MARK SCHEME for the October/November 2006 question paper

0418 INFORMATION TECHNOLOGY

0418/01   Paper 1, maximum raw mark 120

This mark scheme is published as an aid to teachers and students, 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.

All Examiners are instructed that alternative correct answers and unexpected approaches in candidates' scripts must be given marks that fairly reflect the relevant knowledge and skills demonstrated.

Mark schemes must be read in conjunction with the question papers and the report on the examination.

The grade thresholds for various grades are published in the report on the examination for most IGCSE, GCE Advanced Level and Advanced Subsidiary Level syllabuses.

* CIE will not enter into discussions or correspondence in connection with these mark schemes.

CIE is publishing the mark schemes for the October/November 2006 question papers for most IGCSE, GCE Advanced Level and Advanced Subsidiary Level syllabuses and some Ordinary Level syllabuses.

1 **A** Laptop computer
   B Speakers
   C Inkjet printer
   D Web cam
   E Monitor
   1 mark each   5 marks

2 Memory Stick
   Hard disc
   1 mark each   2 marks

3 FALSE
   TRUE
   TRUE
   TRUE
   1 mark each   4 marks

4 Optical Mark reader → printing out car designs

   Plotter → reading information from credit cards

   Magnetic stripe reader → choosing from set of options

   Touch screen → making backup copies

   Zip drive → reading information from students' exam answers

   1 mark each correct arrow   5 marks

5 Database software
   Spreadsheet software
   Word processing software
   1 mark each   3 marks

6 **(a)** OCR
   (b) direct
   (c) sensor
       1 mark each   3 marks

7 **(a) (i)** ring   1 mark
       (ii) bus   1 mark

   (b) Local area network   1 mark

8   FORWARD 20   FORWARD 20
RIGHT 90   RIGHT 90
PENUP   PENUP
FORWARD 5   FORWARD 5
PENDOWN   PENDOWN
FORWARD 20   OR   FORWARD 20
RIGHT 90   RIGHT 90
FORWARD 50   FORWARD 50
RIGHT 90   REPEAT 2
FORWARD 25   RIGHT 90
RIGHT 90   FORWARD 25
FORWARD 25   END REPEAT

   1 mark each group of statements   5 marks

9   **(a)**   **two** from
Observation 1 mark, Watching people in their work practices – 1 mark
Questionnaires 1 mark, recording of responses to questions to users about the
system – 1 mark
Interviews 1 mark, face to face questions to users about the system – 1 mark
Examining documents 1 mark, looking at/through current paperwork – 1 mark   4 marks

   (b)   **four** from
data capture forms
input screens/user interface
report layouts
output screens
validation routines
queries/searches
macros   4 marks

10   suitable example for on-line processing i.e. booking systems, cash machines, EFTPOS   1 mark
suitable description such as input data is acted upon immediately and files updated immediately 1 mark
suitable example for batch processing, such as cheque processing, payroll, utility bills, stock control
(some types)   1 mark
suitable description such as data is collected altogether before being input to the system/data is
processed in one go   1 mark

11   **(a)**   **two** from
ROM cannot be changed/RAM can be changed
RAM can be read from and written to
ROM is read only memory and RAM is random access memory
ROM is non-volatile/RAM is volatile   2 marks

   (b)   holds instructions that need to be unchanged such as BIOS/program cycles in a washing
machine/program instructions in games such as gameboys, playstations, etc.   1 mark

12   **(a)**   range check   1 mark

   (b)   **(i)**   0/45/60   1 mark
         (ii)   0/60   1 mark
         (iii)   87   1 mark

   (c)   **(i)**   =if(d2<35,"Fail","Pass") / =if(d2>=35,"Pass","Fail")
         1 mark for correct condition
         1 mark for "Pass", "Fail"   2 marks

     (ii) highlight e2 to e32 – 1 mark
         click on fill down – 1 mark
         OR
         highlight e2 and show fill handle – 1 mark
         drag down to e32 – 1 mark
         OR
         highlight e2 and click on copy – 1 mark
         highlight e3 to e32 and click on paste – 1 mark   **2 marks**

  (d) Spreadsheet
      Spreadsheet
      Word processor
      Spreadsheet   **4 marks**

  (e) **two** from:
      real thing may be:
      too dangerous
      too large a time scale required
      wasteful of materials/too expensive to build
      It's easier to alter a model
      Any other suitable answer   **2 marks**

13 (a) computers work with digital data   **1 mark**
      analogue data must be converted into data which the computer can understand   **1 mark**

  (b) analogue to digital converter/ADC   **1 mark**

  (c) **two** from:
      Computer readings are more accurate.
      Readings can be taken more frequently/continuously.
      Nurses can get tired and forget to take readings.
      Nurses are so busy they might not be able to take readings regularly.
      Up to date readings.   **2 marks**

