CAMBRIDGE INTERNATIONAL EXAMINATIONS

International General Certificate of Secondary Education

MARK SCHEME for the May/June 2013 series

0420 COMPUTER STUDIES

0420/31 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 2013 series for most IGCSE, GCE Advanced Level and Advanced Subsidiary Level components and some Ordinary Level components.

1 (a) One per reason, max 3 marks:
- analyse the critical path for a complex problem with many tasks
- track the actual progress made and compare it to the original estimate
- project management software allows for easy production and updating of PERT charts
- show all stages/tasks to be done
- 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
- allows sharing of information
- ensure project kept to an agreed timescale
- ensure project is kept to an agreed budget   [3]

(b) (i) **Method** - Questionnaire/survey
Explanation any 2 points
- asks standard questions
- ....so results can be easily/quickly analysed
- no need for analyst to be present
- more efficient for large groups
- ….more efficient for dispersed groups
- can provide incentives to return questionnaire
- less expensive than interviewing *(must be qualified)*
- respondents can remain anonymous
- can be completed at a convenient time   [3]

(ii) none of the below are suitable, the explanation must match the method and explain
why the method is **not** suitable

Method - Interview
Explanation   any 2 points
- too many customers to interview
- ....so very time consuming
- difficult to consolidate a variety of answers

Method - observation
Explanation   any 2 points
- many different locations
- ....as people would probably use a telephone in their own home
- people may not want to be visited at home
- very time consuming

Method - document search
Explanation   any 2 points
- wouldn't obtain opinions from people
- would have to rely on any written feedback already given to the company
- …….would probably be very positive or negative
- …….as customers don't usually write about their rental procedures
[3]

(c) Content

- appropriate title e.g. Holiday Villa Rental
- dropdown menu for villa number
- calendar for selection of rental week
- dropdown menu for number of people aged 18 or over
- dropdown menu for number of children under 18
- entry of name
- entry of address
- entry of telephone number
- entry of email address
- login
- option to confirm
- secure payment
- contact us option
- terms and conditions
  One mark for any one of these to a maximum of 7 marks

Layout

- screen is well laid out e.g. heading, use of company logo etc.
- screen not to cluttered or too empty
- order of boxes etc is logical
- font size is appropriate and readable
- clearly a computer-based form
 One mark for any one of these to a maximum of 3 marks [8]

Maximum total marks 8

(d) Information   - email address

     Why required   any 2 points
- to send receipt for deposit
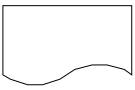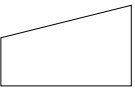- ....details of the holiday villa
- ….confirmation of rental
- reminder of final payment
- very time consuming [3]

(e) (i) 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]

(ii) One mark per process, max 3:
- Selection of villa
- Checking availability
- Updating weeks rented
- Creation of rental information
- Taking deposit/checking credit card
- Email confirmation/villa details/receipt

One mark per input, max 3
- Villa information, number and rental week
- Personal details, name address, phone no, email
- Credit card details
- Rental party details

One mark per data store, max 2
- Villa details
- Villa weeks rented/booked
- Personal details
- database *(only if none of the above are given)*

One mark per output, max 3
- Availability of villa (screen not paper)
- Confirmation
- Receipt for deposit
- Villa details [8]

(f) One mark per point
- Encrypt the data
- Use SSL (secure socket layer)
- Use secure cookies
- Make use of passwords
- Make use of firewalls [3]

(g) (i) up to **three** points from e.g.
- can be tailored to the meet the requirements for villa rental
- in contact with the actual programmers if there is a problem
- software can develop as it is used
- doesn't contain unwanted features [3]

(ii) up to **two** points from e.g.
- not immediately available
- more expensive to develop than purchasing "off-the-shelf" software
- not fully tested
- no Internet tutorials available
- no support helpline available [2]

(h) For each of **two** types of test data

One mark per type, one mark per example must be appropriate to this system and match type, one mark per reason must match example.
The following are examples only there are many correct answers.

- Normal
- 1
- this checks that system can accept appropriate inputs

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

- Extreme/boundary
- 0
- checks that boundary/extreme data is accepted [6]

(i) Marking points
- Initialisation
- Loop control
- Input number of children inside loop
- Check in range 0
- …..to 5
- Output error message
- Increment error count
- Exit if 3 attempts have been made

Sample algorithm

error_count =0   (1)
repeat
   input number_of_children   (1)
   if number_of_children < 0 **or** number_of_children > 5   (2)
     then
     print "Number of children must be between 0 and 5"   (1)
     error_count = error_count +1   (1)
until error_count =0 **or** error_count =3   (1)
if error_count =3 **then** exit   (1)

[6]

(j) Up to **three** advantages with a matching reason from case study e.g.

- Can book at anytime
- Website open 24/7 unlike phone line

- Easier to check availability
- Website has a search facility for availability

- Easier to select villas using different criteria
- Web site has a search facility with several criteria   [6]

(k) up to **two** points from
- consider if objectives of new system have been met
- look at results from tests
- discuss with company whether or not new system works
- ask the people renting whether or not the new system was easy to use
- compare usage before and after.   [2]