CAMBRIDGE INTERNATIONAL EXAMINATIONS

Cambridge Ordinary Level

MARK SCHEME for the October/November 2014 series

7010 COMPUTER STUDIES

7010/32 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 October/November 2014 series for most Cambridge IGCSE®, Cambridge International A and AS Level components and some Cambridge O Level components.

CAMBRIDGE
International Examinations

1 **(a)** Max **two** marks per tool, one mark for identifying a tool, one mark for a description:
   – **Tool** – Gantt Chart
   – **Description for Gantt** – e.g. show all stages/tasks to be done/show the critical path(s)/show key project milestones/progress of tasks as % completed/number of days to do a task

   – **Tool** – PERT Chart
   – **Description for PERT** – e.g. Program/Project Evaluation and Review Technique/used for critical path analysis/used for complex problems with multiple tasks

   – **Tool** – e.g. Project Management Software/Spreadsheet (allow 2 different types of software provided different valid reasons for use are given)
   – **Description** – e.g. allows progress to be tracked/allows easy production and updating of Gantt/PERT charts

[4]

   (b) Max **three** marks for each method that mentions case study, max two marks per method if there is no mention of the case study:

   One mark per method, one mark for explaining why the method will be used for this case study, one mark for a further explanation.

   Method: questionnaires/survey
   – can ask standard questions
   – …so results can be analysed
   – no need for analyst to be present
   – respondents can remain anonymous, etc.

   Method: interviewing
   – allows questions to be tailored to those recording the race results
   – allows follow up questions to be asked, etc.

   Method: document search
   – analyst sees exactly the format of the recorded results/certificates
   – can be done at any time/place
   – no need to disrupt sports events, etc.

   Method: observation
   – gives first-hand knowledge of how race results recording system works
   – as analyst sees exactly how the results are recorded
   – ...and so obtains reliable information
   – little planning required, etc.

[6]

(c) (i) Content
- – appropriate title, e.g. Sports Day Certificate
- – name
- – house name
- – date/year
- – number of points awarded
- – indication of being a winner
One mark for any one of these to a maximum of **4** marks

Layout
- – report looks like a certificate
- – report is well laid out
- – clearly a report, e.g. no drop down boxes, etc.
One mark for any one of these to a maximum of **3** marks

Maximum total marks **6** [6]

(ii) any two from, e.g.
- – add name of race/event
- – add race winner/First place
- – remove number of points [2]

(d) One mark for item, up to **two** marks for reasons for this case study. Reasons for choice must match item and be relevant for this case study.
- – large screen
- – to display results (outdoors)
- – so everyone can see them

- – printer
- – print out lists of race entries/results
- – print out winners' certificates

- – bar code reader/scanner/RFID reader
- – to identify runners
- – log times

- – WAP
- – for remote
- – connection of laptop/screen
- – to school intranet [3]

(e) (i) One mark per process, max 3:
- – adding student to race list
- – recording race results
- – updating house points totals
- – updating individual student scores
- – printing certificates
- – checking/verification of results
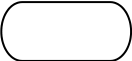
One mark per input, max 2
– name, race, (house)
– (name), result/position

One mark per data store, max 2
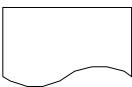– race Entries/Results
– student details
– house details
– database (only if none of the above are given)

One mark per output, max 3
– race entry sheets (paper/screen)
– house points (screen)
– race certificates (paper)
– final winner certificates (paper) [8]

(ii)

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) **(i)** One mark per point
– allocate a unique bar code for each student
– provide the students with their barcode (on shirt/wristband, etc.)/ use an existing school barcode
– provide/install barcode readers
– set up software to work with barcodes
– add barcodes to student records [3]

(ii) One mark per point
– no need to ask for names/recognise students/no unauthorised entries
– saves time on data entry
– reduced data entry errors
– students can keep the same barcode for several years
– could be used for other systems/can make use of existing student barcodes [2]

(g) One mark per software package, one mark for explaining why the package will be used for this case study, allow specific examples.

Package: spreadsheet
– can automate calculations for updating point totals
– house results can be displayed graphically
– validation rules can easily be set up
– can integrate with word processor/OLE, etc.

Package: word processor
– mail merge can be used to print certificates
– can integrate with spreadsheet/database/OLE
– can set up templates for certificates, etc.

Package: database (management system)
– good management of data for students and houses
– can automate calculations for updating point totals
– can link to other data sources, e.g. school records
– easy to design input/output, etc.
– can integrate with word processor/OLE, etc.

Package: presentation/DTP
– design certificates
– can mail merge with other data sources, e.g. school records   [4]

(h) Marking points max 6
– loop through all races
– identify/input race
– input first placed student
– input second placed student
– input third placed student
– look up/input each student's house
– check house for each place
  • add 10 to correct house total for first
  • add 5 to correct house total for second
  • add 2 to correct house total for third
– display house names and updated totals

Or
– loop through all races
– identify/input race
– loop
– …for number of students in race
– input student
– input place/points
– look up/input each student's house
– add student points to correct house total
– display house names and updated totals

[6]

© Cambridge International Examinations 2014

Sample algorithm there are many different ways of doing this

```
Input race                                                    (1)
input first_student                                           (1)
lookup first_house
if first_house = house1 then total1 = total1 + 10
if first_house = house2 then total2 = total2 + 10
if first_house = house3 then total3 = total3 + 10
if first_house = house4 then total4 = total4 + 10             (1)
input second_student                                          (1)
lookup second_house
if second_house = house1 then total1 = total1 + 5
if second_house = house2 then total2 = total2 + 5
if second_house = house3 then total3 = total3 + 5
if second_house = house4 then total4 = total4 + 5             (1)
input third_student                                           (1)
lookup third_house                                            (1)
if third_house = house1 then total1 = total1 + 2
if third_house = house2 then total2 = total2 + 2
if third_house = house3 then total3 = total3 + 2
if third_house = house4 then total4 = total4 + 2              (1)
print "House 1 ", total1
print "House 2 ", total2
print "House 3 ", total3
print "House 4 ", total4                                      (1)
```

[6]

(i) One mark per point

Test data max 2
– use of test data sets
– normal test data has known outcomes
– extreme test data checks validation rules
– abnormal test data should produce error messages
– mention of normal, abnormal, and extreme data
  (all 3 with no valid expansions, one mark if above not given)

Types of testing max 2
– black box
– white box
– system
– alpha
– beta
– user, etc.

Other
– testing that the race recording system meets the requirements for the school   [4]

(j)   **two** marks for description of parallel running
up to **two** marks for reasons chosen, for **two** marks at least one reason must apply to school sports day recording system.

Description – operate both systems together side by side
– for one sports day
Reason – good for training/familiarisation results recorders
– results from both systems can be compared
– less risk of failure
– if <u>new system</u> fails results recorders can use old manual system as a backup

[4]

(k) up to **four** points from
– consider if objectives/requirements of new system have been met
– compare results with old and new systems
– …obtained during parallel running
– discuss with results recorders whether or not new system easy to use
– ask the students whether or not the new system worked well
– ask spectators if new system worked well   [4]