14 (a) **four** from:
      input screen asking for sample details
      sample details are typed in
      expert system compares them with those in the knowledge base
      using inference engine
      percentage probability is suggested for each mineral
      user makes decisions based on output   **4 marks**

  (b) **two** from:
      Car fault diagnosis
      Medical diagnosis
      Tax
      Chess games
      Animal/Plant identification
      Weather forecasting   **2 marks**

15 (a) (i) direct/random   1 mark
        (ii) hard/floppy disc/zip disc/jaz disc   1 mark

     (b) **two** from:
          pupil changes phone number
          pupil changes address
          pupil changes form/year/grade
          medical history changes
          pupil gains qualifications
          pupil leaves school
          pupil changes name/parents   2 marks

     (c) **two** from:
          put password on computer
          put password on file
          lock office door when not in use
          encrypt data
          stores data on removable medium/device/removes data to secure location   2 marks

     (d) A copy of file(s)/data   1 mark
          stored on alternative medium/in a separate room   1 mark
          to be used in case original is corrupted   1 mark

16 (a) user id/account number   1 mark
          password/PIN   1 mark

     (b) **two** from:
          Don't have to waste time travelling long distances to banks.
          Don't have to spend money on travelling expenses travelling long distances to banks.
          No embarrassment of having to ask for loans face to face.
          Can bank when banks are closed.
          Personal security reasons.
          People with disabilities find it easier.   2 marks

     (c) **two** from:
          fewer cashiers needed – less spent on wages
          fewer branch offices needed – less spent on rates/rent
          less actual cash handled – fewer robberies   2 marks

     (d) **two** from:
          use of encryption key
          encoding of data
          so that data is unintelligible
          needs translating using a special key   2 marks

     (e) **two** from:
          Security of information transmitted over the internet.
          Lose personal touch.
          Less opportunity for socialising with friends/neighbours.
          More expensive phone bills.
          Lack of exercise.
          Might not be able to use the phone if Internet is dialup.
          Might be domestic disputes over whose turn it is to use the Internet.   2 marks

17 **five** max from:
    ISBN
    Book data (title, author, category, hardback/softback, publisher, particular shop/branch,
    any other suitable item of data.) – 2 marks for 4 items, 1 for 3 items else 0
    Selling price/cost price
    Information fills the page and is clearly an input screen
    Appropriate spaces after each field   5 marks

18 (a) (i) bar code reader/keypad   1 mark

(ii) magnetic stripe reader/keypad (only if not given in i)   1 mark

(b) **five** from:
product number is validated
using check digit
product number is compared with each item
a match would be made with 002136987421
number in stock is reduced by 1
163 becomes 162
Number in stock/162 is compared with…
…is compared with re-order level.150
If equal then needs re-ordering   5 marks

(c) **four** from:
PIN is checked
supermarket computer contacts bank computer
using sort code present on card
expiry date check carried out on card
existency check carried out on card/account number
matching account details looked up on file
balance/credit check is carried out on account
if available funds present money is deducted from account and added to supermarket
bank account/transferred from customer account to supermarket account   4 marks

19 (a) **two** from:
take photos using a digital camera – 1 mark
download from camera and save – 1 mark
OR
take photos using traditional camera – 1 mark
scan the developed photo/develop onto CD ROM and save – 1 mark
OR
find images on the Internet – 1 mark
copy and paste/download images – 1 mark
OR
find appropriate images of Clipart – 1 mark
copy and paste/download images from a CD ROM – 1 mark
OR
scan images – 1 mark
save images – 1 mark
OR
use of art/drawing package – 1 mark
save image – 1 mark   4 marks

(b) **three** from:
create new slide
import/insert/copy and paste images
insert sound file
create text box
type in text (in text box)   3 marks

20 **seven** from:
pupils:
   advantages:
   much wider source of knowledge
   up to date information
   better quality diagrams/charts
   easier to find relevant information
   (use of emails) so no need to carry bags

   disadvantages:
   can easily get sidetracked looking at irrelevant sites
   can be lulled into plagiarism
   need to acquire skills in searching techniques

teachers:
   advantages:
   can set more demanding tasks
   can have work emailed to them
   work is more presentable – easier to mark
   pupils find learning more interesting
   more interesting resources available

   disadvantages:
   difficult to know if it is the pupil's own work
   too many emails can overload teacher and/or system
   viruses can cause system to break down

school:
   advantages:
   pupils more motivated – better exam results
   pupils more motivated – better school environment

   disadvantages:
   pupils may access unsavoury sites
   pupils may download coursework
   expense of networking/ISP rentals
   expense of phone bills

one for reasoned conclusion   8 marks