points from e.g.

- booking software immediately/readily available
- already tried and tested
- technical support online/by phone
- usually compatible with other existing software
- cheaper than developing bespoke software
- large user base for mutual support

[3]

(ii) Up to **two** points from e.g.

- cannot be tailored to the meet the requirements for the house tour booking system...
- ...employees may need to change their way of working
- no contact with the actual programmers if there is a problem
- may contain unwanted features

[2]

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- (h) One mark per data type, one mark per example of number of people in tour group, one mark per data type, one mark per reason must match example and data type. The following examples only there are many correct answers.
- normal
 - 7
 - this checks that system can accept appropriate inputs

 - erroneous
 - -2
 - checks that negative numbers are rejected

 - extreme/boundary
 - 10
 - checks that extreme data is accepted/boundary data treated appropriately
- [9]

- (i) Marking points any 6
- Input number of people (not inside a loop)
 - Check in range
 - 1 to number_of_places_left_on_tour
 - If not
 - Output error message
 - Otherwise
 -deduct number of people from number_of_places_left_on_tour

Sample algorithm (worth all 7 marking points available)

```
input number_of_people (1)
if number_of_people < 1 or number_of_people >
    number_of_places_left_on_tour (2)
then (1)
    print "Number of people must be fewer than the
        number of places left on this tour" (1)
else (1)
    number_of_places_left_on_tour
    ←number_of_places_left_on_tour - number_of_people (1)
```

[6]

- (j) Two marks for the type of testing up to two types from e.g.
- black box
 - white box
 - system
 - alpha
 - beta
 - user
 - testing that the system meets its requirements
 - volume testing

One further mark for a description of one of the types of testing given [3]

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- (k) **One** mark for chosen method
Two marks for description of that method
Two marks for reasons chosen, must match method chosen and be applied to the house tours.

Method

- Direct changeover

Description

- new system replaces old system immediately/overnight
- no transition time/overlap

Reason

- no need to run 2 systems side by side so less expensive for the company running the house tours
- immediate benefits to company from new system
- less disruptive to booking staff
- more likely to work when first installed since it will have been fully tested first

Method

- Pilot implementation

Description

- new system introduced for just type of house tour
- then assessed before introducing for other house tours

Reason

- if the new system fails then only one type of house tour is affected
- makes sure system fully works before adopting for another tour
- can revert to old system as still in operation at other houses